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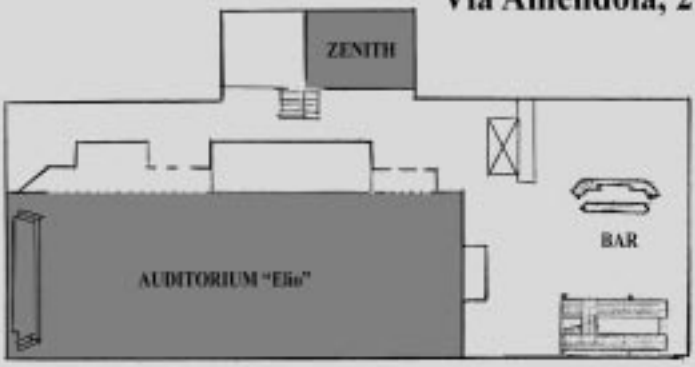
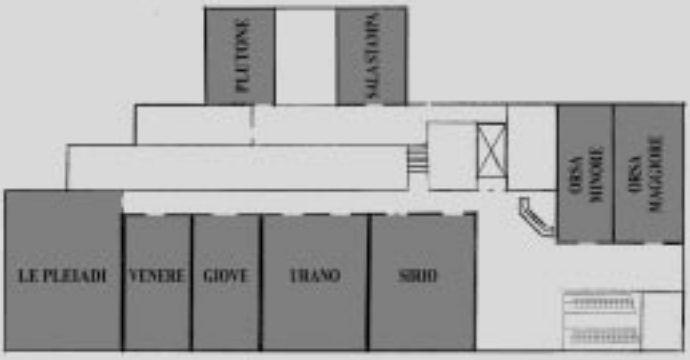
PALAZZO DEI CONGRESSI

Via Amendola, 2



2nd FLOOR



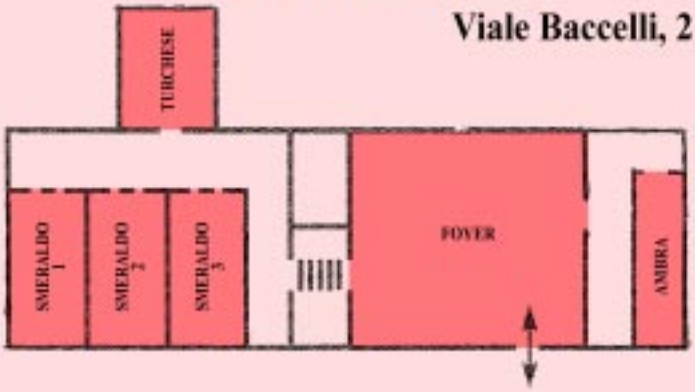
1st FLOOR

GROUND FLOOR

VITTORIA CONGRESSI

Congress Centre Hotel Vittoria

Viale Baccelli, 2



Symposia held at
"PALAZZO DEI CONGRESSI"

Via Amendola 2

Symposium CA
Ceramic Powders: Synthesis Processing and Sintering

Symposium CB
Novel routes for Ceramics Synthesis and Processing

Symposium CC
Progress in the Understanding and Control of Ceramics Surfaces for Tribology and Corrosion

Symposium CD
Ceramic Joining

Symposium CE
Ceramics and Composites in Extreme Environments

Symposium CF
Ceramics for Chemical, Electrochemical and Environmental Applications

Symposium CG
Ceramic Thin Films and Coatings for Protective, Tribological and Multifunctional Applications

Symposium CH
Advances in Electrical, Magnetic and Optical Ceramics

Symposium CI
Magnetic and Transport Properties of Oxides

Symposia held at
"VITTORIA CONGRESSI"

Viale Baccelli 2

4 min walking distance from the "Palazzo dei Congressi"

Symposium CJ
Science and Technology for Silicate Ceramics

Symposium CK
Geopolymers and Geocements

Symposium CL
Refractoreis: Recent Developments in Materials, Production and Use

2nd International Conference
Disclosing Materials at Nanoscale

6th International Conference
Advanced Inorganic Fibre Composites for Structural and Thermal Management Applications

CONGRESS OUTLINE

SYMPOSIUM CA

Ceramic Powders: Synthesis, Processing and Sintering

SYMPOSIUM CB

Novel Routes for Ceramics Synthesis and Processing

Focused Session ***CB-11***

Self-propagating High-temperature Synthesis of Ceramics

Focused Session ***CB-12***

Layered and Functionally Graded Materials

SYMPOSIUM CC

Progress in the Understanding and Control of Ceramics Surfaces for Tribology and Corrosion

SYMPOSIUM CD

Ceramic Joining

SYMPOSIUM CE

Ceramics and Composites in Extreme Environments

SYMPOSIUM CF

Ceramics for Chemical, Electrochemical and Environmental Applications

SYMPOSIUM CG

Ceramic Thin Films and Coatings for Protective, Tribological and Multifunctional Applications

SYMPOSIUM CH

Advances in Electrical, Magnetic and Optical Ceramics

Focused Session ***CH-6***

Multiferroics

SYMPOSIUM CI

Magnetic and Transport Properties of Oxides

SYMPOSIUM CJ

Science and Technology for Silicate Ceramics

SYMPOSIUM CK

Geopolymers and Geocements: Low Environmental Impact Ceramic Materials

SYMPOSIUM CL

Refractories: Recent Developments in Materials, Production and Use

Serial Conferences

CM

2nd International Conference

Disclosing Materials at Nanoscale

CN

6th International Conference

Advanced Inorganic Fibre Composites for Structural and Thermal Management Applications

Meeting Rooms by Symposia / Conferences

PALAZZO DEI CONGRESSI

OPENING SESSION ..... AUDITORIUM

Symposium CA ..... AUDITORIUM
..... VENERE

Symposium CB ..... LE PLEIADI
..... ORSA MAGGIORE
..... ORSA MINORE
..... ZENITH

Symposium CC ..... ZENITH

Symposium CD ..... ZENITH

Symposium CE ..... VENERE

Symposium CF ..... ALBA 2

Symposium CG ..... URANO
..... GIOVE

Symposium CH ..... SIRIO
..... GIOVE
..... ORSA MAGGIORE

Symposium CI ..... GIOVE
..... URANO

VITTORIA CONGRESSI

Symposium CJ ..... SMERALDO 1

Symposium CK ..... SMERALDO 1
..... SMERALDO 3

Symposium CL ..... TURCHESE
..... SMERALDO 3

Conference CM ..... SMERALDO 2
..... AMBRA

Conference CN ..... AMBRA

Events by Day

Sunday June 6

11.00-13.00 15.00-19.00

REGISTRATION
Palazzo dei Congressi
Via Amendola, 2
Montecatini Terme, Pistoia, Italy

15.00-19.00
POSTER MOUNTING

Monday June 7

Morning: 9.30-13.00

Opening Session
Welcome Addresses

Formal induction of the new Members of the World Academy of Ceramics (13th Election)

Plenary Lectures (C:PL1-PL3)

8.30-13.00
POSTER MOUNTING

Afternoon: 15.00-19.30

Symposium CA	(CA-1:IL01-IL04) (CA-1:IL05-L09)
Symposium CB	(CB-1:IL01-IL04) (CB-1:IL05-IL07b) (CB-11.1:IL01-L03) (CB-12.1:IL01-L04)
Symposium CD	(CD-1:IL01-IL04) (CD-1:IL05:L08)
Symposium CE	(CE-1:IL01-L05) (CE-3:IL01-L04)
Symposium CF	(CF-1:IL01-IL03) (CF-3.2:IL01-L05)
Symposium CG	(CG-1:IL01-L05) (CG-1:IL06-L09)
Symposium CH	(CH-1:IL01-IL04) (CH-1:IL05-IL07) (CH-6.1:IL01-IL03) (CH-6.1:IL04-IL07)
Symposium CI	(CI-1:IL01-IL03) (CI-1:IL04-L06)
Symposium CJ	(CJ-1:IL01-IL03)
Symposium CK	(CK:KL) (CK-1:IL01-IL02)
Symposium CL	(CL:KL) (CL-1:IL01-IL03) (CL-2:IL01-L04)
Conference CM	(CM-1:IL02-IL04) (CM-1:IL05-L07)

15.00-19.00
POSTER MOUNTING

21.00-23.30
Opening Concert
"Opera Gran Galà"

Tuesday June 8

Morning: 8.30-13.00

Symposium CA	(CA-1:IL10-L13) (CA-2:IL02-L05)
Symposium CB	(CB-3:IL01-IL03) (CB-3:IL04-L08) (CB-4:IL01-L05) (CB-10:L04-L06) (CB-11.2:IL01-L04) (CB-12.1:IL06-L10)
Symposium CD	(CD-1:L09-IL10 (CD-2:IL01-IL03) (CD-3:IL01-IL03)
Symposium CE	(CE-1:IL11-L16) (CE-1:IL17-IL18) (CE-2:IL01-IL02)
Symposium CF	(CF-2:IL06-L08) (CF-4.2:IL01-L05)
Symposium CG	(CG-1:IL10-L13) (CG-2:IL01-L06)
Symposium CH	(CH-1:IL08-IL11) (CH-2:IL01-IL04)
Symposium CI	(CI-2:IL01-IL06)
Symposium CJ	(CJ-1:IL04-L06)
Symposium CK	(CK-1:IL03-L07) (CK-3:L13)
Symposium CL	(CL-1:L04-L08) (CL-3:IL01-L05)
Conference CM	(CM-1:IL10-L12) (CM-2:IL01-IL04)
Conference CN	(CN-1:IL01-L04) (CN-1:IL06-L07)

Afternoon: 15.00-19.30

Symposium CA	(CA-1:IL06) (CA-1:L15-L20) (CA-2:IL06-L09) (CA-4:L05-L11)
Symposium CB	(CB-1:L08-L13) (CB-1:L14-L18) (CB-7:L07-L11) (CB-8:L04-L09) (CB-11.2:IL05-L08) (CB-12.2:IL01-IL03)
Symposium CE	(CE-2:IL03-L07)
Symposium CF	(CF-1:L05-L07) (CF-2:IL01-L05)
Symposium CG	(CG-1:IL14-L18) (CG-2:IL07-L10)
Symposium CH	(CH-2:IL05-L09) (CH-2:IL10-L13) (CH-6.3:L01-L04) (CH-6.4:IL02-L04)
Symposium CI	(CI-3:IL01-L05) (CI-3:IL06-IL08)
Symposium CJ	(CJ-1:IL08-L11)
Symposium CK	(CK-1:IL08-L12)
Symposium CL	(CL-2:IL05-L08) (CL-3:IL06-L10)
Conference CM	(CM-1:IL13-IL14) (CM-1:L16-L21) (CM-2:IL05) (CM-2:L10-L14)

Wednesday June 9

Morning: 8.30-13.00

Symposium CA	(CA-2:IL10-IL13) (CA-2:IL14-IL15) (CA-5:IL01-IL02)
Symposium CB	(CB-5:IL01-L05) (CB-7:IL01-IL02) (CB-11.3:IL01-L04) (CB-11.4:IL01-L04)
Symposium CC	(CC-1:IL02-L06)
Symposium CD	(CD-2:IL04-IL05) (CD-3:IL06-IL07)
Symposium CE	(CE-1:IL06-L10) (CE-2:IL08-L12)
Symposium CF	(CF-4.1:IL01-L05) (CF-4.1:IL06-L09)
Symposium CG	(CG-2:IL13-L14) (CG-4:IL01-L03)
Symposium CH	(CH-3:IL01-L04) (CH-3:IL05-L07) (CH-6.4:IL05-IL08) (CH-6.6:IL06-L09)
Symposium CI	(CI-4:IL01-L05) (CI-5:IL01-IL03)
Symposium CJ	(CJ-2:IL01-L04) (CJ-2:IL05-L07)
Symposium CK	(CK-1:IL13-L17) (CK-1:IL19-L22)
Symposium CL	(CL-3:L03) (CL-3:IL11-L14) (CL-4:L06-L11)
Conference CM	(CM-2:IL06-L09) (CM-3:IL02-IL04)
Conference CN	(CN-2:L03-IL05) (CN-3:IL01-L04)

14.45-20.20 *Tour to Florence*
Special shuttle train reserved to CIMTEC participants
Meeting point: Montecatini Terme Central Railway Station (Piazza Italia)
Meeting time: 14.45

Thursday June 10

Morning: 8.30-13.00

Symposium CA	(CA-3:IL01-L04) (CA-4:IL02-IL04) (CA-4:IL18)
Symposium CB	(CB-4:L06-L11) (CB-6:IL01-L05) (CB-7:IL04-IL06) (CB-8:IL03) (CB-11.3:IL05-L09) (CB-12.3:IL01-L05)
Symposium CD	(CD-4:IL01-IL04) (CD-4:IL05-L09)
Symposium CE	(CE-2:IL13-L15) (CE-4:IL01-L05)
Symposium CF	(CF-3.1:IL01-L05) (CF-4.3:IL01-L05)
Symposium CG	(CG-3:IL01-L04) (CG-4:IL06-L09)
Symposium CH	(CH-3:IL10-IL12) (CH-5:IL01-L06) (CH-6.5:IL01-L04)
Symposium CI	(CI-5:IL04-IL05) (CI-7:IL01-IL05) (CI-8:IL02)
Symposium CJ	(CJ-2:IL09-L11) (CJ-3:IL01-L04)
Symposium CK	(CK-2:IL01-L05) (CK-2:IL06-L09)
Symposium CL	(CL-2:IL09-L12) (CL-4:IL01-L05)
Conference CM	(CM-3:IL05-IL08) (CM-4:IL01-IL04)
Conference CN	(CN-2:IL01) (CN-4:IL01-IL07)

Afternoon: 15.00-20.00

Symposium CA	(CA-1:L21-L26) (CA-3:IL06-L09) (CA-4:L12-L15)
Symposium CB	(CB-2:IL02) (CB-8:IL01-L05) (CB-11.4:IL06-IL07) (CB-12.2:IL04-L06)
Symposium CC	(CC-1:IL08-L12) (CC-2:IL01-IL03)
Symposium CE	(CE-2:IL17-L19) (CE-4:IL06-L09)
Symposium CF	(CF-3.1:L06-L09) (CF-4.3:L06-L07)
Symposium CG	(CG-4:IL10-L14) (CG-4:L15-L17)
Symposium CH	(CH-1:L12-L15) (CH-2:L15-L19) (CH-4:IL01-L10) (CH-6.2:IL01-L02) (CH-6.6:IL01-IL03)
Symposium CJ	(CJ-1:IL12-IL13) (CJ-4:IL01-L03)
Symposium CK	(CK-2:L11-L14) (CK-3:L11-L14)
Conference CM	(CM-4:IL05-L08) (CM-4:L09-IL11)
Conference CN	(CN-5:IL01-L04) (CN-6:IL01-IL02)

18.30-20.00
POSTER DISCUSSION

Friday June 11

Morning: 8.30-13.00

Symposium CA	(CA-4:IL17-L21) (CA-5:L03-IL06)
Symposium CB	(CB-9:IL02-IL05) (CB-10:IL01-IL03) (CB-11.5:IL01-L04) (CB-11.5:IL05-L07)
Symposium CC	(CC-2:IL04-IL08) (CC-2:IL09-IL13)
Symposium CE	(CE-5:IL01-L05) (CE-5:IL06-L09)
Symposium CF	(CF-4.2:IL06-L09) (CF-4.2:L10-IL12)
Symposium CG	(CG-4:IL18-IL23) (CG-4:IL24-L26)
Symposium CH	(CH-4:IL06-IL08) (CH-5:IL07-L11) (CH-6.6:IL05) (CH-6.7:IL01-IL02) (CH-6.7:IL03-IL06)
Symposium CI	(CI-6:IL01-L04) (CI-8:IL01-IL06)
Symposium CJ	(CJ-3:IL05-L08) (CJ-4:IL04-IL06)
Symposium CK	(CK-1:IL09) (CK-3:IL01-L03) (CK-3:L05-L10)
Conference CM	(CM-5:IL01-IL04) (CM-5:IL06-IL09)
Conference CN	(CN-1:IL03) (CN-5:IL05-L08) (CN-6:IL03-IL05)

14.45-19.30

Tour to Pisa

Meeting point: Palazzo dei Congressi

Meeting time: 14.45

21.00-23.30

Conference Dinner

Lidò Le Panteraie

Via delle Panteraie, 26

SESSIONS FLOWSHEET

June 7-11

12th International Ceramics Congress

Chair

Pietro Vincenzini
World Academy of Ceramics
National Research Council, Italy

Co-Chair

Akio Makishima
International Ceramic Federation
Japan Advanced Institute of Science and Technology, Japan

Programme Chairs

Symposium CA: **Jean-François Baumard**, France

Symposium CB: **Ralf Riedel**, Germany

Focused Session CB-11: **Alexander G. Merzhanov**, Russia

Focused Session CB-12: **Juan Du**, Germany

Symposium CC: **Mark Hadfield**, UK

Symposium CD: **Alberto Passerone**, Italy

Symposium CE: **Sheldon Wiederhorn**, USA

Symposium CF: **Paolo Colombo**, Italy

Symposium CG: **Ghislain Montavon**, France

Symposium CH: **Vojislav V. Mitic**, Serbia

Focused Session CH-6: **Alois Loidl**, Germany

Symposium CI: **Dino Fiorani**, Italy

Symposium CJ: **Michele Dondi**, Italy

Symposium CK: **Cristina Leonelli**, Italy

Symposium CL: **James P. Bennett**, USA

Conference CM: **Maurizio Ferrari**, Italy

Conference CN: **Mrityunjay Singh**, USA

OPENING SESSION

AUDITORIUM

Chair:
Roman PAMPUCH, Poland

9.30 - 10.15

Welcome Addresses

Giuseppe BELLANDI
Mayor of Montecatini Terme

François BAUMARD
President International Advisory Board
World Academy of Ceramics

Akio MAKISHIMA
President International Ceramic Federation

Pietro VINCENZINI
General Chair CIMTEC Conferences

Stefano SAGLIA
Deputy Minister for the Economic Development

10.15 - 10.45

Formal induction of the New Members of the World Academy of Ceramics (13th Election)

Plenary Lectures

10.50 - 11.35

C:PL1

Nanoscience and Nanotechnology
S. IIJIMA
Faculty of Science and Technology, Meijo University, National Institute of Advanced Industrial Science and Technology / Nanotube Research Center, SAINT and NEC, Japan

11.35 - 12.20

C:PL2

Ceramics in New Energy Technologies
Y.-M. CHIANG
Dept. of Materials Science and Engineering, Massachusetts Institute of Technology, Cambridge, MA, USA

12.20 - 13.05

C:PL3

Computer Modelling as a Tool in Materials Science
R. CATLOW
Department of Chemistry, University College London, UK

MONDAY JUNE 7 AFTERNOON

Session CA-1 - Powder Synthesis and Characterisation

Room: **AUDITORIUM**

Chair: F. BAUMARD, France *(Programme Chair)*

15.00 *Welcome*

15.10 *CA-1:IL01* **Hydrothermal Synthesis of Functional Ceramic Particles**
J. HOJO, M. INADA, N. ENOMOTO, Dept. of Applied Chemistry, Kyushu University, Japan

15.40 *CA-1:IL02* **Microemulsions as Reaction-Templates for the Synthesis of Novel Oxide-based Polar Electroceramics**
C. PITHAN, Institute for Solid State Research, Forschungszentrum Jülich GmbH, Jülich, Germany

16.10 *CA-1:IL04* **Synthesis of Nitride (nano-)powders from Single-Source Preceramic Precursors: Potentialities as Building Blocks of Nitride Workpieces by Additive-free Sintering**
S. BERNARD[1], V. SALLES[1], S. FOUCAUD[2], A. MAÎTRE[2], P. MIELE[1], [1]Laboratoire des Multimateriaux et Interfaces (UMR CNRS 5615), Université Lyon1, Villeurbanne Cedex, France; [2]SPCTS (UMR CNRS 6638), Faculté des Sciences et Techniques, Limoges, France

16.40 *Break*

Chair: J. HOJO, Japan

17.00 *CA-1:IL05* **Convenient Hydrothermal Pathways to Functional Nanostructured Oxides: Methods, Mechanisms and Materials**
G.R. PATZKE, Institute of Inorganic Chemistry, University of Zurich, Switzerland

17.30 *CA-1:L08* **Ceramic Matrix Composites in the Alumina/YAG System**
R. LACH, **K. HABERKO**, Faculty of Materials, AGH University of Science and Technology, Krakow, Poland

17.50 *CA-1:L09* **New Route to Synthesize Silicon-substituted Hydroxyapatites**
M. ZYMELKA, D. MARCHAT, D. BERNACHE-ASSOLANT, LPMG Laboratory UMR 5148 (CIS Center), Ecole Nationale Supérieure des Mines, Saint-Etienne, France; J. CHEVALIER, MATEIS Laboratory UMR 5510, Institut National des Sciences Appliquées, Lyon, France

Session CB-1 - Soft Solution Processing

Room: **LE PLEIADI**

Chair: R. RIEDEL, Germany *(Programme Chair)*

15.00 *Welcome*

15.10 *CB-1:IL01* **Soft Processing for Ceramics: Single-Step Fabrication of Nano-Structured Oxide Ceramics(Particles, Films, Integrated Layers and Patterns) from Solution without Firing**
M. YOSHIMURA, Materials and Structures Laboratory, Tokyo Institute of Technology, Yokohama, Japan

15.40 *CB-1:IL02* **Novel Hydrothermal Solution Routes of Advanced Nanomaterials and Nanoceramics Processing**
K. BYRAPPA, DOS in Geology, University of Mysore, Mysore, India

16.10 *CB-1:IL03* **Non-aqueous Sol-gel Routes to Metal Oxide Nanostructures**
N. PINNA, Dept. of Chemistry, CICECO, University of Aveiro, Aveiro, Portugal; World Class University (WCU) program of Chemical Convergence for Energy and Environment (C2E2), School of Chemical and Biological Eng., Seoul National University, Seoul, Korea

16.40 *CB-1:IL04* **Liquid Phase Morphology Control of Metal Oxides in Aqueous Solutions**
Y. MASUDA, National Institute of Advanced Industrial Science and Technology (AIST), Nagoya, Japan

17.10 *Break*

Chair: M. YOSHIMURA, Japan

17.40 *CB-1:IL05* **Granulation by Spray Freeze Drying and Pressing of Nano YSZ Powders**
J. BINNER, B. VAIDHYANATHAN, K. ANNAPOORANI, B. RAGHUPATHY, Dept. of Materials, Loughborough University, Loughborough, UK

18.10 *CB-1:IL06* **New Synthesis Process of Li, Na and K Niobates from Metal Alkoxides**
Y. SUYAMA, Dept. of Materials Science, Shimane University, Matsue, Japan

18.40 *CB-1:IL07* **Glycol-based Precursors in the Synthesis of Mesoscopically Organized and Porous Nanoparticles**
N. HUESING, Inorganic Chemistry, Ulm University, Ulm, Germany

19.10 *CB-1:IL07b* **Novel Sol-gel Synthesis of LiMn2O4 and LiNixCo1-xO2 Powders**
A. DEPTULA[1], W. LADA[1], T. OLCZAK[1], D. WAWSZCZAK[1], M. BRYKALA[1], F. ZAZA[2], K.C. GORETTA[3], [1]Institute of Nuclear Chemistry and Technology (INCT), Warsaw, Poland; [2]Italian National Agency for New Technologies, Energy and Environment (ENEA), CR Casaccia, Rome, Italy; [3]Asian Office of Aerospace Research and Development, Tokyo, Japan

Session CB-11.1 - New Methods for Investigation of SHS

Room: **ORSA MINORE**

Chair: A.G. MERZHANOV, Russia *(Programme Chair)*

15.00 *Welcome*

15.10 *CB-11.1:IL01* **"Solution Combustion" as a Promising Method for the Synthesis of Nanoparticles**
A.S. MUKASYAN, Dept. of Chem. & Biomolec. Eng., University of Notre Dame, Notre Dame, IN, USA

15.40 *CB-11.1:IL02* **Thermal Explosion in the Synthesis of Ceramic Materials and Items**
I. GOTMAN, E.Y. GUTMANAS, Faculty of Materials Engineering, Technion-Israel Institute of Technology, Haifa, Israel

16.10 *CB-11.1:L03* **Microwave Activated Combustion Synthesis and Compaction in Separate E and H Fields: Numerical Simulation and Experimental Results**
R. ROSA, P. VERONESI, C. LEONELLI, A.B. CORRADI, Dip. Ingegneria dei Materiali e dell'Ambiente, Univ. degli Studi di Modena e Reggio Emilia, Modena, Italy; M. FERRARIS, V. CASALEGNO, M. SALVO, H. SHAOHUA, Dip. Scienze dei Materiali ed Ingegneria Chimica, Politecnico di Torino, Torino, Italy

16.30 *Break*

Session CB-12.1 - Layered and Graded Materials, Composites and Hybrids

Room: **ORSA MINORE**

Chair: Juan DU, Germany *(Programme Chair)*

17.00 *Welcome*

17.10 *CB-12.1:IL01* **The Potential of Spark Plasma Sintering (SPS) Method for the Fabrication on an Industrial Scale of Functionally Graded Materials (FGMs)**
M. TOKITA, NJS Co., Ltd., Yokohama, Japan

17.40 *CB-12.1:IL02* **Comparison of Microwave and Conventional Sintering of LHA Ceramics and Functionally Graded Alumina-LHA Ceramics**
Z. NEGAHDARI, M. WILLERT-PORADA, Materials Processing, Faculty of Engineering Science, University of Bayreuth, Bayreuth, Germany

18.10 *CB-12.1:L04* **Fabrication of Functionally Graded ZTA Ceramics Using a Novel Combination of Freeze Casting and Electrophoretic Deposition (EPD)**
A. PREISS, B. SU, Univ. of Bristol, Dept. Oral & Dental Science, Bristol, UK

Session CD-1 - Thermochemistry of Interface Formation and Mechanisms of Wetting and Adhesion

Room: **ZENITH**

Chair: A. PASSERONE, Italy *(Programme Chair)*

15.00 *Welcome*

15.10 *CD-1:IL01* **Contribution to the Theory of Ceramics/liquid Metal System Wettability. A Peculiarity of Contact Processes for Transition and Non=transition Metals**
Y. NAIDICH, Institute for Materials Science Problems of the National Ukrainian Academy of Sciences, Kiev, Ukraine

15.40 *CD-1:IL02* **Metal Ceramic Reactivity: Thermodynamics and Kinetics**
F. HODAJ, SIMAP-UMR CNRS 5266, Grenoble INP-UJF, Saint Martin d'Heres Cedex, France

16.10 *CD-1:IL03* **Thermodynamic Evaluation of Interface Formation in Ceramic/Metal Systems. Boron Carbide/Metal Systems**
N. FRAGE[a], M. AIZENSHTEIN[b], N. FROUMIN[a], M.P. DARIEL[a], [a]Dept. of Material Engineering, Ben-Gurion University, Beer-Sheva, Israel; [b]NRC-Negev, Beer-Sheva, Israel

16.40 *CD-1:IL04* **Wetting of Ceramics by Molten Mg**
H. FUJII*, S. IZUTANI*, S. KIGUCHI**, K. NOGI*, *Joining and Welding Research Institute, Osaka University, Osaka, Japan; **Kinki University, Higashi-Osaka, Japan

17.10 *Break*

Chair: D. CHATAIN, France

17.40 *CD-1:IL05* **From Reactive Wetting to Reactive Brazing**
N. EUSTATHOPOULOS, SIMaP, Grenoble-INP, Saint Martin d'Heres, France

18.10 *CD-1:IL06* **Dynamic Wetting Problem in Thermal Spray Process**
M. FUKUMOTO, Toyohashi University of Technology, Toyohashi, Japan

18.40 *CD-1:L07* **Improvement in Wettability by Ultrasound and its Application to Cast Joining**
Y. TSUNEKAWA, M. OKUMIYA, Y. FURUKAWA, Toyota Technological Institute, Nagoya, Japan

19.00 *CD-1:L08* **Characterization and Performance of Glass-ceramic Sealants for SOECs**
H. KHEDIM[1], A.J. CONNELLY[1], E. VERNET[1], H. NONNET[1], D. COILLOT[2], L. BRUGUIÈRE[1], [1]CEA, DEN, Marcoule, Bagnols-sur-Cèze Cedex, France; [2]UCCS - Unité de Catalyse et Chimie du solide, UMR CNRS 8181, ENSC de Lille, Université des Sci. et Tech. de Lille, Villeneuve d'Ascq Cedex, France

Session CE-1 - Ultra High Temperature Ceramics

Room: **VENERE**

Chair: S. WIEDERHORN, USA *(Programme Chair)*

15.00 *Welcome*

15.10 *CE-1:IL01* **Material Properties Improvement in Ultra High Temperature Ceramics via Microstructure Tailoring**
GUO-JUN ZHANG, State Key Lab. of High Performance Ceramics and Superfine Microstructures, Shanghai Institute of Ceramics, Shanghai, China

15.40 *CE-1:IL02* **Ceramics for Aeropropulsion Applications**
E.J. WUCHINA, M.M. OPEKA, Naval Surface Warfare Center, West Bethesda, MD, USA

16.10 *CE-1:L03* **Oxidation Mechanism of ZrB2-SiC in a Solar Furnace Above 2200 °C**
A.-S. ANDREANI[1], A. POULON-QUINTIN[2], F. REBILLAT[1], [1]Laboratoire des Composites Thermostructuraux , UMR 5801 CNRS-Snecma-CEA-UB1, Pessac, France; [2]Institut de Chimie de la Matiere Condensee de Bordeaux, CNRS UPR 9048, Pessac, France

16.30 *CE-1:L04* **Measurements of Cation and Anion Diffusion in Aluminum Oxide with ToF-SIMS**
T. NAGAKAWA, National Institute for Materials Science, Tsukuba, Japan; **J.D. McGUFFIN-CAWLEY**, A.H. HEUER, Case Western Reserve University, Cleveland, OH, USA

16.50 *CE-1:L05* **Oxidation of ZrB2 Ceramics with Tungsten Carbide Additions**
SHI C. ZHANG, GREG E. HILMAS, WILLIAM G. FAHRENHOLTZ, Dept. of Materials Science and Engineering, Missouri University of Science and Technology, Rolla, MO, USA

17.10 *Break*

Session CE-3 - Precursor Derived Ceramics

Room: **VENERE**

Chair: E.J. WUCHINA, USA

17.40 *CE-3:IL02* **Characterization of Polymer-Derived Ceramics via Transmission Electron Microscopy**
H.-J. KLEEBE, Technische Universität Darmstadt, Institute for Applied Geosciences, GeoMaterial Science, Darmstadt, Germany

18.10 *CE-3:L03* **Development of Zirconia-toughened Mullite Matrix Composites from a Nano-filled Preceramic Polymer**
E. BERNARDO, **G. PARCIANELLO**, P. COLOMBO, University of Padova, Padova, Italy

18.30 *CE-3:L04* **High-temperature Behavior of Novel SiOC/HfO2 Ceramic Nano-composites at T> >1000 °C**
B. PAPENDORF, E. IONESCU, R. RIEDEL, Inst. für Materialwissenschaft, Technische Universität Darmstadt, Darmstadt, Germany; H.J. KLEEBE, K. NONNENMACHER, Inst. für Geowissenschaft, Technische Universität Darmstadt, Darmstadt, Germany

18.50 *CE-3:IL01* **New Precursors for Synthesis of High Temperature Ceramics**
CAIHONG XU, Institute of Chemistry, Chinese Academy of Sciences, Beijing, China

Session CF-1 - Ceramics in Chemical and Biochemical Sensors

Room: **ALBA 2**

Chair: P. COLOMBO, Italy *(Programme Chair)*

15.00 *Welcome*

15.10 *CF-1:IL01* **Effective Designs for High Temperature Ceramic Gas Sensors**
P.K. DUTTA, Dept. of Chemistry, The Ohio State University, Columbus, OH, USA

15.40 *CF-1:IL02* **VOCs Detection with Potentiometric Oxygen Sensor with Modified Pt Electrode**
Y. SADAOKA, Dept. of Materials Science and Biotechnology, Graduate School of Science and Engineering, Ehime University, Matsuyama, Japan

16.10 *CF-1:IL03* **Plasmonic Based Harsh Environment Compatible Chemical Sensor**
M.A. CARPENTER, College of Nanoscale Science and Engineering, University at Albany, NY, USA

16.40 *Break*

Sub-session CF-3.2 - Catalysts Supports

Room: **ALBA 2**

Chair: A.C. PIERRE, France

17.10 *CF-3.2:IL01* **Effect of Oxides Composite Support of Ce(Sm)O3-La(Sr)CrO3 on Pd-Ni Alloy for Decomposition Activity of CH4**
I. YAMANAKA, Y. NABAE, Tokyo Institute of Technology, Dept. of Applied Chemistry, Tokyo Institute of Technology, Tokyo, Japan

17.40 *CF-3.2:IL02* **Soot and Ash Layer Characteristics in Ceramic Diesel Particulate Filters**
P. DIMOPOULOS EGGENSCHWILER, A. LIATI, Empa, Swiss Federal Laboratories for Materials Testing and Research, Laboratory for I.C. Engines, Duebendorf, Switzerland

18.10 *CF-3.2:IL03* **VOCs Oxidation on CeO2-based Catalysts**
T. MASUI, M. IMANAKA, Dept. of Applied Chemistry, Osaka University, Suita, Osaka, Japan

18.40 *CF-3.2:IL04* **TiO2 Photocatalysis - Fundamental and Recent Situation**
A. FUJISHIMA, Kanagawa Academy of Science and Technology, Kawasaki, Kanagawa Pref., Japan

19.10 *CF-3.2:L05* **Foam-supported Catalysts Tailored for Industrial Steam Reforming Processes**
R. FAURE, T. CHARTIER, F. ROSSIGNOL, SPCTS UMR CNRS 6638, Limoges, France; F. BASILE, I. BERSANI, A. VACCARI, University of Bologna, Bologna, Italy; A. CUNI, M. CORNILLAC, P. DEL GALLO, D. GARY, Air Liquide CRCD, Jouy-en-Josas, France

Session CG-1 - Advances in Deposition, Surface Modification and Characterisation

Room: **URANO**

Chair: G. MONTAVON, France *(Programme Chair)*

15.00 *Welcome*

15.10 *CG-1:IL01* **Recent Developments in Thermal Spray Processes**
P. FAUCHAIS, SPCTS, UMR 6638, University of Limoges, Limoges, France

15.40 *CG-1:IL02* **New Horizons for Ceramic Coatings and Films Produced by Plasma Electrolytic Processes**
A. YEROKHIN, A. MATTHEWS, Dept. of Engineering Materials, University of Sheffield, Sheffield, UK

16.10 *CG-1:IL03* **Recent Achievements in Laser Cladding Technologies**
P. VUORISTO, Dept. of Materials Science, Tampere University of Technology, Tampere, Finland

16.40 *CG-1:L05* **Cold Spray Deposition of TiO2 Nanostructured Particles**
M. YAMADA*, H. ISAGO**, K. SHIMA**, H. NAKANO*, M. FUKUMOTO*, *Toyohashi University of Technology; **Graduate student, Toyohashi University of Technology, Toyohashi, Japan

17.00 *Break*

Chair: P. FAUCHAIS, France

17.30 *CG-1:IL06* **A New High Speed and Low Temperature Coating by Laser Chemical Vapor Deposition**
T. GOTO, Institute for Materials Research, Tohoku University, Sendai, Japan

18.00 *CG-1:IL07* **3-D Static and Time-depending Modeling of RF and DC Thermal Plasmas for Industrial Applications**
V. COLOMBO, E. GHEDINI, P. SANIBONDI, Dept. of Mechanical Engineering, University of Bologna, Bologna, Italy

18.30 *CG-1:L08* **Fabrication, Structural and Mechanical Properties of Aluminium Oxide Thick Films Using Aerosol Deposition**
S. HIROSE, Y. EZUKA, N. SAKAMOTO, S. OH, J-H. PARK, J. AKEDO, AIST, Tsukuba, Japan

18.50 *CG-1:L09* **A Comparison Between Conventional Thermal Treatment and Excimer Laser Irradiation Performed on Alumina/ PEEK Composite Coatings**
M.F. DE RICCARDIS, V. MARTINA, D. CARBONE, R. TERZI, ENEA, Brindisi Reseach Centre, Brindisi, Italy; A.P. CARICATO, G. LEGGIERI, Dipartimento di Fisica, Università del Salento, Lecce, Italy

Session CH-1 - Dielectric of Microwave Materials

Room: **SIRIO**

Chair: V. MITIC, Serbia *(Programme Chair)*

15.20 *Welcome*

15.30 *CH-1:IL01* **Microwave Dielectric Ceramics for Resonators and Filters in Mobile Phone Networks**
I.M. REANEY, Dept. of Eng. Materials, University of Sheffield, Sheffield, UK

16.00 *CH-1:IL02* **Carbon Nanotube Cathodes as Electron Sources for Microwave Amplifiers**
P. LEGAGNEUX, Nanocarb, Thales-Ecole Polytechnique, Palaiseau, France

16.30 *CH-1:IL04* **Miniature Ceramic Antennas for Wireless Applications**
Z.D. MILOSAVLJEVIC, Pulse Finland Oy, Kempele, Finland

17.00 *Break*

Chair: I.M. REANEY, UK

17.30 *CH-1:IL05* **Local Structure in Perovskite-like Dielectrics**
I. LEVIN, Ceramic Division, NIST, Gaithersburg, MD, USA

18.00 *CH-1:IL06* **Aerosol Deposition Process for Fabrication of Dielectric Layer**
J. AKEDO, D. POPOVICI, M. SUZUKI, Y. IMANAKA, T. TSURUMI, AIST, Tsukuba, Ibaraki, Japan

18.30 *CH-1:IL07* **Reducing the Dielectric Losses in Heterostructured Ferroelectric Materials**
C. ELISSALDE[1], C. ESTOURNES[2], D. BERNARD[1], U.C. CHUNG[1], S. MORNET[1], R. COSTES[3], M. MAGLIONE[1], [1]ICMCB-CNRS, Université Bordeaux, Pessac, France; [2]CIRIMAT et Plateforme Nationale CNRS de Frittage Flash, PNF2 MHT, Université Paul Sabatier, Toulouse, France; [3]Thales Research and Technology, Palaiseau Cedex, France

Session CH-6.1 - Theory and Modeling of Materials and Phenomena

Room: **ORSA MAGGIORE**

Chair: A. LOIDL, Germany *(Programme Chair)*

15.00 *Welcome*

15.10 *CH-6.1:IL01* **Dynamical Magnetoelectric Effects in Multiferroic Oxides**
Y. TOKURA, Dept. of Applied Physics, University of Tokyo; ERATO Multiferroics Project, JST, Japan

15.40 *CH-6.1:IL02* **Symmetry and Mechanisms for Magnetically Driven Ferroelectricity**
J.L. RIBEIRO, Depto de Fisica, Universidade do Minho, Braga, Portugal

16.10 *CH-6.1:IL03* **First Principles Study of the Magneto-electric Coupling and Phase Diagrams of Multiferroic RMn2O5**
LIXIN HE, Key Lab. of Quantum Information, University of Science and Technology of China, Hefei, China

16.40 *Break*

Chair: J.L. RIBEIRO, Portugal

17.10 *CH-6.1:IL04* **Magnetic Switching of Relaxor Ferroelectrics: Theory**
R. PIRC, R. BLINC, J. Stefan Institute, Ljubljana, Slovenia; J.F. SCOTT, Cavendish Laboratory, Cambridge, UK

17.40 *CH-6.1:IL05* **Ferroelectric and Multiferroic Tunnel Junctions: Insight from Theory**
E.Y. TSYMBAL, Dept. of Physics and Astronomy, University of Nebraska, Lincoln, Nebraska, USA

18.10 *CH-6.1:IL06* **Static and Dynamic Magnetoelectric Effects in Magnets with Non-collinear Spin Orders**
M. MOSTOVOY, Zernike Institute for Advanced Materials, University of Groningen, Groningen, The Netherlands

18.40 *CH-6.1:IL07* **Probing Chirality in Multiferroic Manganite Perovskites**
D.N. ARGYRIOU, E. WESCHKE, E. SCHIERLE, Helmholtz-Zentrum Berlin für Materialen und Energie, Berlin, Germany

Session CI-1 - CMR Manganites

Room: **GIOVE**

Chair: D. FIORANI, Italy *(Programme Chair)*

15.20 *Welcome*

15.30 *CI-1:IL01* **Emergent Phenomena in Complex Oxides under Spatial Confinement**
T.Z. WARD[1], JIAN SHEN[1, 2], [1]Materials Sciences and Technology Division, Oak Ridge National Laboratory, Oak Ridge, TN, USA; [2]Dept. of Physics, Fudan University, Shanghai, China

16.00 *CI-1:IL02* **Bilayer Manganites: Neutron Scattering Studies**
T. CHATTERJI, JCNS, FZ Juelich outstation at Institut Laue-Langevin, Grenoble, France

16.30 *CI-1:IL03* **Charge Ordering and Related Phenomena of Manganites on Nano-scale**
INDRANIL DAS, Saha Institute of Nuclear Physics, Experimental Condensed Matter Physics Division, Kolkata, India

17.00 *Break*

Chair: T. CHATTERJI, France

17.30 *CI-1:IL04* **Interface Magnetism in Complex Oxide Heterostructures and Nanostructures**
H. SRIKANTH, Dept. of Physics, University of South Florida, Tampa, FL, USA

18.00 *CI-1:IL05* **Many Faces of Photoinduced Phases in CMR Manganites**
K. MIYANO, RCAST, University of Tokyo, Tokyo, Japan

18.30 *CI-1:L06* **Self-adaptative Composition Modulation in Strained Manganite Thin Films**
J. FONTCUBERTA, I.C. INFANTE, F. SANCHEZ, Institut de Ciencia de Materials de Barcelona-CSIC, Bellaterra, CAT, Spain; S. ESTRADE, J. ARBIOL, **F. PEIRÒ**, EME/CeRMAE/IN2UB, Dept. d'Electronica, Universitat de Barcelona, Barcelona, CAT, Spain; F. DE LA PENA, M. WALLS, C. COLLIEX, Lab. de Physique des Solides, (UMR CNRS 8502), Universite Paris Sud, Orsay, France; M. WOJCIK, E. JEDRYKA, Inst. of Physics, Polish Academy of Sciences, Warszawa, Poland

Session CJ-1 - Science of Silicate Ceramics

Room: **SMERALDO 1**

Chair: M. DONDI, Italy *(Programme Chair)*

15.00 *Welcome*

15.10 *CJ-1:IL01* **New Silicate Glass-ceramic Materials and Composites**
D. HOTZA, A.P. NOVAES DE OLIVEIRA, Group of Ceramic and Glass Materials (CERMAT), Dept. of Mechanical Engineering (EMC), Federal University of Santa Catarina (UFSC), Florianópolis, SC, Brazil

15.40 *CJ-1:IL02* **Characterisation of Microstructure and Crystallographic Texture of Ceramics**
D. CHATEIGNER, CRISMAT-ENSICAEN, IUT-Caen, Université de Caen Basse-Normandie, Caen, France

16.10 *CJ-1:IL03* **Effect of Compositional Modification on Sintering Behaviour and Microstructures of Porcelain Tiles**
F. KARA, A. KARA, Anadolu University, Dept. of Materials Science and Engineering, Eskisehir, Turkey; P. DAG, Seramik Arastirma Merkezi, Teknoloji Gelistirme Bolgesi, Eskisehir, Turkey; M. TUNA, Kutahya Seramik, Kutahya, Turkey; H. KIRAN, Ege Seramik, Izmir, Turkey

16.40 *Break*

Symposium CK - Geopolymers and Geocements

Room: **SMERALDO 1**

Chair: C. LEONELLI, Italy *(Programme Chair)*

17.00 *Welcome*

17.10 *Keynote Lecture*

CK:KL **Status and Prospects of Research and Application of Alkali-activated Materials**
P.V. KRIVENKO, Kiev, Ukraine

Session CK-1 - Preparation

17.50 *CK-1:IL01* **Synthesis Routes of Novel Inorganic Polymer and Geopolymer-type Materials**
K.J.D. MacKENZIE, MacDiarmid Inst. for Advanced Materials and Technology, Victoria University of Wellington, Wellington, New Zealand

18.20 *CK-1:IL02* **Preparation of Geopolymeric Materials from Swage Sludge Slag, a Novel Active Filler**
N. YAMAGUCHI, Ceramic Research Center of Nagasaki, **K. IKEDA**, Prof. Emeritus of Yamaguchi University, Ube, Japan

Symposium CL - Refractories

Room: **SMERALDO 3**

Chair: J.P. BENNETT, USA *(Programme Chair)*

15.00 *Welcome*

15.10 *Keynote Lecture*

CL:KL **The Federation for International Refractories Research and Education (FIRE): Progress and Outcome on Research, Education and Industrial Partnership**
M. RIGAUD, Professor Emeritus, University of Montreal, Canada

Session CL-1 - Raw Materials

15.50 *CL-1:IL01* **Reactive Oxide Micropowders and Chemical Additives for Refractory Castables**
C. PARR, G. ASSIS, CH. WÔHRMEYER, H. FRYDA, Kerneos S.A., Neuilly sur Seine, France

16.10 *CL-1:IL02* **Synthesis of Carbide Ceramic Powders by Carbothermal Reduction of Organic Precursors**
T. NISHIMURA, H. TANAKA, N. HIROSAKI, National Institute for Materials Science, Tsukuba, Ibaraki, Japan; S. ISHIHARA, Nagoya Institute of Technology, Nagoya, Aichi, Japan; J.-S. LEE, Hanyang University, Seoul, Republic of Korea; S.-H. LEE, Korea Institute of Materials Science, Changwon, Gyeongnam, Republic of Korea

16.40 *CL-1:IL03* **The Phase Equilibrium Diagrams as a Tool for the Design and Use of Refractories**
A.H. DE AZA, Instituto de Ceramica y Vidrio (ICV) - CSIC, Madrid, Spain

17.10 *Break*

Session CL-2 - Testing

Chair: M. RIGAUD, Canada

17.40 *CL-2:IL01* **Testing Procedures for Postmortem Analyses on Refractories Used in Non-Ferrous Furnaces**
G. OPREA, Materials Engineering, University of British Columbia, Vancouver, BC, Canada

18.10 *CL-2:IL02* **How to Enhance Strain to Rupture of Refractory Materials for Thermal Shock Applications?**
M. HUGER[1], T. OTA[2], N. TESSIER-DOYEN[1], T. CHOTARD[1], P. MICHAUD[1], [1]Groupe d'Etude des Matériaux Hétérogènes (GEMH), ENSCI, Limoges, France; [2]Nagoya Institute of Technology, Nagoya, Aichi, Japan

18.40 *CL-2:L03* **Thermo Mechanical Comparison Between SFRC With No Cement and a Similar Ultra Low Cement Castable**
A.P. SILVA, D.G. PINTO, T.C. DEVEZAS, Dept. Electromechanical Eng. (CAST), University of Beira Interior, Covilha, Portugal; A.M. SEGADAES, Dept. Ceramics and Glass Eng. (CICECO), University of Aveiro, Aveiro, Portugal

19.00 *CL-2:L04* **Fracture Resistance Investigations of Refractory Materials**
G. GOGOTSI, Pisarenko Institute for Problems of Strength, Kiev, Ukraine

Session CM-1 - Nanomaterials and Systems at Nanoscale

Room: **SMERALDO 2**

Chair: M. FERRARI, Italy *(Programme Chair)*

15.00 *Welcome*

15.10 *CM-1:IL02* **Synthesis of Nanoparticles of Rare-earth Doped Fluorides**
M. MORTIER, P. GREDIN, LCMCP-CNRS, Chimie ParisTech and UPMC, Paris, France; G. PATRIARCHE, LPN-CNRS, Marcoussis, France; L. AIGOUY, LPEM-CNRS, ESPCI ParisTech, Paris, France

15.40 *CM-1:IL03* **Nanogaps for Sensing**
F. FAVIER, Institut Charles Gerhardt Montpellier, UMR 5253 CNRS, Université Montpellier 2, Montpellier, France

16.10 *CM-1:IL04* **Nanopatterns and Nanomaterials: Synthesis, Characterization and Applications**
HUA ZHANG, School of Materials Science and Engineering, Nanyang Technological University, Singapore

16.40 *Break*

Chair: HUA ZHANG, Singapore

17.10 *CM-1:IL05* **Tailoring Chemomechanical Interface Properties: A Nanomolecular Approach**
G. RAMANATH, Materials Science and Engineering Dept. and New York State Center for Future Energy Systems Rensselaer Polytechnic Institute, Troy, NY, USA

17.40 *CM-1:L07* **Processing and Characterization of Multi-Walled Carbon Nanotube - Alumina Ceramic Matrix Composites**
M. ESTILI, A. KAWASAKI, Dept. of Materials Processing, Graduate School of Engineering, Tohoku University, Sendai, Japan

18.00 *CM-1:IL06* **Morphology-Controlled Synthesis of Inorganic Nanostructures**
L. GAO, State Key Laboratory of High Performance Ceramics and Superfine Microstructure, Shanghai Institute of Ceramics, CAS, Shanghai, China

Session CA-1 - Powder Synthesis and Characterisation

Room: **AUDITORIUM**

Chair: S. BERNARD, France

9.00 *CA-1:IL10* **Different Approaches for the Synthesis of Nanometric and Nanorods of Sr-doped LaPO4**
M.T. COLOMER, Instituto de Ceramica y Vidrio, CSIC, Madrid, Spain

9.30 *CA-1:IL11* **Flame Synthesis of Ceramic Particles**
Y. TAKAO, National Institute of Advanced Industrial Science and Technology (AIST), Nagoya, Japan

10.00 *CA-1:L12* **Detection Limit of XRD Phase Quantification**
N. DOEBELIN, M. BOHNER, RMS Foundation, Bettlach, Switzerland

10.20 *CA-1:L13* **One-step, Low-temperature, Microwave Assisted Synthesis of Barium Titanate Nanocrystalline Powders of Tunable Size**
S.A. VELDHUIS, T.M. STAWSKI, J.E. TEN ELSHOF, O.F. GÖBEL, D.H.A. BLANK, University of Twente, Inorganic Materials Science Group, AE Enschede, The Netherlands

10.40 *Break*

Session CA-2 - Colloidal Processing

Room: **AUDITORIUM**

Chair: K. SATO, Japan

11.10 *CA-2:IL02* **Development of Environmentally-friendly Process Using Ceramic Colloidal Processing on Ceramic-polymer Composite Materials**
Y. HOTTA, K. SATO, K. WATARI, National Institute of Advanced Industrial Science and Technology (AIST), Nagoya, Japan

11.40 *CA-2:L04* **Experimental and Simulation Study of Self-arrangement by Heteroagglomeration in Dilute, Model Ceramic Suspensions**
M.A. PIECHOWIAK, A. VIDECOQ, C. PAGNOUX, F. ROSSIGNOL, SPCTS, ENSCI, Limoges, France; R. FERRANDO, M. CERBELAUD, Dipartimento di Fisica, Universita di Genova, Genova, Italy

12.00 *CA-2:L05* **A Study of the Dispersion of Boron Carbide in an Aqueous Suspension**
A.C.J. HEATON, DSTL, Porton Down, Wiltshire, UK; J.G.P. BINNER, Loughborough University, Leicestershire, UK; R.N.J. TAYLOR, AWE, Aldermaston, Berkshire, UK

Session CB-3 - Polymer-based Processing

Room: **LE PLEIADI**

Chair: P. MIELE, France

9.00 *CB-3:IL01* **Quo Vadis Polymer-derived Ceramics? Novel Insights in Basic Science and Applications**
R. RIEDEL, Darmstadt Technical University, Darmstadt, Germany

9.30 *CB-3:IL02* **Processing of SiCO from Polysiloxane-based Preceramic Polymers**
G.D. SORARU, Dip. Ingegneria dei Materiali, Università di Trento, Trento, Italy

10.00 *CB-3:IL03* **Fabrications of Bulk Si-Based Ceramics and Nanofiber Composites from Polymer Pyrolysis**
YA-LI LI, HUA FAN, XIANG LIU, TIAN LIANG, HE-BAO DU, FENG HOU, Key Lab. of Advanced Ceramic and Machining Technology, Ministry of Education of China, School of Matls Science and Eng., Tianjin University, Tianjin, P.R. China

10.30 *Break*

Chair: D.K. AGRAWAL, USA

11.00 *CB-3:IL04* **Electronic Behavior of Polymer-derived Ceramics**
LINAN AN, Advanced Materials Processing and Analysis Center, University of Central Florida, Orlando, FL, USA

11.30 *CB-3:L05* **Nanostructured Boron- and Silicon-based Mesoporous Materials via Preceramic Polymer Nanocasting**
X.-B. YAN, P. DIBANDJO, O. MAJOULET, J. ALAUZUN, S. BERNARD, **P. MIELE**, LMI - UMR 5615, Université Lyon 1, Villeurbanne Cedex, France

11.50 *CB-3:L06* **Shaping of Ceramic Fibers and Gradient Porosity Ceramic Bulk Materials Applying UV Curable Dispersions**
T. GRAULE, J. HEINECKE, G. MUELLER, Y. DE HAZAN, EMPA, Swiss Federal Laboratories for Materials Testing and Research, Laboratory for High Performance Ceramics, Dübendorf, Switzerland

12.10 *CB-3:L08* **Synthesis and Characterization of Polycarbosilanes as SiC-based Ceramic Precursors: Applications to Hybrid Material for the Preparation of ZrC-SiC Composites**
D. PIZON, R. LUCAS, S. FOUCAUD, A. MAÎTRE, Laboratoire Science des Procédés Céramiques et de Traitements de Surface - UMR CNRS 6638 - Université de Limoges, Limoges Cedex, France

Session CB-10 - Other Nontraditional Processing Routes

Room: **ORSA MAGGIORE**

Chair: D.A. SCHIRALDI, USA

9.00 *CB-10:L04* **Chemical Approaches to Functional Nanostructures: Growth, Applications and Devices**
S. MATHUR, Institute of Inorganic and Materials Chemistry, University of Cologne, Cologne, Germany

9.20 *CB-10:L05* **Sintering and Mechanical Properties of Silicon Carbide Composites with In-situ Converted Titanium Oxide to Titanium Carbide**
D. AHMOYE, V.D. KRSTIC, Queen's University, Kingston, Canada

9.40 *CB-10:L06* **Processing of Municipal Solid Waste (MSW) Fly Ash into an Environmentally Stable and Safe Material**
M. ISAC, R.I.L. GUTHRIE, Z. GHOULEN, McGill University, McGill Metals Processing Centre (MMPC), Montreal, Canada

10.00 *Break*

Session CB-4 - Spark Plasma Synthesis and Processing

Room: **ORSA MAGGIORE**

Chair: S. MATHUR, Germany

10.30 *CB-4:IL01* **Modelling of Spark Plasma Sintering Process**
E. OLEVSKY, Dept. of Mechanical Engineering, San Diego University, San Diego, CA, USA

11.00 *CB-4:IL02* **Shaping of Nanostructured Materials or Coatings Through Spark Plasma Sintering**
C. ESTOURNÈS[1], D. OQUAB[2], M. BOIDOT[2], D. MONCEAU[2], D. GROSSIN[2], C. DROUET[2], U-CHAN CHUNG[3], F. ROULLAND[1, 3], C. ELISSALDE[3], M. MAGLIONE[3], R. CHAIM[4], PH. MIELE[5], J. GURT-SANTANACH[6], A. WEIBEL[6], A. PEIGNEY[6], CH. LAURENT[6], [1]CNRS, Institut Carnot Cirimat, Toulouse, France; [2]Université de Toulouse, UMR CNRS-UPS-INP 5085, CIRIMAT, INPT-ENSIACET, Toulouse, France; [3]ICMCB-CNRS, Université Bordeaux, Pessac, France; [4]Dept. of Materials Engineering, Technion-Israel Institute of Technology, Haifa, Israel; [5]LMI, UMR CNRS 5615, Université Claude Bernard-Lyon 1, Villeurbanne, France; [6]Université de Toulouse, UMR CNRS-UPS-INP 5085, CIRIMAT, Université Paul-Sabatier, Toulouse, France

11.30 *CB-4:IL03* **Synthesis of Fine-grained Transparent Oxide Ceramics by Spark-plasma Sintering under Low Heating Rate Control**
B.-N. KIM, National Institute for Materials Science, Tsukuba, Japan

12.00 *CB-4:L04* **Densification Mechanism of MgAl2O4 Spinel during Spark-plasma-sintering**
K. MORITA, B.-N. KIM, H. YOSHIDA, K. HIRAGA, National Institute for Materials Science, Nano-Ceramics Center, Ibaraki, Japan

12.20 *CB-4:L05* **Effect of CeO2 Addition on the Mechanical Properties of Al2O3-ZrO2 Ceramics Prepared by Spark Plasma Sintering**
E. YILMAZ, O. ORMANCI, I. AKIN, F. SAHIN, O. YUCEL, **G. GOLLER**, Istanbul Technical University, Metallurgical and Matls Eng. Dept, Istanbul, Turkey

Session CB-11.2 - Fundamentals of SHS

Room: **ORSA MINORE**

Chair: A.S. MUKASYAN, USA

9.00 *CB-11.2:IL01* **Use of Electrothermal Explosion and Electrothermal Analyzer (ETA-100) for the Study of Kinetics of Fast High-Temperature Reactions in SHS-Ceramic Systems**
A.S. SHTEINBERG, ALOFT, Berkeley, CA, USA; A.A. BERLIN, Semenov Institute of Chemical Physics, RAS, Moscow, Russia

9.30 *CB-11.2:IL02* **Mechanoactivation of SHS Systems and Process**
V.V. KURBATKINA, E.A. LEVASHOV, National University of Science and Technology "MISIS", Moscow, Russia; A.S. ROGACHEV, Institute of Structural Microkinetiks and Materials Science, Chernogolovka, Moscow region, Russia

10.00 *CB-11.2:L04* **Simulation of Gasless Combustion of Mechanically Activated Solid Powder Mixtures**
S. RASHKOVSKIY, Inst. for Problems in Mechanics of RAS, Moscow, Russia

10.20 *Break*

Session CB-12.1 - Layered and Graded Materials, Composites and Hybrids

Room: **ORSA MINORE**

Chair: M. TOKITA, Japan

10.50 *CB-12.1:IL06* **Functionally Graded Materials (FGM) and Spark Plasma Sintering (SPS)**
M.P. DARIEL, Ben-Gurion University of the Negev, Dept. of Materials Eng., Beer-Sheva, Israel

11.20 *CB-12.1:IL07* **Effects of Strain-graded Plastic Deformation on Mechanical Properties of Metals**
K. MATSUURA, M. OHNO, Division of Matls Science and Engrg, Hokkaido University, Sapporo, Hokkaido, Japan

11.50 *CB-12.1:L08* **CMC with a Graded Lay-up Manufactured via LSI-process**
M. FRIESS, C. ZUBER, B. HEIDENREICH, German Aerospace Center (DLR), Inst. of Structures and Design, Stuttgart, Germany

12.10 *CB-12.1:L09* **High Reliability Alumina-silicon Carbide Laminated Composites**
F. DE GENUA, V.M. SGLAVO, DIMTI, University of Trento, Trento, Italy

12.30 *CB-12.1:L10* **Control of Crystallographic Orientation in Alumina Laminate Using EPD in a Strong Magnetic Field**
T.S. SUZUKI, T. UCHIKOSHI, Y. SAKKA, National Institute for Materials Science, Tsukuba, Ibaraki, Japan

Room: **ZENITH**

Chair: G. PEZZOTTI, Japan

Session CD-1 - Thermochemistry of Interface Formation and Mechanisms of Wetting and Adhesion

8.30 *CD-1:L09* **In-situ HRTEM Observations of Spreading Reactive Molten Alloy on Ceramic Substrates**
C. IWAMOTO, Dept. of Mechanical Eng., Kumamoto University, Kumamoto, Japan; S.-I. TANAKA, Institute of Multidisciplinary Research for Advanced Materials, Tohoku University, Sendai, Japan

8.50 *CD-1:IL10* **The Effect of Surface Adsorption on Substrate Wetting by Thermally Sprayed Particles**
M.M. HYLAND, A.T.T. TRAN, Dept. of Chemical and Materials Engineering, University of Auckland, New Zealand

Session CD-2 - Theory, Modelling and Simulation of Interface Interactions

9.20 *CD-2:IL01* **Modeling the Effects of Surface Segregation on the Equilibrium Shape of FCC Alloy Crystals**
D. CHATAIN, CINaM- CNRS, Aix Marseille University, Marseille, France; P. WYNBLATT, Dept. of Materials Science, Carnegie Mellon University, Pittsburgh PA, USA

9.50 *CD-2:IL02* **Thermo-chemical Design of Brazed Diamond-metal Joints**
C. LEINENBACH, J. WANG, S. BUHL, M. ROTH, EMPA - Swiss Federal Labs for Materials Testing and Research, Laboratory of Joining and Interface Technology, Dübendorf, Switzerland

10.20 *CD-2:IL03* **First-principles Theory and Atomistic Simulation of the Formation, Structure, and Stability of Incoherent Metal/ceramic Interfaces**
A. HASHIBON[1], C. ELSAESSER[1], P. GUMBSCH[1, 2]; [1]Fraunhofer IWM, Freiburg, Germany; [2]IZBS, University of Karlsruhe, Germany

10.50 *Break*

Chair: A.M. GLAESER, USA

Session CD-3 - Advances in Joining Methods and Materials

11.20 *CD-3:IL01* **Ultrarapid Transient-liquid-phase Bonding of Advanced Ceramics**
S.M. HONG, C.C. BARTLOW, T.B. REYNOLDS, N. SAITO, **A.M. GLAESER**, Dept. of Matls Science and Eng., University of California, Berkeley, CA, USA

11.50 *CD-3:IL02* **Joining Ultra-high-temperature Materials: Ceramic/Metal Interfaces in Reactive Brazes**
J.E. INDACOCHEA, O. QUINTANA, Civil and Matls Eng. Dept., University of Illinois at Chicago, Chicago, IL, USA

12.20 *CD-3:IL03* **Development of Joining Technique for SiC/SiC Composite Component Utilizing NITE Process**
T. HINOKI, Y.H. PARK, S. KONISHI, Kyoto University, Uji, Kyoto, Japan

Session CE-1 - Ultra High Temperature Ceramics

Room: **VENERE**

Chair: G. MOTZ, Germany

9.00 *CE-1:IL11* **ZrB2-Based Ceramics for Ultra-High Temperature Applications**
W.G. FAHRENHOLTZ, G.E. HILMAS, Missouri University of Science and Technology, Rolla, MO, USA

9.30 *CE-1:L13* **Creep of Single Crystal ZrB2 Using Non-contacting Methods**
R.W. HYERS, University of Massachusetts, Amherst, MA, USA; R.P. AUNE, **K.W. WHITE**, Dept. of Mechanical Engineering, University of Houston, Houston, TX, USA

9.50 *CE-1:L14* **Ultra-high Temperature Ceramics Containing TaSi2: Production, Microstructure Characterization, Mechanical and Oxidation Properties**
L. SILVESTRONI, D. SCITI, CNR-ISTEC, Institute of Science and Technology for Ceramics, Faenza, Italy

10.10 *CE-1:L15* **Oxidation Behaviour of HfB2 Based Ceramics at Intermediate (~1600 °C) and Ultra High (~3000 °C) Temperatures**
D. DONI JAYASEELAN[a], P. BROWN[b], W.E. LEE[a], [a]Structural Ceramics Centre, Dept. of Materials, Imperial College London, UK; [b]Dstl, Porton Down, Salisbury, Wiltshire, UK

10.30 *CE-1:L16* **Titanium Carbide Reinforced Composite Ceramic Tools Based on Alumina**
M. SZUTKOWSKA, B. SMUK, The Institute of Advanced Manufacturing Technology, Cracow, Poland; M. BONIECKI, The Institute of Electronic Materials Technology, Warsaw, Poland

10.50 *Break*

Chair: W.G. FAHRENHOLTZ, USA

11.10 *CE-1:IL17* **Factors Affecting Oxidation Kinetics of Refractory Diborides**
T.A. PARTHASARATHY*, R.A. RAPP**, M. OPEKA***, M.K. CINIBULK, Air Force Research Laboratory, Materials and Manufacturing Directorate, AFRL/RXLN, Wright-Patterson AFB, OH, USA; *UES, Inc., Dayton, OH, USA; **The Ohio State University, Columbus, OH, USA; ***Naval Surface Warfare Center, Carderock, MD, USA

11.40 *CE-1:IL18* **Novel Non-contact Measurement of Creep in ZrB2 and ZrB2-SiC Composites**
R.W. HYERS, University of Massachusetts, Amherst, MA, USA; J.R. ROGERS, NASA Marshall Space Flight Center, USA

Session CE-2 - Nitride, Carbide and Boride Ceramics

12.10 *CE-2:IL01* **Development of Nano-sized TiN Dispersed Si3N4 Ceramics**
K. KOMEYA, J. TATAMI, T. WAKIHARA, T. YAMAKAWA, Dept. of Materials Industry, Yokohama National University, Yokohama, Japan

12.40 *CE-2:IL02* **Phase Equilibria in B4C-based Ceramics**
H.J. SEIFERT, Technical University of Freiburg, Institute of Materials Science, Freiberg, Germany

Sub-session CF-4.2 - Energy Conversion and Storage

Room: **ALBA 2**

Chair: A. YAMADA, Japan

9.30 *CF-4.2:IL01* **Towards the Miniaturization of Solid Oxide Fuel Cells**
E. TRAVERSA, International Center for Materials Nanoarchitectonics (MANA), National Institute for Materials Science (NIMS), Tsukuba, Japan

10.00 *CF-4.2:IL03* **Single-phase vs. Two-phase Mechanism of Li+ Extraction from LiFePO4: the Role of Defects**
C. MASQUELIER, S. HAMELET, P. GIBOT, M. CASAS CABANAS, J.M. TARASCON, LRCS, Université de Picardie Jules Verne, Amiens, France; C. GREY, J. CABANA, Stony Brook, NY, USA; S. LEVASSEUR, P. CARLACH, Umicore, Belgium

10.30 *CF-4.2:L05* **Flexible SOFC: Challenges**
HYOUP JE CHO, **GYEONG MAN CHOI**, Dept. of Materials Science and Eng./ Fuel Cell Research Center, Pohang University of Science and Technology (POSTECH), Pohang, Korea; YOUNG MIN PARK, Fuel Cell Project, Research Institute of Industrial Science and Technology, Pohang, Korea

10.50 *Break*

Session CF-2 - Ceramic Membranes and Filters

Room: **ALBA 2**

Chair: F.M.M. SNIJKERS, Belgium

11.20 *CF-2:IL06* **Hydrogen-permselective Amorphous Silica-based Membranes**
Y. IWAMOTO, Dept. of Frontier Materials, Nagoya Institute of Technology, Nagoya, Japan

11.50 *CF-2:IL07* **Elaboration and Modification of Ceramic Membranes for Filtration Processes**
S.A. CERNEAUX, A.B. LARBOT, **D. CORNU**, IEM, UMR 5635, site CNRS, Montpellier Cedex, France

12.20 *CF-2:L08* **Influence of Oxygen Surface Exchanges on Oxygen Semi-permeation Performances of La1-xSrxFe1-yGayO3-d Membranes**
A. VIVET, P.M GEFFROY, V. COUDERT, T. CHARTIER, CNRS-ENSCI-SPCTS, UMR 6638, Limoges, France; P. DEL GALLO, N. RICHET, Air Liquide, Centre de Recherche Claude-Delorme, Jouy-en-Josas cedex, France

Session CG-1 - Advances in Deposition, Surface Modification and Characterisation

Room: **GIOVE**

Chair: S. VEPREK, Germany

9.00 *CG-1:IL10* **Mechanical Properties of Composite Films Consisting of Silicon Nanopillars Embedded in a Nanostructured SiC Matrix**
A.R. BEABER[1], W.W. GERBERICH[1], **S.L. GIRSHICK**[2], [1]Dept. of Chemical Eng. and Matls Science, University of Minnesota, Minneapolis, MN, USA; [2]Dept. of Mechanical Eng., University of Minnesota, Minneapolis, MN, USA

9.30 *CG-1:L12* **Suspension Plasma Spraying - Influence of Spraying Parameters on Yttria Stabilized Zirconia Coatings Microstructure**
K. WITTMANN-TENEZE, J. TOULC'HOAT, E. BRUNETON, E. ESTRADE, CEA DAM Le Ripault, Monts, France

9.50 *CG-1:L13* **Characterization of Thin Films in Silicate Surfaces**
L. FRÖBERG, M. PIISPANEN, L. HUPA, Process Chemistry Centre, Åbo Akademi University, Tuku, Finland

10.10 *Break*

Session CG-2 - High Performance Protective Coatings in Oxidizing and Harsh Environments

Room: **GIOVE**

Chair: S.L. GIRSHICK, USA

10.40 *CG-2:IL01* **Design of Super- (H>40 GPa) and Ultrahard (H>80 GPa) Nanocomposite Coatings: Theoretical Background, Experiments, and Industrial Applications**
S. VEPREK, Dept. of Chemistry, TU Munich, Garching, Germany

11.10 *CG-2:IL02* **Environmental Barrier Coatings for Ceramic Matrix Composites**
KANG N. LEE, Rolls Royce Corporation, Indianapolis, IN, USA

11.40 *CG-2:L04* **Nanolaminated Coatings in the Y2O3-Al2O3-ZrO2 System Deposited by MOCVD**
N.K. EILS, P. MECHNICH, DLR, Institute of Materials Research, Cologne, Germany; H. KEUNE, Technical University of Braunschweig, Institute of Surface Technology, Germany

12.00 *CG-2:L05* **Precursor-derived, Ultra-thin Aluminophosphate Protective Coatings**
B. MANGRICH, S. SAMBASIVAN, Applied Thin Films, Inc., Evanston, IL, USA

12.20 *CG-2:L06* **Particle-filled Polysilazane-based Coatings on Steel**
M. GÜNTHNER, T. KRAUS, W. KRENKEL, G. MOTZ, University of Bayreuth, Ceramic Materials Engineering (CME), Bayreuth, Germany; D. DECKER, Clariant Advanced Materials GmbH, Sulzbach am Taunus, Germany

Session CH-1 - Dielectric of Microwave Materials

Room: **SIRIO**

Chair: I. LEVIN, USA

9.00 *CH-1:IL08* **Thermoplastic Ceramic-polymer Composited of 0-3 Connectivity for High Frequency Applications**
H. JANTUNEN, J. JUUTI, Microelectronics & Materials Physics Lab. and EMPART Research Group of Infotech Oulu, Oulu, Finland; M.T. SEBASTIAN, National Inst. for Interdisciplinary Science & Technology, Trivandrum, India

9.30 *CH-1:IL09* **Oxide Nanosheets and Their Integration Technologies for High-k Dielectrics**
M. OSADA, T. SASAKI, WPI Center for Materials Nanoarchitectonics (MANA), National Inst. for Materials Science, Tsukuba, Japan, and CREST, JST, Japan

10.00 *CH-1:IL11* **Thin Films of Advanced Dielectrics for High Frequency Applications: Deposition, (Nano) Characterization and Device Fabrications**
R. LO NIGRO, Istituto per la Microelettronica e Microsistemi (IMM)-CNR, Catania, Italy

10.30 *Break*

Session CH-2 - Ferroelectrics, Piezoelectrics

Room: **SIRIO**

Chair: P. MURALT, Switzerland

11.00 *CH-2:IL01* **Advances in Pb-free Piezoelectric Materials**
A. SAFARI, The Glen Howatt Electroceramic Lab., Dept. of Matls Science and Eng., Rutgers University, Piscataway, NJ, USA

11.30 *CH-2:IL02* **Effect of DC Poling Field on Domain Behaviour in Lead Free Piezoelectric Ceramics**
T. OGAWA, Dept. of Electrical and Electronic Eng., Shizuoka Institute of Science and Technology, Fukuroi, Shizuoka, Japan; M. FURUKAWA. T. TSUKADA, Materials & Process Development Centre, TDK Corporation, Narita, Chiba, Japan

12.00 *CH-2:IL04* **Fractal Geometry and Properties of Doped BaTiO3 Ceramics**
V. MITIC[1,2], V.B. PAVLOVIC[3], LJ. KOCIC[1], V. PAUNOVIC[1], LJ. ZIVKOVIC[1], [1]University of Nis, Faculty of Electronic Engineering, Nis, Serbia; [2]Institute of Technical Sciences of SASA, Belgrade, Serbia; [3]University of Belgrade, Faculty of Agriculture, Belgrade, Serbia

12.30 *CH-2:IL03* **Piezoelectric Materials in Thin Form for MEMS and NEMS Applications**
D. REMIENS, C. SOYER, IEMN-CNRS, Villeneuve d'Ascq, France

Session CI-2 - Multiferroics Compounds

Room: **URANO**

Chair: C. PANAGOPOULOS, Crete

9.00 *CI-2:IL03* **Electronic Orbital Currents and Polarization in Mott Insulators**
D. KHOMSKII, II. Physikalisches Institut, University of Köln, Köln, Germany

9.30 *CI-2:IL04* **Strain Engineered Magnetoelectric Coupling and Ferro-electricity in Orthorhombic AMnO3 Epitaxial Thin Films**
J. FONTCUBERTA, X. MARTI, I. FINA, L. FABREGA, F. SANCHEZ, Institut de Ciencia de Materials de Barcelona (ICMAB-CSIC), Bellaterra, Spain; V. SKUMRYEV, Universitat Autonoma de Barcelona (UAB), Dept. Fisica, Bellaterra, Spain and Institut Catala de Recerca i Estudis Avancats, Barcelona, Spain; C. FERRATER, M. VARELA, Universitat de Barcelona, Dept. Fisica Aplicada i Optica, Barcelona, Spain

10.00 *CI-2:IL06* **Charge-based Magnetoelectric Coupling in Complex Oxide Heterostructures**
C. AHN, Yale University, New Haven, CT, USA

10.30 *CI-2:IL01* **Room-temperature Multiferroic Coupling of BiFeO3**
J.-G. PARK, Dept. of Physics & Astronomy, Seoul National University, Seoul, Korea

Session CJ-1 - Science of Silicate Ceramics

Room: **SMERALDO 1**

Chair: D. HOTZA, Brazil

8.40 *CJ-1:IL04* **Glass Ceramic Systems Suitable for Conventional Ceramic Glazes**
B. KARASU, Anadolu University, Dept. of Materials Science and Engineering, Eskisehir, Turkey

9.10 *CJ-1:IL05* **New Development in the Non Contact Measurement of Thermo-mechanical Properties of Materials**
M. PAGANELLI, Expert System Solutions Srl, Modena, Italy; D. PAGANELLI, Ingegneria dei Materiali, Università di Modena, Italy

9.40 *CJ-1:L06* **Use of Iron-rich Slag as Raw Material for Production of Glassy and Glass-ceramic Pyroxene Materials**
E.I. CEDILLO GONZÁLEZ[1], **J.J. RUIZ VALDÉS**[1,2], A. ÁLVAREZ MÉNDEZ[1], [1]Facultad de Ciencias Químicas, Universidad Autónoma de Nuevo León, Monterrey, N.L., Mexico; [2]Centro de Innovación, Investigación y Desarrollo en Ingeniería y Tecnología CIIDIT, Universidad Autónoma de Nuevo León, Apodaca, N.L., Mexico

10.00 *Break*

Session CK-1 - Preparation

Room: **SMERALDO 1**

Chair: V. BILEK, Czech Republic

10.30 *CK-1:IL03* **The Role of Molecular Research in the Commercialization of Geopolymer Concrete in Australia**
J.S.J. VAN DEVENTER, P. DUXSON, Zeobond Pty Ltd, Somerton, Victoria, Australia; J.L. PROVIS. C.E. WHITE, Dept. of Chemical & Biomolecular Eng., The University of Melbourne, Victoria, Australia

11.00 *CK-1:L05* **The Incorporation of Gallium Into Inorganic Polymer Structures: Synthesis and Thermal Behaviour**
A.T. DURANT, K.J.D. MACKENZIE, Victoria University of Wellington, Wellington, New Zealand

11.20 *CK-1:L06* **Kinetic Analysis of Processes Underlying Geopolymerization and Gain of Strength**
C. CHEN, W. GONG, **W. LUTZE**, I.L. PEGG, The Catholic University of America, Washington, DC, USA

11.40 *CK-1:L07* **Understanding Study of Silicate-based Gel formed during the Setting of Ceramic Materials**
M.T. TOGNONVI, S. ROSSIGNOL, J.P. BONNET, GEMH-ENSCI, Limoges, France; A. LECOMTE, SPCTS-ENSCI, Limoges, France; D. MASSIOT, CEMHTI-CNRS UPR 3079, Orléans, France

12.00 *CK-3:L13* **Recycling of Industrial Waste Water by its Immobilization in Geopolymer Cement**
D. TAVOR, A. WOLFSON, T. MEYOHAS, S. RONEN, Center of Green Processes, Chemical Engineering Dept., Sami Shamoon College of Eng., Beer-Sheva, Israel
(rescheduled time as for Author request)

Session CL-1 - Raw Materials

Room: **SMERALDO 3**

Chair: A.H. DE AZA, Spain

9.00 *CL-1:L04* **Exploitation of Ceramic Wastes by Recycling in Alumina-Mullite Refractories**
F. MAZZANTI, A. BRENTARI, A. COGLITORE, C. MINGAZZINI , M. LABANTI, M. SCAFÈ, S. SANGIORGI, M. VILLA, ENEA, Engineering of Components and Processes Section - Faenza Research Centre, Faenza, Italy; S. MARTELLI, Centro Sviluppo Materiali S.p.A., Rome, Italy

9.20 *CL-1:L05* **Phase Equilibria and Crystal Structures in Ternary Systems Ce, Eu, Yb-VIIIb Group Element-Boron**
O. SOLOGUB, P. ROGL, Institute of Physical Chemistry, University of Vienna, Vienna, Austria; L. SALAMAKHA, E. BAUER, Institute of Solid State Physics, Vienna University of Technology, Vienna, Austria; G. GIESTER, Institute of Mineralogy and Crystallography, University of Vienna, Vienna, Austria

9.40 *CL-1:IL06* **The Latest Trend in Refractories for Iron and Steelmaking in Nippon Steel Corporation**
T. MATSUI, Refractory Ceramics R&D Division, Nippon Steel Corporation, Futtsu city, Chiba pref., Japan

10.10 *CL-1:L08* **The Effect of Additives on Performance of Chromite Base Ladle Filler Sands for Continuous Casting**
F. FARSHIDFAR, **M.G. KAKROUDI**, SH. KHAMENEH ASL, Dept. of Material Science and Engineering, Faculty of Mechanical Engineering, University of Tabriz, Tabriz, Iran

10.30 *Break*

Session CL-3 - Manufacturing, Selection, Design and Use

Room: **SMERALDO 3**

Chair: V.C. PANDOLFELLI, Brazil

11.00 *CL-3:IL01* **Carbon Containing Castables and More**
C.G. ANEZIRIS, S. DUDCZIG, Institute of Ceramic, Glass and Construction Materials, TU Bergakademie Freiberg, Germany

11.30 *CL-3:IL02* **Microtexture Control of Alumina Using Anisotropic Alumina Particles**
S. HASHIMOTO, S. HONDA, Y. IWAMOTO, Nagoya Institute of Technology, Nagoya-shi, Japan; H. HIRANO, Towa Refractory Engineering, Kani-shi, Japan

12.00 *CL-3:L04* **Adding Borates to Al2O3-MgO Refractory Castables**
M.A.L. BRAULIO, V.C. PANDOLFELLI, Federal University of Sao Carlos, Materials Engineering Dept., Materials Microstructure Engineering Group - GEMM, Sao Carlos, SP, Brazil

12.20 *CL-3:L05* **Sintering Studies on Magnesia-Rich Chromium-Free Spinel-Bonded Basic Refractories**
R. LODHA, C. OPREA, T. TROCZYNSKI, G. OPREA, Dept. of Materials Engineering, University of British Columbia, Vancouver, BC, Canada

Session CM-2 - Nanomaterials Characterization and Techniques

Room: **SMERALDO 2**

Chair: A. MERMET, France

9.00 *CM-2:IL01* **Raman Spectroscopy of Functionalized Carbon Nanostructures**
J. MAULTZSCH, **H. TELG**, Institut f. Festkörperphysik, Technische Universität Berlin, Berlin, Germany

9.30 *CM-2:IL02* **Non-contact Atomic Force Microscopy for Nano-characterization**
M. ABE, Y. SUGIMOTO, S. MORITA, Graduate School of Engineering, Osaka University, Suita, Japan

10.00 *CM-2:IL03* **Size and Surface Effects on Emission Properties of Lanthanide Doped Upconversion NaYF4 Nanoparticles**
G.M. CHOW, Dept. of Materials Science and Engineering, National University of Singapore, Kent Ridge, Republic of Singapore

10.30 *CM-2:IL04* **Low-frequency Raman Scattering in Nanometric Structures**
A. MERMET, E. DUVAL, LPCML, Université Lyon, Villeurbanne, France

11.00 *Break*

Session CM-1 - Nanomaterials and Systems at Nanoscale

Room: **SMERALDO 2**

Chair: G. RAMANATH, USA

11.30 *CM-1:IL10* **Layer-by-Layer Assembly of Transition Metal Oxide Nanosheets Into Functional Ultrathin Films**
T. SASAKI, Y. EBINA, M. OSADA, International Center for Materials Nanoarchitechtonics (MANA), National Institute for Materials Science (NIMS), Tsukuba, Ibaraki, Japan

12.00 *CM-1:IL11* **Nanocrystal Based Architectures for Optoelectronics and Photonics**
N. GAPONIK, Physical Chemistry, TU Dresden, Germany

12.30 *CM-1:L12* **Nano/Micro-protusions on Cu-based Alloys Grown by Ar Ion Irradiation**
M. NAMATAME, S. ODA, Dept. of Metallurgy, Tohoku University, Sendai, Japan; S.-I. TANAKA, Institute of Multidisciplinary Research for Advanced Materials, Tohoku University, Sendai, Japan

Session CN-1 - Production and Properties of Reinforcements, Preforms, and Matrix Materials

Room: **AMBRA**

Chair: J. SINGH, USA *(Programme Chair)*

9.30 *Welcome*

9.40 *CN-1:IL01* **Advanced Ceramic Fibers**
D. SPORN, Fraunhofer-Institute für Silicatforschung, Wuerzburg, Germany

10.15 *CN-1:IL02* **Composites with Ceramic Matrix Through Sol-gel Route**
S. MANOCHA, M. VYAS, L.M. MANOCHA, Dept. of Materials Science, Sardar Patel University, Vallabh Vidyanagar, India

10.50 *CN-1:L04* **Si-C-O Fibers in Gas Reactive Atmospheres**
M. BRISEBOURG, G. PUYOO, H. PLAISANTIN, **G. CHOLLON**, Lab. des Composites Thermostructuraux, University of Bordeaux, Pessac, France

11.15 *Break*

Chair: D. SPORN, Germany

11.45 *CN-1:IL06* **Ceramic Fibers - Manufacturing, Properties and Applications**
B. CLAUß, ITCF Denkendorf, Denkendorf, Germany

12.20 *CN-1:L07* **Continuous Non-oxide Nanofibers Produced with a Polymer-derived Ceramic Approach**
V. SALLES, S. BERNARD, A. BRIOUDE, D. CORNU, P. MIELE, Laboratoire des Multimatériaux et Interfaces UMR UCBL/CNRS 5615 - Université Lyon 1 Villeurbanne, France

Session CA-1 - Powder Synthesis and Characterisation

Room: **VENERE**

Chair: G.R. PATZKE, Switzerland

17.20 *CA-1:IL06* **Microstructural Tailoring of YAG and YAG-containing Nanoceramics Through Advanced Synthesis Routes**
P. PALMERO, L. MONTANARO, Dept. of Materials Science and Chemical Engineering, Politecnico di Torino, Torino, Italy

17.50 *CA-1:L15* **Synthesis, Up-conversion Luminescence and Sensing Properties of Trivalent Rare Earth Ion Doped CeO2 Powders**
L. BACA, H. STEINER, N. STELZER, AIT Austrian Institute of Technology GmbH, Advanced Materials and Aerospace Technologies, Seibersdorf, Austria

18.10 *CA-1:L16* **Ultra-fine WC-Co Composites Prepared by Nitride Conversion Method and Their Properties**
YAN-MEI KAN, SHI-KUAN SUN, GUO-JUN ZHANG, State Key Laboratory of High Performance Ceramics and Superfine Microstructures, Shanghai Institute of Ceramics, Shanghai, China

18.30 *CA-1:L17* **Synthesis of Ceramic Materials from Waste Residues**
S. PORTOFINO, S. GALVAGNO, ENEA, C.R. Portici, Portici (NA), Italy

18.50 *CA-1:L18* **Solvothermal Synthesis of ITO Nanoparticles Precisely Controlled in Size and Shape**
A. MURAMATSU, T. SASAKI, Y. ENDO, Y. DOI, K. KANIE, Institute of Multidisciplinary Research for Advanced Materials, Tohoku University, Sendai, Japan

19.10 *CA-1:L20* **Challenges in the Synthesis of Metal Fluorides via Microemulsion Route**
A. SABERI, M. WILLERT-PORADA, Faculty of Engineering Science, University of Bayreuth, Bayreuth, Germany

Session CA-2 - Colloidal Processing

Room: **AUDITORIUM**

Chair: P. BOWEN, Switzerland

15.00 *CA-2:IL06* **When Specific Interparticle Forces Lead Colloidal Particles to Self-assemble in Dilute Suspensions: Simulation and Experiment**
A. VIDECOQ, M. PIECHOWIAK, C. PAGNOUX AND F. ROSSIGNOL, SPCTS, UMR 6638, ENSCI, CNRS, Limoges, France; M. CERBELAUD, R. FERRANDO, Dipartimento di Fisica dell'Università di Genova, Genova, Italy

15.30 *CA-2:IL07* **Modified Surfaces of Ceramic Particles Finely Tuned for Ceramic Forming Processes**
K. SATO, National Institute of Advanced Industrial Science and Technology (AIST), Nagoya, Japan

16.00 *CA-2:L08* **Influence of Energy Input on Suspension Properties**
A. MEYER, A. POTTHOFF, K. LENZNER, Fraunhofer IKTS, Dresden, Germany

16.20 *CA-2:L09* **Effects of Dispersion Surfactants on the Properties of Alumina - Carbon Nanotube (CNT) Nanocomposites**
F. INAM[1], A. HEATON[2], P. BROWN[2], T. PEIJS[1,3], M.J. REECE[1,3], [1]Queen Mary University of London, Nanoforce Technology Ltd, London, UK; [2]Dstl, Porton Down, Salisbury, Wiltshire, UK; [3]Queen Mary University of London, School of Engineering and Materials Science, London, UK

16.40 *Break*

Session CA-4 - Sintering and Related Phenomena

Room: **AUDITORIUM**

Chair: D. BOUVARD, France

17.00 *CA-4:L05* **Effect of Anisotropic Local Structure on Sintering Stress Tensor and Viscosities for Macroscopic Shrinkage in Sintering**
F. WAKAI, Y. SHINODA, T. AKATSU, Secure Materials Center, Materials and Structures Laboratory, Tokyo Institute of Technology, Yokohama, Japan

17.20 *CA-4:L06* **Particle-based Simulations of Thin Film Sintering**
T. RASP, A. WONISCH, T. KRAFT, H. RIEDEL, Fraunhofer Institute for Mechanics of Materials, Freiburg, Germany

17.40 *CA-4:L07* **Modelling Multi-cracking in Thin Films during Constrained Sintering**
FAN LI, JINGZHE PAN, Dept. of Engineering, University of Leicester, Leicester, UK

18.00 *CA-4:L08* **Contribution of Discrete Element Simulation to the Analysis of Ceramic Aggregated Powder Processing**
P. PIZETTE[1], C.L. MARTIN[1], G. DELETTE[2], F. SANS[3], D. BOUVARD[1], [1]Lab. SIMAP-GPM2, Grenoble Institute of Technology / Université Joseph Fourier / CNRS, Saint Martin d'Heres, France; [2]CEA-Grenoble, DRT/LITEN/DTH/LEV, Grenoble Cedex, France; [3]AREVA/MELOX DT/DIP, Bagnols sur Cèze, France

18.20 *CA-4:L10* **Reactive Spark Plasma Sintering of Si3N4/SiC Composites**
Z. TASLICUKUR[1], F. CINAR SAHIN[2], N. KUSKONMAZ[1], [1]Yildiz Technical University, Metallurgical and Matls Engrg Dept., Istanbul, Turkey; [2]Istanbul Technical University, Metallurgical and Matls Engrg Dept., Istanbul, Turkey

18.40 *CA-4:L11* **Monitoring Constrained Sintering of Yttria Stabilised Zirconia Coatings Using Fluorescence Spectroscopy**
I.P. SHAPIRO, PING XIAO, University of Manchester, Manchester, UK

Session CB-1 - Soft Solution Processing

Room: **LE PLEIADI**

Chair: K. BYRAPPA, India

15.00 *CB-1:L08* **Morphology Control of Rutile, Brookite and Anatase Type Titanium Dioxide by Hydrothermal Treatment of Water Soluble Titanium Complexes**
M. KOBAYASHI, M. KAKIHANA, IMRAM, Tohoku University, Sendai, Japan; V. PETRYKIN, J. Heyrovsky Institute of Physical Chemistry, Prague, Czech; K. TOMITA, Tokai University, Hiratsuka, Japan

15.20 *CB-1:L09* **Synthesis and Characterization of High Surface Area Zinc Oxide-carbon Composite**
T. YONG-JIN HAN**,** M.A. WORSLEY, T.F. BAUMANN, J.H. SATCHER Jr., **T.Y. OLSON**, Physical and Life Sciences, Lawrence Livermore Nat. Lab., Livermore, CA, USA

15.40 *CB-1:L10* **Synthesis of Alumina and Aluminium Nitride Layers on a Graphite Substrate via a Sol-gel Route**
F. FONTAINE, R. PAILLER, A. GUETTE, Laboratoire des Composites Thermo-structuraux, University of Bordeaux 1, Pessac, France

16.00 *CB-1:L11* **Synthesis of Monodispersed Plate-like CeO2 Particles by Mild Solution Process**
S. YIN, Y. MINAMIDATE, T. SATO, IMRAM, Tohoku University, Sendai, Japan

16.20 *CB-1:L12* **Co-doping Effect of Metal Ion on the visible Light Responsive Photocatalytic Properties of Nitrogen-doped Titanium Dioxide**
PEILIN ZHANG, SHU YIN, T. SATO, IMRAM, Tohoku University, Sendai, Japan

16.40 *CB-1:L13* **Transparent Silica Ambigels through Ternary Azeotropic Mixture**
YOUNG-JEI OH, JEON-KOOK LEE, WON-KOOK CHOI, Materials Science and Technology Division, Korea Institute of Science and Technology (KIST), Seoul, South Korea

17.00 *Break*

Chair: J. BINNER, UK

17.30 *CB-1:L14* **Use of Additives in the CSD Approach to Oxide Ceramic Layers. The YBCO Example**
S. RICART, F. MARTÍNEZ- JULIÁN, X. PALMER, P. ABELLAN, F. SANDIUMENGE, A. POMAR, A. PALAU, X. OBRADORS, T. PUIG, Instituto Ciencias de Materiales de Barcelona (CSIC), Bellaterra, Spain

17.50 *CB-1:L15* **High-performance Si-based Photoceramics via Aqueous Solution Processes Using New Water-soluble Si-compounds**
M. KAKIHANA, Y. SUZUKI, S. TEZUKA, IMRAM, Tohoku University, Sendai, Japan; **V. PETRYKIN**, J. Heyrovsky Institute of Physical Chemistry, Prague, Czech

18.10 *CB-1:L16* **Tailored Silica Based Aerogels for Insulation in Space Environments**
L. DURAES, M. OCHOA, A. PORTUGAL, Dept. of Chemical Engineering, University of Coimbra, Coimbra, Portugal; A. MANAIA, J.P. DIAS, LED&MAT, IPN-Instituto Pedro Nunes, Coimbra, Portugal; J. HERNANDEZ, R. PATRÍCIO, AST-Active Space Technologies, IPN, Coimbra, Portugal

18.30 *CB-1:L17* **Microwave Assisted Solvothermal Synthesis and Visible Light Photocatalytic Properties of Nb and N Co-doped SrTiO3 Nanoparticles**
U. SULAEMAN, S. YIN, T. SATO, IMRAM, Tohoku University, Sendai, Japan

18.50 *CB-1:L18* **Soft Solution Processing of Ceramic Powders and Films: Preparation, Properties and Application**
YANFENG GAO, HONGJIE LUO, Shanghai Institute of Ceramics, CAS, Shanghai, China

Session CB-7 Hybrid Materials

Room: **ZENITH**

Chair: C. SANCHEZ, France

15.00 *CB-7:L07* **Exploring Inorganic-Organic Interfaces in Hybrid Materials with Advanced NMR Tools**
N. FOLLIET, N. BACCILE, T. AZAIS, C. GERVAIS, G. LAURENT, C. BONHOMME, **F. BABONNEAU**, Lab. de Chimie de la Matiere Condensee de Paris, Universite Pierre et Marie Curie-UPMC and CNRS, College de France, Paris, France; P.M. AGUIAR, D. SAKELLARIOU, Lab. de Structure et Dynamique par Resonance Magnétique, Service Interdisciplinaire sur les Systemes Moleculaires et les Materiaux (Lab. Claude Frejacques, CNRS URA 331) DSM/IRAMIS/SIS2M, CEA Saclay, Gif-sur-Yvette, France

15.20 *CB-7:L08* **Thermal and Dimensional Stability of Filled Hybrid Foam**
MING Y. CHEN[1], CHENGGANG CHEN[1,2], [1]Air Force Research Laboratory, Materials & Manufacturing Directorate, Wright-Patterson AFB, OH, USA; [2]University of Dayton Research Institute, Dayton, OH, USA

15.40 *CB-7:L09* **In-situ TEM Observation of the Crystallization Process for Li NbO3 and NaNbO3**
H. NAKANO, Toyohashi University of Technology, Toyohashi, Japan; Y. SUYAMA, Shimane University, Japan

16.00 *CB-7:L10* **Ceramic/Polymeric Hybrids with Reduced Coefficients of Thermal Expansion**
CHENGGANG CHEN[1,2], K.H. HOOS[1,3], MING Y. CHEN[1], [1]Air Force Research Laboratory, Materials & Manufacturing Directorate, Wright-Patterson AFB, OH, USA; [2]University of Dayton Research Institute, Dayton, OH, USA; [3]Southwestern Ohio Council for Higher Education, USA

16.20 *CB-7:L11* **Dimension- and Direction-controlled Gold Nanorods Deposited in Ordered Mesoporous Silica**
G. KAWAMURA, I. HAYASHI, R.A. FITRAH, J. HAMAGAMI, M. SAKAI, A. MATSUDA, Toyohashi University of Technology, Toyohashi, Japan; H. MUTO, Kurume National Col. Technol., Japan

16.40 *Break*

Session CB-8 - Porous Ceramics

Room: **ZENITH**

Chair: F. BABONNEAU, France

17.10 *CB-8:L04* **High Surface Area Cr2O3 Tubes Synthesized by Replica Technique**
P. GIBOT, Institut Franco-Allemand de Recherches de Saint-Louis (ILS), NS3E, ISL/CNRS UMR 3208, Saint-Louis Cedex, France

17.30 *CB-8:L07* **Synthesis and Characterization of Spherical Mesoporous Hydroxyapatite**
F.-Y. YEOH, K.-S. LEW, School of Materials & Mineral Resources Engineering, University Sains Malaysia, Penang, Malaysia

17.50 *CB-8:L08* **Fabrication of Porous Ceramics by Spark Plasma Sintering**
P. MIRANZO, E. GARCIA, M.I. OSENDI, Institute of Ceramics and Glass (CSIC), Madrid, Spain

18.100 *CB-8:L09* **Structural, Mechanical and Filtering Properties of Porous Titania / Alumina Ceramic**
A. BUTLERS, R. SVINKA, V. SVINKA, Riga Technical University, Institute of Silicate Materials, Riga, Latvia

Session CB-11.2 - Fundamentals of SHS

Room: **ORSA MINORE**

Chair: J. LIS, Poland

15.00 *CB-11.2:IL05* **Gasless Combustion: Physical Modelling of the Process**
A.S. ROGACHEV, Institute of Structural Microkinetiks and Materials Science, RAS, Chernogolovka, Moscow region, Russia

15.30 *CB-11.2:IL06* **Modeling the Combustion Synthesis of Intermetallic Compounds**
F. BARAS, F. BERNARD, Lab. Interdisciplinaire Carnot de Bourgogne, UMR 5209 CNRS-Université de Bourgogne, Dijon Cedex, France

16.00 *CB-11.2:L08* **Macrokinetics of Formation of Macrostructure of Product in SHS**
V. PROKOFIEV, V. SMOLYAKOV, Dept. of Structural Macrokinetics of Tomsk Scientific Center of Siberian Branch of RAS, Tomsk State Univ., Tomsk, Russia

16.20 *Break*

Session CB-12.2 - Layered and Graded Thin and Thick Coatings

Room: **ORSA MINORE**

Chair: M. FRIESS, Germany

16.50 *CB-12.2:IL01* **Multifunctional Nanostructured Films for Biomedical Applications**
D.V. SHTANSKY, I.A. BASHKOVA, A.N. SHEVEIKO, E.A. LEVASHOV, National University of Science and Technology “MISIS”, Moscow, Russia; N.A. GLOUSHANKOVA, Cancer Research Center, Moscow; A.S. GRIGORYAN, Central Research Dental Institute, Moscow, Russia

17.20 *CB-12.2:IL02* **Fabrication of Porous Intermetallic Thick Films by Metallic Powder-liquid Reaction**
T. OHMI, M. IGUCHI, Hokkaido University, Sapporo, Hokkaido, Japan

17.50 *CB-12.2:IL03* **High-strength Reaction-sintered Silicon Carbide for Large-scale Mirrors**
S. SUYAMA, Y. ITOH, Power and Industrial Systems R&D Center, Toshiba Corp., Yokohama, Japan

Session CE-2 - Nitride, Carbide and Boride Ceramics

Room: **VENERE**

Chair: G. FANTOZZI, France

15.00 *CE-2:IL03* **Defect Detection in Ceramic Armor Using Phased Array Ultrasound**
W.A. ELLINGSON, Argonne National Laboratory, Argonne, IL, USA; J.S. STECKENRIDER, Illinois College, Jacksonville, IL, USA ; T.J. MEITZLER, US Army, Warren, MI, USA

15.30 *CE-2:IL04* **Silicon Nitride Ceramics - Microstructural Tailoring and Mechanical Properties**
M.J. HOFFMANN, S. FÜNFSCHILLING, TH. FETT, Karlsruhe Institute for Technology, Inst. for Ceramics in Mechanical Engineering, Karlsruhe, Germany

16.00 *CE-2:L05* **Microstructure and Mechanical Properties of Rare-earth Doped Si3N4 and Si3N4/SiC Ceramics**
P. TATARKO[1], S. LOJANOVÁ[2], Z. CHLUP[3], **J. DUSZA**[1], P. SAJGALÍK[2], [1]Institute of Materials Research, SAS, Kosice, Slovak Republic; [2]Institute of Inorganic Chemistry, SAS, Bratislava, Slovak Republic; [3]Institute of Physics of Materiále, Academy of Sciences of the Czech Republic, Brno, Czech Republic

16.20 *CE-2:L06* **Tribo-mechanical Properties of Carbon Nanotubes/ Silicon Nitride Nanocomposites**
J. GONZALEZ-JULIAN*, J. SCHNEIDER**, P. MIRANZO*, M.I. OSENDI*, **M. BELMONTE***, *Institute of Ceramics and Glass (CSIC), Campus de Cantoblanco, Madrid, Spain; **Akademischer Oberrat, Universität Karlsruhe (TH), Inst. für Werkstoffkunde II c/o Forschungszentrum Karlsruhe, Eggenstein-Leopoldshafen, Germany

16.40 *CE-2:L07* **Hot Pressed SiC-AlN Materials System - Solid Solution Effects**
B. MIKIJELJ, Z. NAWAZ, Ceradyne Inc, Costa Mesa CA, USA; J. ADAMS, J. LASALVIA, ARL, Aberdeen proving grounds, Aberdeen, MD, USA

Session CF-2 - Ceramic Membranes and Filters

Room: **ALBA 2**

Chair: Y. IWAMOTO, Japan

15.00 *CF-2:IL01* **Ceramic Hollow Fiber Gas Separation Membranes for Sustainable Energy Production**
F.M.M. SNIJKERS, C. BUYSSE, A. KAVALEUSKI, J.J. LUYTEN, A. BUEKENHOUDT, Flemish Institute for Technological Research (VITO), Mol, Belgium

15.30 *CF-2:IL02* **The Environment Improved by the Use of Ceramic Membranes and Filters**
J. LUYTEN, S. MULLENS, F. SNIJKERS, A. BUEKENHOUDT, Materials Technology, VITO, Mol, Belgium

16.00 *CF-2:IL03* **Dense Ceramic Membranes for Oxygen Separation**
H.J.M. BOUWMEESTER, Inorganic Membranes, University of Twente, Enschede, The Netherlands

16.30 *CF-2:L04* **Ceramic Foams with Hierarchical Porosity from Preceramic Polymers**
C. VAKIFAHMETOGLU, **P. COLOMBO**, Dipartimento di Ingegneria Meccanica- Settore Materiali, Università di Padova, Padova, Italy; J. WOLTERSDORF, E. PIPPEL, Max-Planck-Institut für Mikrostrukturphysik, Halle, Germany

16.50 *CF-2:L05* **Development of Acicular Mullite Filters Designed for Filtration of Diesel Particles and Reduction of NOx**
A.J. PYZIK, R. ZIEBARTH, CHAN HAN, The Dow Chemical Company, Midland, MI, USA

17.10 *Break*

Session CF-1 - Ceramics in Chemical and Biochemical Sensors

Room: **ALBA 2**

Chair: P.K. DUTTA, USA

17.40 *CF-1:L05* **Novel Architectures for Gas Sensing through Semiconductor Thin Films Containing Au Nanoparticles with Highly Controlled Morphology**
A. MARTUCCI, E. DELLA GASPERA, Dip. Ing. Meccanica Settore Materiali, Università di Padova, Padova, Italy; M. POST, NRC-Ottawa, Canada

18.00 *CF-1:L06* **Effect of the Electrode Morphology on the Sensing Characteristic of the YSZ Based Potentiometric Oxygen Sensor**
M. MORI, Y. KOJIMA, Y. SADAOKA, Dept. of Materials Science and Biotechnology, Ehime University, Matsuyama, Japan

18.20 *CF-1:L07* **CVD of Tin Oxide Nanowires: Growth, Structure and Property**
S. MATHUR, **H. SHEN**, Institute of Inorganic and Materials Chemistry, University of Cologne, Cologne, Germany

Session CG-1 - Advances in Deposition, Surface Modification and Characterisation

Room: **URANO**

Chair: A. YEROKHIN, UK

15.00 *CG-1:IL14* **Development of Methodology of Fracture Toughness for Thin Films and Coatings**
SAM ZHANG, XIAOMIN ZHANG, School of Mechanical and Aerospace Engineering, Nanyang Technological University, Singapore

15.30 *CG-1:IL15* **Possibilities in Characterization of Ceramic Thin Coatings Pore Microstructures by Synchrotron X-ray Imaging and Scattering Techniques**
J. ILAVSKY, Advanced Photon Source, Argonne National Lab., IL, USA

16.00 *CG-1:L16* **Characteristics of $BaTiO_3$/$LaNiO_3$ and $Ba_{0.48}Sr_{0.52}TiO_3$/$LaNiO_3$ Artificial Superlattices Films Prepared by RF Magnetron Sputtering**
HSIN-YI LEE, National Synchrotron Radiation Research Center, Hsinchu, Taiwan

16.20 *CG-1:L17* **The Role of Multi-layering in Controlling Contact Damage in Nitride Based Hard Coatings: TiAlN-TiN and ZrN-Zr**
N. VERMA, S. MATH, **V. JAYARAM**, S.K. BISWAS, Indian Institute of Science, Bangalore, India

16.40 *CG-1:L18* **Ti-Si-C Films Formed by Dual Beam Ion Assisted Deposition**
A. TWARDOWSKA[1], B. RAJCHEL[2], L. JAWORSKA [1,3], [1]Institute of Technology, Pedagogical University, Krakow, Poland; [2]Institute of Nuclear Physics, Polish Academy of Sciences, Krakow, Poland; [3]Institute of Advanced Manufacturing Technology, Krakow, Poland

17.00 *Break*

Session CG-2 - High Performance Protective Coatings in Oxidizing and Harsh Environments

Room: **URANO**

Chair: J. MATEJICEK, Czech Republic

17.30 *CG-2:IL07* **Durability of Materials at High Temperature**
J.L. GROSSEAU-POUSSARD, Lab. d'Etudes des Matériaux en Milieux Agressifs (LEMMA), EA-3167, FREDD-CNRS, Université de La Rochelle, Pôle Sciences et Technologie, La Rochelle cedex, France

18.00 *CG-2:L08* **Mechanical and Surface Properties of Chemical Vapor Deposited Protective Aluminum Oxide Films on TA6V Alloy**
D. SAMÉLOR, M. AUFRAY, N. PÉBÈRE, **C. VAHLAS**, Centre Interuniversitaire de Recherche et d'Ingénierie des Matériaux, Toulouse, France; Y. BALCAEN, J. ALEXIS, L. LACROIX, J-D. BEGUIN, Université de Toulouse, INP/ENIT, LGP, Tarbes, France

18.20 *CG-2:L09* **Oxidation Behavior of Thermal Barrier Coatings on Copper Substrates**
J. SCHLOESSER, J. RÖSLER, M. BÄKER, Technische Universität Braunschweig, Institut für Werkstoffe, Braunschweig, Germany

18.40 *CG-2:L10* **Water Corrosion of Mullite-based EBC Multilayer Coatings**
E. GARCIA, J. MESQUITA-GUIMARAES, P. MIRANZO, M.I. OSENDI, Instituto de Ceramica y Vidrio (CSIC), Madrid, Spain; C.V. COJOCARU, Y. WANG, C. MOREAU, R.S. LIMA, National Research Council of Canada, Boucherville, QC, Canada

Session CH-2 - Ferroelectrics, Piezoelectrics

Room: **SIRIO**

Chair: L. PARDO, Spain

15.00 *CH-2:IL10* **Large Remanent Polarization in BiFeO3 Based Single Crystals**
Y. NOGUCHI, H. MATSUO, Y. KITANAKA, M. MIYAYAMA, Research Center for Advanced Sci. and Tech., The University of Tokyo, Japan

15.30 *CH-2:IL11* **Piezo-ferroelectric Thin Films: From Nucleation to Functionality**
P. MURALT, Ceramics Laboratory, Swiss Federal Institute of Technology EPFL, Lausanne, Switzerland

16.00 *CH-2:IL12* **Correlation Between Powder Properties and Processing Conditions of Mechanically Activated Nano-crystalline BaTiO3**
V.B. PAVLOVIC, Fac. of Mech. Eng., Univ. of Belgrade, Serbia; V.P. PAVLOVIC, Joint Lab. for Adv. Matls of the Serbian Academy of Sciences and Arts, Belgrade, Serbia; J. KRSTIC, Inst. of Chemistry, Tech. and Metallurgy, Belgrade, Serbia; M.J. SCEPANOVIC, Center for Solid State Physics and New Materials, Inst. of Physics, Belgrade, Serbia; V. MITIC, Fac. of Electronic Eng., University of Nis, Serbia; J. BLANUŠA, Vinca Institute of Nuclear Sciences, Belgrade, Serbia; D. POPOVIC, Faculty of Physics, University of Belgrade, Serbia

16.30 *CH-2:L13* **Preparation of Textured Niobium-doped Bismuth Titanate Ceramics by Tape Casting**
E.C. AGUIAR, E. LONGO, **J.A. VARELA**, Chemistry Institute, UNESP, Araraquara, SP, Brazil

16.50 *Break*

Chair: A. SAFARI, USA

17.20 *CH-2:IL05* **Theory and Analysis of Transient Response to High Power Signals in Lead-based or Lead-free Piezoelectric Ceramics**
T. TSURUMI, S. TAKAHASHI, M. HAGIWARA, M. YANAGIHASHI, T. HOSHINA, H. TAKEDA, Nano-Phononics Lab., Graduate School of Science and Eng., Tokyo Institute of Technology, Tokyo, Japan

17.50 *CH-2:IL06* **Integrated ZnO Surface Acoustic Wave Microfluidics and Biosensors**
J.K. LUO, Centre for Material Res. & Innovation, University of Bolton, UK; Y.Q. FU, School of Eng. and Physical Sci., Heriot Watt University, UK; W.I. MILNE, Dept. of Eng., University of Cambridge, UK

18.20 *CH-2:L09* **Linear Characterization at Shear Resonance of Lossy Piezoceramics Using a Non-standard, Thickness Poled, Shear Plate**
L. PARDO[1], F. MONTERO DE ESPINOSA[2], A. GARCÍA[1], K. BREBOEL[3], [1]ICMM-CSIC, Cantoblanco, Madrid, Spain; [2]Instituto de Acústica, CETEF, CSIC, Madrid, Spain; [3]Limiel ApS, Langebaek, Denmark

Session CH-6.4 - Dynamics of Multiferroics

Room: **ORSA MAGGIORE**

Chair: R. PIRC, Slovenia

15.30 *CH-6.4:IL02* **Electromagnons in Perovskite Manganites**
A. PIMENOV, University of Wuerzburg, Wuerzburg, Germany

16.00 *CH-6.4:IL03* **Electric Modulation of Exchange Anisotropy in Multiferroic-ferromagnetic Heterostructures**
M. GAJEK[1,3], J. HERON[2], C-H. YANG[1], Y.H. CHU[5], L.W. MARTIN[4], R. RAMESH[1,2], [1]Dept. of Physics, University of California at Berkeley, Berkeley, CA, USA; [2]Dept. of Materials Science, University of California at Berkeley, Berkeley, CA, USA; [3]Dept. of Electrical Engineering and Computer Science, University of California at Berkeley, Berkeley, CA, USA; [4]Dept. of Materials Science and Engineering, University of Illinois at Urbana-Champaign, Urbana, IL, USA; [5]Dept. of Materials Science and Engineering, National Chiao Tung University, Hsin Chu, Taiwan, ROC

16.30 *CH-6.4:L04* **Strain Induced Ferroelectricity in Antiferromagnetic EuTiO3 Thin Film**
S. KAMBA, V. GOIAN, M. KEMPA, V. BOVTUN, Institute of Physics ASCR, Prague, Czech Republic; J.H. LEE, D.G. SCHLOM, C.J. FENNIE, Cornell University, Ithaca, NY, USA

16.50 *Break*

Session CH-6.3 - Magnetoelectric Characterization

Room: **ORSA MAGGIORE**

Chair: A. PIMENOV, Germany

17.20 *CH-6.3:L01* **Large Ferroelectric and Magnetic Hystereses coexisting in BiFeO3 Thin Films**
M. OKUYAMA, JUNG-MIN PARK, T. KANASHIMA, Osaka University, Graduate School of Eng. Science, Dept. of Systems Innovation, Toyonaka, Japan

17.40 *CH-6.3:L02* **Magnetic and Electric Relaxor Behavior and Spin Lattice Coupling in Epitaxially Grown Multiferroic 0.8Pb(Fe1/2Nb1/2)O3-0.2Pb(Mg1/2W1/2)O3 Thin Films**
W. PENG, N. LEMÉE, J.L. DELLIS, **M.G. KARKUT**, LPMC, University of Picardy Jules Verne, Amiens, France; V.V. SHVARTSMAN, P. BORISOV, W. KLEEMANN, Angewandte Physik, University Duisberg-Essen, Duisberg, Germany; Z. TRONTELJ, J. HOLC, M. KOSEC, R. BLINC, Jozef Stefan Institute, Ljubljana; B. DKHIL, SPMS, Ecole Centrale Paris, Châtenay-Malabry, France

18.00 *CH-6.3:L04* **Control Magnetization Electrically Using LSMO/BFO Heterostructures**
LU YOU, **JUNLING WANG**, School of Materials Science & Engineering, Nanyang Technological University, Singapore

Session CI-3 - Magnetic Oxide Thin Films and Heterostructures

Room: **GIOVE**

Chair: J. FONTCUBERTA, Spain

15.00 *CI-3:IL01* **Tuning the Electronic Properties of the LaAlO3/SrTiO3 Interface**
A. CAVIGLIA[1], N. REYREN[1], S. GARIGLIO[1], C. CANCELLIERI[1], S. THIEL[2], G. HAMMERL[2], D. JACCARD[1], M. GABAY[3], T. SCHNEIDER[4], J. MANNHART[2], **J.-M. TRISCONE**[1], [1]DPMC, University of Geneva, Geneva, Switzerland; [2]Experimental Physics VI, Center for Electronic Correlations and Magnetism, Institute of Physics, University of Augsburg, Augsburg, Germany; [3]Laboratoire de Physique des Solides, Université d'Orsay, Orsay, France; [4]Physik Institut, University of Zurich, Zurich, Switzerland

15.30 *CI-3:IL02* **Magnetotransport and Magnetic Properties of All Oxide Magnetic Multilayers**
N. KELLER[1], B. BERINI[1], J. SCOLA[1], W. NOUN[1], A. FOUCHET[1], E. POPOVA[1], D. SCHMOOL[2], I. SHEIKIN[3], A. DEMUIR[3], P. LEJAY[4], [1]GEMaC / CNRS - UVSQ, Versailles, France; [2]IFIMUP, Universitat do Porto, Porto, Portugal; [3]LNCMI, CNRS, Grenoble, France; [4]Institut Néel, Grenoble, France

16.00 *CI-3:L03* **Measurement of the Transport Spin Polarization of Ru Doped CrO2 Using Point-contact Andreev Reflection**
M.S. OSOFSKY, Naval Resarch Laboratory, Washington, DC, USA; K. WEST, S.A. WOLF, J. LU, University of Virginia, Charlottesville, VA, USA

16.20 *CI-3:L05* **Role of Defects and Interfaces in Ferromagnetism of SnO2 Based Heterostructures**
A. ESPINOSA[1], M. GARCÍA-HERNÁNDEZ[1], N. MENÉNDEZ[2], C. PRIETO[1], A. DE ANDRÉS[1], [1]Inst. de Ciencia de Materiales de Madrid, Consejo Superior de Investigaciones Científicas, Cantoblanco, Madrid, Spain; [2]Dpto de Química-Física Aplicada, Univ. Autónoma de Madrid, Cantoblanco, Madrid, Spain

16.40 *Break*

Chair: J.-M. TRISCONE, Switzerland

17.10 *CI-3:IL06* **Tunable Interfaces in Manganite Multilayers**
C. PANAGOPOULOS, Nanyang Technological University, Singapore, and University of Crete, Crete

17.40 *CI-3:IL07* **Phase Transitions in Narrow Band Manganite Thin Films**
U. SCOTTI DI UCCIO[1], L. ARUTA, C. BARONE, C. CANTONI, A. GALDI, A. GEDDO LEHMANN, F. CONGIU, N. LAMPIS, L. MARITATO, F. MILETTO GRANOZIO, S. PAGANO, P. PERNA, M. RADOVIC, [1]CNR-INFM, Complesso Monte S. Angelo, Napoli, Italy

18.10 *CI-3:IL08* **Multichannel Transport of a Two-dimensional Electron Gas at the Interface in Oxide Superlattices**
J.S. KIM, S.S.A. SEO, R.K. KREMER, H.-U. HABERMEIER, B. KEIMER, **HO NYUNG LEE**, Materials Science and Technology Division, Oak Ridge National Laboratory, Oak Ridge, TN, USA; Max-Planck-Institut für Festkörper-forschung, Stuttgart, Germany

Session CJ-1 - Science of Silicate Ceramics

Room: **SMERALDO 1**

Chair: V. DUCMAN, Slovenia

15.00 *CJ-1:IL08* **Use of Phase Diagrams to Guide Ceramic Production from Alternative Raw Materials**
A.M. SEGADAES, University of Aveiro, Dept. of Ceramics and Glass Engineering (CICECO), Aveiro, Portugal

15.30 *CJ-1:IL09* **Clay Structural Transformations During Firing**
P. BLANCHART, S. DENIEL, N. TESSIER-DOYEN, GEMH, ENSCI, Limoges, France

16.00 *CJ-1:L10* **Effect of Marl Addition on the Properties of Wall and Floor Tile Bodies**
K. KAYACI[a], **A. KARA**[b,c], Z.E. OYTAÇ[a,c], C. GENÇ[d], [a]Termal Seramik Sanayi Ltd., Bilecik, Turkey; [b]Anadolu University, Dept. of Material Sci. and Eng., Eskisehir, Turkey; [c]Ceramic Research Center, Eskisehir, Turkey; [d]Istanbul Technical University, Dept. of Geological Eng., Istanbul, Turkey

16.20 *CJ-1:L11* **The Role of the Kaolinite-mullite Reaction Sequence in Moisture Mass Gain in Fired Kaolinite**
H. MESBAH, M.A. WILSON, M.A. CARTER, School of Mechanical, Aerospace and Civil Engineering, The University of Manchester, Manchester, UK

16.40 *Break*

Session CK-1 - Preparation

Room: **SMERALDO 1**

Chair: K.J.D. MacKENZIE, Australia

17.10 *CK-1:IL08* **Preparation and Stability of Alkali Activated Materials from Slags and Fly-ashes**
V. BILEK, ZPSV a.s., Brno, Czech Republic

17.40 *CK-1:L10* **Study and Characterization of in-situ Geomaterial Foam by DTA-TGA Coupled with Mass-spectroscopy**
E. PRUD'HOMME, P. MICHAUD, S. ROSSIGNOL, GEMH, Limoges, France; E. JOUSSEIN, GRESE, Limoges, France; J-M. CLACENS, S. ARII-CLACENS, LACCO, Poitiers, France

18.00 *CK-1:L11* **Geopolymer Synthesis from SiO2 and Al(OH)3 Precursors Using K and Na Activators**
M. LIZCANO, H. KIM, **M. RADOVIC**, Texas A&M University, College Station, TX, USA

18.20 *CK-1:L12* **Fly Ash Beneficiation and Geopolymer Properties**
N.W. CHEN-TAN, A. VAN RIESSEN, Curtin University, Perth, Australia

Session CL-2 - Testing

Room: **SMERALDO 3**

Chair: G. OPREA, Canada

15.00 *CL-2:IL05* **Standard Testing of Refractories**
X. BUTTOL, INISMa - Institut National Interuniversitaire des Silicates, Sols et Matériaux, Mons, Belgium; J.-P. ERAUW, CRIBC - Centre de Recherche de l'Industrie Belge de la Céramique, Belgium

15.30 *CL-2:IL06* **Characterisation of the Fracture Path in "Flexible" Refractories**
H. HARMUTH, University of Leoben, Leoben, Austria

16.00 *CL-2:L07* **Mechanical Evaluation of Al2O3-MgO-C Refractory Bricks by Stress-strain Curves**
V. MUNOZ, A.L. CAVALIERI, A.G. TOMBA MARTINEZ, División Cerámicos - INTEMA, Mar del Plata, Argentina

16.20 *CL-2:L08* **Resistance Parameters During Water Quench Test of Low Cement Castable**
S. MARTINOVIC, M. VLAHOVIC, Institute for Technology of Nuclear and Other Mineral Raw Materials, Belgrade, Serbia; J. MAJSTOROVIC, University of Belgrade, Faculty of Mining and Geology, Belgrade, Serbia; **T. VOLKOV-HUSOVIC**, University of Belgrade, Faculty of Technology and Metallurgy, Belgrade, Serbia

16.40 *Break*

Session CL-3 - Manufacturing, Selection, Design and Use

Room: **SMERALDO 3**

Chair: N.A. STONE, USA

17.00 *CL-3:IL06* **Analysis and Interpretation of Liquid Oxide Corrosion Microstructure**
J. POIRIER, CEMHTI-CNRS, Orleans, France

17.30 *CL-3:IL07* **Aluminum Titanate Refractories for Molten Aluminum**
Y. OHYA, Gifu University, Gifu, Japan

18.00 *CL-3:L08* **Interactions Between Superalloys and Mould Materials for Investment Casting of Turbine Blades**
F. VALENZA, IENI-CNR, Genova, Italy; R. NOWAK, N. SOBCZAK, Foundry Research Inst., Krakow, Poland; A. PASSERONE, IENI-CNR, Genova, Italy; M. DI FOGGIA, Europea Microfusioni Aerospaziali, Morra De Sanctis, Italy; M.L. MUOLO, IENI-CNR, Genova, Italy

18.20 *CL-3:L09* **Effect of Grain Boundary Cracks on Corrosion Behavior of Aluminum Titanate Ceramics in Molten Aluminum Alloy**
M. TANAKA, K. KASHIWAGI, N. KAWASHIMA, S. KITAOKA, Japan Fine Ceramics Center, Nagoya, Japan; O. SAKURADA, Y. OHYA, Gifu University, Gifu, Japan

18.40 *CL-3:L10* **Interaction Between CaZrO3 Ceramic and Titanium Alloys Melt**
CHONGHE LI, YONGHUI GAO, XIONGGANG LU, WEIZHONG DING, ZHONGMING REN, KANG DENG, Shanghai Key Laboratory of Modern Metallurgy & Materials Processing, Shanghai University, Shanghai, China

Session CM-1 - Nanomaterials and Systems at Nanoscale

Room: **SMERALDO 2**

Chair: T. SASAKI, Japan

15.00 *CM-2:IL05* **STEM Characterization of Atomic Structures and Segregated atoms at Ceramic Interface**
Y. IKUHARA[1, 2, 3], Y. SATO[1, 2], N. SHIBATA[1], **T. MIZOGUCHI**[1], T. YAMAMOTO[1, 2], [1]Institute of Engineering Innovation, The University of Tokyo, Tokyo, Japan; [2]Nanostructures Research Laboratory, Japan Fine Ceramic Center, Nagoya, Japan; [3]WPI Advanced Institute for Materials Research, Tohoku University, Sendai, Japan
(rescheduled time as for Author request)

15.30 *CM-1:IL13* **Inorganic Nanotubes (INT) and Fullerene-like Structures (IF): Progress Report**
R. TENNE, Dept. of Materials and Interfaces, Weizmann Institute of Science, Rehovot, Israel

16.00 *CM-1:IL14* **Rare - Earth - Doped Silicate Glass - Ceramic Thin Films for Integrated Optical Devices**
S. BERNESCHI[1], G. ALOMBERT-GOGET[2], C. ARMELLINI[2, 3], M. BRENCI[1], I. CACCIARI[1], A. CHIAPPINI[2], A. CHIASERA[2], M. FERRARI[2], S. GUDDALA[2, 4, 5], E. MOSER[4, 2], G. NUNZI CONTI[1], S. PELLI[1], G. C. RIGHINI[1], [1]IFAC - CNR, Nello Carrara Institute of Applied Physics, Sesto Fiorentino (FI), Italy; [2]IFN-CNR, Institute of Photonics & Nanotechnology, CSMFO Lab., Povo (TN), Italy; [3]FBK, Trento, Italy; [4]Dipartimento di Fisica, University of Trento, Povo, Italy; [5]School of Physics, University of Hyderabad, Hyderabad, India

16.30 *Break*

Chair: R. TENNE, Israel

17.00 *CM-1:L16* **Er3+/Yb3+/Ce3+ Co-doped Fluoride Glass Ceramics Waveguides for Application in the 1.5µm Telecommunication Window**
B.R. BOULARD, I. SAVELII, C. DUVERGER-ARFUSO, Y. GAO, LdOF Laboratory, Université du Maine, Le Mans, France ; G. ALOMBERT, Y. JESTIN, M. FERRARI, IFN-SCFMO group, Trento, Italy; F. PRUDENZANO, DIASS, Politecnico di Bari, Bari, Italy

17.20 *CM-1:L17* **Nanostructured Titania Films with Improved Photocatalytic Activity**
M. KURTOGLU, T. LONGENBACH, Y. GOGOTSI, Dept. of Materials Science and Engineering, A.J. Drexel Nanotechnology Institute, Drexel University, Philadelphia, PA, USA

17.40 *CM-1:L20* **Fabrication of Fe-doped SnO2-TiO2 Spinodal Phase-Separated System and Its Semiconductive Properties**
M. HASHIMOTO, T. SEKINO, S.-I. TANAKA, IMRAM, Tohoku University, Sendai, Japan; T. SHIMIZU, T. KUSUNOSE, ISIR, Osaka Univ., Suita, Japan

18.00 *CM-1:L21* **Coexistence of Multi-functions in Titanium Oxide Nanotubes Synthesized by a Simple Chemical Route**
TOHRU SEKINO[1], DONG-JIN PARK[1], SATOSHI TSUKUDA[1], TAKAFUMI KUSUNOSE[2], SHUN-ICHIRO TANAKA[1], [1]Institute of Multidisciplinary Research for Advanced Materials (IMRAM), Tohoku University, Sendai, Japan; [2]The Institute of Scientific and Industrial Research (ISIR), Osaka University, Ibaraki, Osaka, Japan

Session CM-2 - Nanomaterials Characterization and Techniques

Room: **AMBRA**

Chair: G.M. CHOW, Singapore

17.00 *CM-2:L10* **New MoO3-x Nanowire Based Materials for Polymer-fiber Composites**
V. DOMENICI[1], M. CONRADI[2], M. REMSKAR[3], A. MRZEL[3], M. CHAMBERS[4], B. ZALAR[3], [1]Dipartimento di Chimica e Chimica Industriale, Università degli studi di Pisa, Pisa, Italy; [2]Institute of Metals and Technology, Ljubljana, Slovenia; [3]J. Stefan Institute, Ljubljana, Slovenia; [4]Krsko Nuclear Power Plant, Krsko, Slovenia

17.20 *CM-2:L11* **Structure Analysis of Nanocomposite Materials for Energy Related Applications**
M.L. TRUDEAU, A.M. SERVENTI, K. ZAGHIB, Materials Science, Hydro-Quebec Research Institute, Varennes, Quebec, Canada; D. ANTONELLI, Sustainable Energy Research Center, University of Glamorgan, Pontypridd, UK; R. GAUVIN, Dept. of Mining and Materials Engineering, McGill University, Montréal, Québec, Canada

17.40 *CM-2:L13* **XPS Study of In Situ One-Step Ammination of Nanocrystalline Diamond Films**
S. TORRENGO[1, 2], A. MIOTELLO[1], G. SPERANZA[2], L. MINATI[2], M. FERRARI[3], A. CHIASERA[3], M. DIPALO[4], E. KOHN[4], 1Physics Dep. University of Trento, Povo, Trento, Italy; [2]FBK-IRST, Povo, Trento, Italy; [3]CNR-IFN, CSMFO Lab., Povo, Trento, Italy; [4]Institute of Electron Devices & Circuits, Ulm University Ulm, Germany

18.00 *CM-2:L14* **Manufacturing of Barium Titanate Thin Films with Designed Microstructure by a Sol-gel Process: In-situ SAXS Investigation of the Precursor System**
T.M. STAWSKI, S.A. VELDHUIS, J.E. TEN ELSHOF, H.L. CASTRICUM, D.H.A. BLANK, University of Twente, Inorganic Materials Science group, Enschede, The Netherlands

Session CA-2 - Colloidal Processing

Room: **AUDITORIUM**

Chair: Y. SAKKA, Japan

8.30 *CA-2:IL10* **Interparticle Forces the Key to Colloidal Processing: from Porous Nanostructured Films to Transparent Polycrystalline Alumina**
P. BOWEN[1], M. STUER[1], Z. ZHE[2], U. ASCHAUER[3], [1]Laboratoire de Technologie des Poudres, EPFL, Lausanne, Switzerland; [2]Dept. of Physical, Inorganic and Structural Chemistry, Arrhenius Lab., Stockholm University, Stockholm, Sweden; [3]Dept. of Chemistry, Princeton University, Princeton, USA

9.00 *CA-2:IL11* **Theoretical and Experimental Analyses of Colloidal Processing of Nanoparticles**
Y. HIRATA, K. MATSUSHIMA, S. BABA, N. MATSUNAGA, S. SAMESHIMA, Kagoshima University, Kagoshima, Japan

9.30 *CA-2:IL12* **Colloidal Processing of Nanosized Titania Suspensions**
R. MORENO, Instituto de Ceramica y Vidrio, CSIC, Madrid, Spain

10.00 *CA-2:IL13* **An Impact of Filter Pressing of Multicomponent Nano-powders on the Composite Microstructure**
W. PYDA, N. MOSKALA, L. MIROWSKA, AGH University of Science and Technology, Faculty of Materials Science and Ceramics, Cracow, Poland

10.30 *Break*

Chair: R. MORENO, Spain

11.00 *CA-2:IL14* **Hierarchical Porous Materials through Microfluidics**
A.R. STUDART, **R.M. ERB**, ETH Zurich, Department of Materials, Zurich, Switzerland

11.30 *CA-2:IL15* **Surface Characterization and Chemistry for Ceramic Powder Processing**
T. SHIRAI, Nagoya Institute of Technology, Tajimi, Japan

Session CA-5 - Innovation in Processing Equipment and Technology

12.00 *CA-5:IL01* **Rapid Prototyping of Lead-free Piezoceramics**
A. DITTMAR, X. TIAN, **J.G. HEINRICH**, Institute of Nonmetallic Materials, Clausthal University of Technology, Clausthal-Zellerfeld, Germany; W. BRAUE, German Aerospace Center, Cologne, Germany

12.30 *CA-5:IL02* **Pulsed Electric Current Sintering of Electrical Discharge Machinable Ceramics**
J. VLEUGELS[1], O. MALEK[1, 2], K. VANMEENSEL[1], S. HUANG[1], S. RAN[1], O. VAN DER BIEST[1], B. LAUWERS[2], K.U. Leuven, [1]Dept. of Metallurgy and Materials Engineering; [2]Dept. of Mechanical Engineering, Leuven, Belgium

Session CB-5 - Microwave Processing

Room: **LE PLEIADI**

Chair: M. WILLERT-PORADA, Germany

9.00 *CB-5:IL01* **Microwave Processing of Ceramic-based Materials: Latest Developments and Trends**
M. WILLERT-PORADA, Faculty of Engineering Science, University of Bayreuth, Bayreuth, Germany

9.30 *CB-5:IL02* **Synthesis of High Performance Ceramics Materials via Microwave Processing**
H. TAKIZAWA, Dept. of Applied Chemistry, Tohoku University, Sendai, Japan

10.00 *CB-5:IL03* **Microwave-assisted Routes to Inorganic Particles and Films in Organic Solvents**
M. NIEDERBERGER, Lab. for Multifunctional Materials, Dept. of Materials, ETH Zürich, Zürich, Switzerland

10.30 *CB-5:L04* **Microwave Absorbency Change of Zirconia Powder and Fiber during Vacuum Heating**
S. SANO, S. KAWAKAMI, Y. TAKAO, S. TAKAYAMA, Y. SATO, AIST, Nagoya-city, Aichi, Japan; NIFS, Toki-city, Gifu, Japan

10.50 *CB-5:L05* **Microwave Assisted Reaction Sintering of $ZrSiO_4$/α-Al_2O_3 Mixture**
O. ERTUGRUL, S. AKPINAR, I.M. KUSOGLU, K. ONEL, Dept. of Metallurgical and Materials Engineering, Dokuz Eylul University, Buca-Izmir, Turkey

11.10 *Break*

Session CB-7 - Hybrid Materials

Room: **LE PLEIADI**

Chair: T. SATO, Japan

11.40 *CB-7:IL01* **Novel Strategies for the Design of Nanostructured Advanced PorousMaterials**
C. SANCHEZ, Lab. de Chimie de la Matière Condensée de Paris, CNRS, Université Pierre et Marie Curie, Collège de France, Paris, France

12.20 *CB-7:IL02* **Morphosynthesis of Nanoporous Materials by Microwave**
SANG-EON PARK, Lab. of Nano-Green Catalysis and Nano Center for Fine Chemicals Fusion Tech., Dept. of Chemistry, Inha University, Incheon, Korea

Session CB-11.3 - SHS of Ceramic Powders

Room: **ORSA MINORE**

Chair: E.A. LEVASHOV, Russia

9.00 *CB-11.3:IL01* **Composites Produced by SHS Method - Current Develop-ment and Future Trends**
J. LIS, AGH University of Science and Technology, Faculty of Materials Science and Ceramics, Cracow, Poland

9.30 *CB-11.3:IL02* **Carbon Combustion Synthesis of Ceramic Oxide Nano-powders**
K. MARTIROSYAN, Dept. of Chemical and Biomolecular Engineering, University of Houston, Houston, TX, USA

10.00 *CB-11.3:L04* **Double SHS of W2B5 Powder from CaWO4 and B2O3**
S. YAZICI, **B. DERIN**, Metallurgical and Materials Engineering Dept., Istanbul Technical University, Maslak, Istanbul, Turkey

10.20 *Break*

Session CB-11.4 - Direct Production of SHS Products and their Characterization

Room: **ORSA MINORE**

Chair: S.L. KHARATYAN, Armenia

10.50 *CB-11.4:IL01* **Advances SHS-Ceramic Materials for Surface Engineering Technologies**
E.A. LEVASHOV, V.V. KURBATKINA, YU.S. POGOZHEV, A.E.KUDRYASHOV, National University of Science and Technology “MISIS”, Moscow, Russia

11.20 *CB-11.4:IL02* **Self-propagating High-temperature Synthesis of Iron- and Copper-matrix Cermets**
A. CHRYSANTHOU, School of Engineering and Technology, University of Hertfordshire, Hatfield, UK

11.50 *CB-11.4:L03* **Combustion Synthesis of SiAlON Ceramics**
K.L. SMIRNOV, Institute of Structural Macrokinetics and Materials Science, RAS, Chernogolovka, Moscow Region, Russia

12.10 *CB-11.4:L04* **Sintering of Ti2AlC Powders Obtained by SHS Process**
L. CHLUBNY, J. LIS, M.M. BUCKO, AGH University of Science and Technology, Dept. of Ceramics and Refractories, Cracow, Poland

Session CC-1 - Corrosion

Room: **ZENITH**

Chair: M. HADFIELD *(Programme Chair)*

10.45 *Welcome*

10.50 *CC-1:IL02* **Interaction Between Corrosion and Wear of Silicon Carbide**
K.G. NICKEL, V. PRESSER, C. BERTHOLD, University of Tuebingen, Applied Mineralogy, Tuebingen, Germany

11.20 *CC-1:IL03* **Stability of Oxides in High Temperature Water Vapor**
E.J. OPILA, NASA Glenn Research Center, Cleveland, OH, USA

11.50 *CC-1:L04* **Influence of Hydrofluoric Acid Concentration and pH on Corrosion of Porous Multi-oxide Engineering Ceramics**
M. MANNILA, A. HÄKKINEN, Lappeenranta University of Technology, Lappeenranta, Finland

12.10 *CC-1:L05* **Design of Nano- and Meso-structured Sol-gel Coatings**
S. DE MONREDON-SENANI, E. CAMPAZZI, EADS Innovation Works, Metallic Technologies and Surface Treatment Engineering, Suresnes, France; C. SANCHEZ, F. RIBOT, L. NICOLE, J. MONGET, Lab. Chimie de la Matière Condensée de Paris, UMR CNRS 7574-UPMC, Paris, France

12.30 *CC-1:L06* **Electrochemical Corrosion of Silicon Carbide Ceramics in Aqueous Solutions**
M. HERRMANN*, U. SYDOW**, K. SEMPF*, M. SCHNEIDER*, H.J. KLEEBE***, A. MICHAELIS**, *Fraunhofer Inst. for Ceramic Technologies and Systems, Dresden, Germany; **TU Dresden, Inst. of Materials Science, Dresden, Germany; ***Technische Universität Darmstadt, Inst. for Applied Geosciences, Darmstadt, Germany

Room: **ZENITH**

Chair: Y. NAIDICH, Ukraine

Session CD-2 - Theory, Modelling and Simulation of Interface Interactions

8.30 *CD-2:IL04* **First-principles DFT Modelling of Interface Adhesion in Metal/Ceramic Systems**
C. ELSAESSER, Fraunhofer IWM, Freiburg, Germany

9.00 *CD-2:IL05* **Link of Micro- and Macro- in Wetting Phenomena: DFT Modeling, Binding at the Interface and Contact Angle**
D. FUKS, SH. BARZILAI, N. FROUMINA, N. FRAGE, Materials Engineering Dept., Ben Gurion University, Beer Sheva, Israel; E. GLICKMAN, Physical Electronics Dept., Tel Aviv University, Tel Aviv, Israel

Session CD-3 - Advances in Joining Methods and Materials

9.30 *CD-3:IL06* **Reactive Air Brazing (RAB): A Novel Joining Technique for High-temperature Electrochemical Applications**
J.Y. KIM, K.S. WEIL, Pacific Northwest National Lab., Richland, WA, USA

10.00 *CD-3:IL07* **Wetting and Joining in Transition Metals Diborides**
M.L. MUOLO*, F. VALENZA*, N. SOBCZAK**, A. PASSERONE*, *IENI-CNR, Genova, Italy; **Foundry Research Institute, Cracow, Poland

10.30 *Break*

Session CE-1 - Ultra High Temperature Ceramics

Room: **VENERE**

Chair: J. DUSZA, Slovakia

9.00 *CE-1:IL06* **Mechanical and Electrical Properties of AlN-SiC Solid Solutions**
J. TATAMI, R. KOBAYASHI, T. WAKIHARA, K. KOMEYA, T. MEGURO, Yokohama National University, Yokohama, Japan; T. RONG, T. GOTO, Tohoku University, Sendai, Japan

9.30 *CE-1:IL07* **Transparent Alumina for MWIR Windows and Domes**
M.R. PASCUCCI, M.V. PARISH, CeraNova Corporation, Marlborough, MA, USA

10.00 *CE-1:L08* **Synthesis and Characterization of Multi-walled Carbon Nanotube Reinforced Tantalum Carbide Composites via Spark Plasma Sintering**
S.R. BAKSHI, V. MUSARAMTHOTA, **A. AGARWAL**, Plasma Forming Lab., Dept. of Mechanical and Materials Engineering, Florida International University, Miami, FL, USA

10.20 *CE-1:L09* **Microstructure and Toughening Mechanisms of Reinforced ZrB2-based Ceramics**
D. SCITI, L. SILVESTRONI, V. MEDRI, S. GUICCIARDI, CNR-ISTEC, Institute of Science and Technology for Ceramics, Faenza, Italy

10.40 *CE-1:L10* **Study of the Spark Plasma Sintering Behaviour of Microsized and Nanosized Zirconium Oxycarbide (ZrCxOy) Powders**
J. DAVID, M. GENDRE, A. MAÎTRE, G. TROLLIARD, B. SOULESTIN, Lab. Sciences des Procédés Céramiques et Traitements de Surface, UMR CNRS 6638, UFR Sciences et Techniques, Limoges, France

11.00 *Break*

Session CE-2 - Nitride, Carbide and Boride Ceramics

Room: **VENERE**

Chair: W.A. ELLINGSON, USA

11.30 *CE-2:L10* **Ceramic Tool Materials for High Speed Cutting Process**
G. GORNY, **R. PAMPUCH**, L. SOBIERSKI, M. RACZKA, Faculty of Matls Science and Ceramics, University of Science and Technology, Cracow, Poland

11.50 *CE-2:L11* **Synthesis of Needle-like TiN Particles and their Application to TiN-Si3N4 Composite**
H. KIYONO, Y. NIHEI, Y. MIYAKE, S. SHIMADA, Hokkaido University, Sapporo, Japan; T. TSUMURA, Oita University, Oita, Japan

12.10 *CE-2:L12* **Boron Suboxide-based Composites: Thermal Stability and Tribological Testing**
I. SIGALAS, C. FREEMANTLE, University of Witwatersrand, Johannesburg, Wits, South Africa; M. HERRMANN, Fraunhofer Institute of Ceramic Technologies and Systems, Dresden, Germany

12.30 *CE-2:IL08* **Development of Scanning Microwave Technology for Ceramics in Extreme Environments**
J.R. LITTLE, Jr., Evisive, Inc., Baton Rouge, LA, USA

Sub-session CF-4.1 - Ionic, Mixed and Electronic Conductors

Room: **ALBA 2**

Chair: S. BARNETT, USA

8.30 *CF-4.1:IL01* **Advances in Novel Ionic Conductors for Electrochemical Applications**
S. SKINNER, R. BAYLISS, R. PACKER, Dept. of Materials, Imperial College London, London, UK

9.00 *CF-4.1:IL02* **Modeling, Simulation, and In Situ Characterization of Electrode Materials for Solid Oxide Fuel Cells**
M. LYNCH, K. BLINN, XIAXI LI, **MEILIN LIU**, Center for Innovative Fuel Cell and Battery Technologies School of Materials Science and Engineering, Georgia Institute of Technology, Atlanta, GA, USA

9.30 *CF-4.1:IL03* **Protons in Ceramics: Effects of the Nanoscale**
G.C. MATHER, D. PEREZ-COLL, Instituto de Ceramica y Vidrio, CSIC, Cantoblanco, Madrid, Spain

10.00 *CF-4.1:L04* **Thermo-chemo-mechanical Modelling of Mixed Conductors**
O. VALENTIN, E. BLOND, Institut PRISME (EA 4229, University of Orléans), Polytech'Orléans, Orléans, France; N. RICHET, Air Liquide CRCD, Jouy en Josas, France

10.20 *CF-4.1:L05* **Thermo-mechanical Characterization of Scandia and Ceria Doped Zirconia- Electrolyte Material for Intermediate Temperature Solid Oxide Fuel Cells**
W. LIM, M. RADOVIC, Texas A&M University, USA; **N. ORLOVSKAYA**, University of Central Florida, USA; T. GRAULE, J. KUEBLER, EMPA Swiss Federal Laboratories for Materials Testing and Research, Switzerland

10.40 *Break*

Chair: G.C. MATHER, Spain

10.50 *CF-4.1:IL06* **Three-dimensional Measurements of SOFC Electrode Microstructure and Correlation with Electrochemical Performance**
S. BARNETT, J. WILSON, S. CRONIN, J. NICHOLAS, Matls Science Dept., Northwestern University, Evanston, IL, USA

11.20 *CF-4.1:IL07* **Migration of Oxide Ions in Ceria Doped with Rare-earth Cations Using First-principles Density Functional Study**
M. NAKAYAMA[1, 2], M. MARTIN[2], [1]Dept. of Materials Science and Engineering, Nagoya Institute of Technology, Nagoya, Aichi, Japan, [2]Institute of Physical Chemistry, RWTH Aachen University, Aachen, Germany

11.50 *CF-4.1:IL08* **Applications of Mixed Conducting Protection Layers in High Temperature Electrochemical Devices**
Z. GARY YANG, Pacific Northwest National Laboratory, Richland, WA, USA

12.20 *CF-4.1:L09* **Constrained and Non-constrained Sintering of Plasma-sprayed Zirconia Based Electrolytes for SOFCs**
C. CHRISTENN, A. ANSAR, DLR, Institute of Technical Thermodynamics, Stuttgart, Germany

Room: **URANO**

Chair: R. VASSEN, Germany

Session CG-2 - High Performance Protective Coatings in Oxidizing and Harsh Environments

10.30 *CG-2:IL13* **Development of Advanced Coatings for ITER and Future Fusion Devices**
J. MATEJICEK, P. CHRASKA, Institute of Plasma Physics ASCR, Praha, Czech Republic

11.00 *CG-2:L14* **Overview: How to Quantify the Capability of Yttrium Silicates to be Used as an Environmental Barrier Coating**
F. REBILLAT, E. COURCOT, University of Bordeaux, Lab. des Composites Thermostructuraux (LCTS) UMR 5801, Pessac, France

Session CG-4 - Thin Films and Coatings for Tribological and Multifunctional Applications

11.20 *CG-4:IL01* **Advanced Ceramic Tribological Layers by Thermal Spray Routes**
R. GADOW, University of Stuttgart, Stuttgart, Germany

11.50 *CG-4:IL02* **Preparation of TaN-Cu and TaN-Ag Nanocomposite Thin Films and their Anti-wear and Anti-bacteria Behaviors**
J.H. HSIEH, Dept. of Materials Engineering, Ming Chi University of Technology, Taishan, Taipei, Taiwan

12.20 *CG-4:L03* **Low Friction and Wear Resistant Carbon-, MoS2- or Transition Metal Oxide-based Nanocomposite Coatings**
B.G. WENDLER, M. MAKÓWKA, K. WLODARCZYK, M. NOLBRZAK, W.PAWLAK, A. RYLSKI, Lodz University of Technology, Institute of Materials Science and Engineering, Lodz, Poland

Session CH-3 - Magnetic Ceramics

Room: **SIRIO**

Chair: M. SIKORA, Poland

9.30 *CH-3:IL01* **Magnetostrictive Galfenol Torque Sensor Devices for Smart by-Wire Steering System in Automobile Technology**
Y. FURUYA, T. OKAZAKI, Science and Technology, Hirosaki University, Hirosaki, Japan; C. SAITO, Namiki Precision Company, Japan; M. SHIMADA, Nissan Motors, Japan

10.00 *CH-3:IL02* **Magnetic Oxide Thin Films Grown by Pulsed Laser Deposition for Applications in Spintronics**
L. MORELLON[1,2,3], J.ORNA[1,3], G. SIMON[1,3], P.A. ALGARABEL[2,3], J.A. PARDO[1,4], A. FERNANDEZ-PACHECO[1,3], C. MAGEN[3,5], J.M. DE TERESA[2,3], M.R. IBARRA[1,2,3], [1]Inst. de Nanociencia de Aragon, Universidad de Zaragoza, Zaragoza, Spain; [2]Inst. de Ciencia de Materiales de Aragon, Universidad de Zaragoza-CSIC, Zaragoza, Spain; [3]Depto de Física de la Materia Condensada, Universidad de Zaragoza, Zaragoza, Spain; [4]Depto de Ciencia y Tecnologia de Materiales y Fluidos, Universidad de Zaragoza, Zaragoza, Spain; [5]Inst. de Nanociencia de Aragon-ARAID, Universidad de Zaragoza, Zaragoza, Spain

10.30 *CH-3:L04* **Oriented Barium Hexaferrite Thick Films Prepared by Electrophoretic Deposition in a Magnetic Field**
S. OVTAR, D. LISJAK, M. DROFENIK, Jozef Stefan Institute, Ljubljana, Slovenia

10.50 *Break*

Chair: Y. FURUYA, Japan

11.20 *CH-3:IL05* **Beyond Conventional Magneto-optical Spectroscopy of Magnetic Oxides**
J.M. CAICEDO, **G. HERRANZ**, D. HRABOVSKÝ, F. SÁNCHEZ, I.C. INFANTE, J. FONTCUBERTA, Institut de Ciencia de Materials de Barcelona (ICMAB), CSIC, Bellaterra, Spain; R. RAMOS, S.K. ARORA, I.V. SHVETS, Centre for Research on Adaptive Nanostructures and Nanodevices (CRANN), School of Physics, Trinity College Dublin, Ireland

11.50 *CH-3:IL06* **Spin and Orbital Magnetic Moments in Magnetic Double Perovskites Probed by X-ray Magnetic Circular Dichroism Under High Magnetic Fields**
M. SIKORA, PACS, AGH University of Science and Technology, Krakow, Poland

12.20 *CH-3:L07* **Magnetoelectric Coupling in Multi-ferro Fe-Pd / PZT / Fe-Pd Laminate Composites**
T. OKAZAKI, Y. FURUYA, Y. SADO, Science and Technology, Hirosaki University, Hirosaki, Japan; C. SAITO, Namiki Precision Company, Japan

Session CH-6.4 - Dynamics of Multiferroics

Room: **ORSA MAGGIORE**

Chair: M. FIEBIG, Germany

9.00 *CH-6.4:IL05* **Soft X-ray Spectroscopic Investigations on Multiferroic Oxides**
JAE-HOON PARK, POSTECH, Pohang, Korea

9.30 *CH-6.4:IL07* **Piezoelectric Control of Magnetic Properties in Thin Film Heterostructures**
K. DÖRR, A.D. RATA, A. HERKLOTZ, O. BILANI-ZENELI, M.C. DEKKER, L. SCHULTZ, IFW Dresden, Dresden, Germany; M. REIBOLD, Triebenberglabor, TU Dresden, Germany; M.D. BIEGALSKI, H.M. CHRISTEN, Oak Ridge National Laboratory, Oak Ridge, TN, USA

10.00 *CH-6.4:IL08* **Magnetic Excitations in Multiferroics: an Inelastic Neutron Scattering Study**
M. BRADEN, II. Physikalisches Institut, University of Cologne, Cologne, Germany

10.30 *Break*

Session CH-6.6 - New Effects

Room: **ORSA MAGGIORE**

Chair: Jae-Hoon PARK, Korea

11.00 *CH-6.6:IL06* **Flexomagnetoelectric Interaction and New Effects in Multiferroics**
A.P. PYATAKOV[1, 2], A.K. ZVEZDIN[2], [1]Physics Department, M.V. Lomonosov Moscow State University, Moscow, Russia; [2]A.M. Prokhorov General Physics Institute, Russian Academy of Science, Moscow, Russia

11.30 *CH-6.6:IL07* **Local Polarization-dependent Electron Transport through Uni- and Multiaxial Ferroelectric Oxides**
P. MAKSYMOVYCH, **A.P. BADDORF**, Center for Nanophase Materials Science, Oak Ridge National Laboratory, Oak Ridge, TN, USA

12.00 *CH-6.6:IL08* **Nonlinear Optics Applied to Magnetoelectric Multiferroics**
M. FIEBIG, HISKP, University of Bonn, Bonn, Germany

12.30 *CH-6.6:L09* **Photoconductivity in Ferroelectric BiFeO3-PbTiO3 Thin Films**
XIAOWEN ZHOU, SHENGWEN YU, BINGRONG YUAN, JINRONG CHENG, School of Material Science and Engineering, Shanghai, China

Session CI-4 - Coexistence of Superconductivity and Magnetism

Room: **GIOVE**

Chair: H. SRIKANTH, USA

9.00 *CI-4:IL01* **Antiferromagnetism and High-Tc Superconductivity in Cuprates**
H. MUKUDA, Graduate School of Engineering Science, Osaka University, Osaka, Japan

9.30 *CI-4:IL02* **Coexistence of Superconductivity and Magnetism in Ruthenocuprates**
M. CUOCO, P. GENTILE, M. GOMBOS, A. VECCHIONE, **C. NOCE**, Lab. Regionale SuperMat, INFM-CNR, Baronissi (SA), Italy and Dipartimento di Fisica "E.R. Caianiello", Università di Salerno, Fisciano (SA), Italy

10.00 *CI-4:IL03* **Inhomogeneous Superconductivity and 1/8 Problem in the Cuprates**
Y. KOIKE, T. ADACHI, Y. TANABE, Dept. of Applied Physics, Tohoku University, Sendai, Japan

10.30 *CI-4:L04* **Investigations for the Growth of Large Underdoped Bi2Sr2CaCu2O8+d Single Crystals and Neutron Scattering Measurements**
S. DE ALMEIDA-DIDRY, F. GIOVANNELLI, I. MONOT-LAFFEZ, LEMA, UMR 6157 CNRS-CEA, Université François Rabelais, Blois, France; Y. SIDIS, P. BOURGES, Laboratoire Léon Brillouin (LLB), CEA-CNRS, CEA-Saclay, France

10.50 *CI-4:L05* **Synthesis of Magnetic Nanoparticles and its Application to Obtain YBCO Nanocomposite Thin Films: Ex Situ Approach**
F. MARTINEZ-JULIAN, S. RICART, A. POMAR, A. PALAU, J.ARBIOL, F. SANDIUMENGE,T. PUIG, X.OBRADORS, L. PÉREZ-MIRABET, R. YÁÑEZ, J. ROS, ICMAB-CSIC, Barcelona, Spain

11.10 *Break*

Session CI-5 - Novel Synthesis and Processing Techniques

Room: **GIOVE**

Chair: Y. KOIKE, Japan

11.40 *CI-5:IL01* **Flux-mediated Epitaxy of Complex Oxides**
Y. MATSUMOTO, Materials and Structures Laboratory, Tokyo Institute of Technology, Yokohama, Japan

12.10 *CI-5:IL03* **Iron-based Superconductors FeSe and FeTe**
Y. TAKANO, National Institute for Materials Science, Tsukuba, Japan

Session CJ-2 - Innovation in the Silicate Ceramics Industry

Room: **SMERALDO 1**

Chair: S.K. DAS, India

9.30 *CJ-2:IL01* **Long-term Optical and Thermal Examinations of Ceramic Wall System with Solar-altitude Dependent Reflectance**
H. KAKIUCHIDA, Materials Research Inst. for Sustainable Development, National Inst. of Advanced Industrial Science and Technology, Nagoya, Japan

10.00 *CJ-2:L03* **Consolidation of Sand by Alkaline Silicate Solution**
S. LUCAS, J. SORO, S. ROSSIGNOL, GEMH-ENSCI, Limoges, France; J-L. GELET, FERRAZ-SHAWMUT, Saint Bonnet-de-Mure, France

10.20 *CJ-2:L04* **Effect of Alkaline Earth Oxide on Firing Behaviour of Single Fired Wall Tile Bodies**
O. CENGIZ[a], A. KARA[a, b], [a]Dept. of Material Science and Engineering, Anadolu University, Eskisehir, Turkey; [b]Ceramic Research Center, Eskisehir, Turkey

10.40 *Break*

Chair: J.Ma. RINCON, Spain

11.10 *CJ-2:IL05* **Innovative Use of Industrial Solid Waste in Silicate Ceramics**
S.K. DAS, Central Glass & Ceramic Research Institute, Kolkata, India

11.40 *CJ-2:IL06* **Lightweight Aggregate Processed from Waste Materials**
V. DUCMAN, ZAG Ljubljana, Ljubljana, Slovenia; B. MIRTIC, NTF, Ljubljana, Slovenia

12.10 *CJ-2:L07* **Development of Photochromic Coatings on Ceramic Tiles**
B. ATAY[1,2], M. GURBUZ[1], A. KUCUK[2], A. DOGAN[1, 3], [1]Anadolu University, Dept. of Material Science and Eng., Eskisehir, Turkey; [2]Kaleseramik Canakkale Kalebodur Seramik Sanayi A.S., Can-Canakkale, Turkey; [3]Advanced Technologies Reseach Center (ITAB), Anadolu Univesity, Eskisehir, Turkey

Session CK-1 - Preparation

Room: **SMERALDO 3**

Chair: H.W. NUGTEREN, The Netherlands

9.00 *CK-1:IL13* **Geopolymer Binders in Composite Cements and Ceramic-like Materials**
Ch. KAPS, M. HOHMANN, Bauhaus-University Weimar, Building Chemistry, Weimar, Germany

9.30 *CK-1:L15* **Use of Sodium Silicate Gel as Precursor of Binder for Cold Consolidated Materials**
M.T. TOGNONVI, **J. SORO**, S. ROSSIGNOL, J.P. BONNET, GEMH-ENSCI, Limoges, France

9.50 *CK-1:L16* **New Geopolymers Based on Rice Husk Ash**
Y. LUNA GALIANO, C. FERNÁNDEZ PEREIRA, J. RAMÓN MOLAS FLORES, University of Seville, Chemical and Environmental Eng. Dept., Seville, Spain

10.10 *CK-1:L17* **Geopolymer Development by Powders of Metakaolin and Wastes in Thailand**
C. TIPPAYASEM[1], S. BUNSARI[3], L. PUNSUKUMTANA[3], S. SAJJAVANICH[2], D. CHAYSUWAN[1], [1]Dept. of Materials Engineering, Kasetsart University, Bangkok, Thailand; [2]Dept. of Civil Engineering, Kasetsart University, Bangkok, Thailand; [3]Dept. of Science Service, Ministry of Science and Technology, Bangkok, Thailand

10.30 *Break*

Chair: J.S.J. VAN DEVENTER, Australia

11.00 *CK-1:IL19* **Chemical and Physical Features Governing the Properties of Geopolymers Produced from Fly Ash**
H.W. NUGTEREN, M.T. KREUTZER, Delft University of Technology, Product and Process Eng. Group, Delft, The Netherlands; G.-J. WITKAMP, Delft University of Technology, Process Equipment Group, Delft, The Netherlands

11.30 *CK-1:L20* **Physical, Mechanical and Micro-structural Properties of Fly-Ash Based Geopolymeric Bricks Produced by Pressure Forming Process**
O. ARIOZ, Cimsa, Ready-Mixed Concrete Company, Eskisehir, Turkey; **K. KILINC**, M. TUNCAN, A. TUNCAN, O. ZEYBEK, Dept. of Civil Eng., Anadolu University, Eskisehir, Turkey; T. KAVAS, Dept. of Matls Sci. & Eng., Afyon Kocatepe University, Afyonkarahisar, Turkey

11.50 *CK-1:L21* **Lightweight Geopolymer Materials for Insulating Applications: Electric and Thermal Properties**
E. KAMSEU[1], C. LEONELLI[1], A. LIBBRA[2], A. MUSCIO[2], [1]Dept. of Materials and Environmental Eng., [2]Dept. of Mechanical and Civil Eng., University of Modena and Reggio Emilia, Modena, Italy

12.10 *CK-1:L22* **Durability of Geopolymer Concrete upon Seawater Exposure**
S. ASTUTININGSIH, D.M. NURJAYA, H.W. ASHADI, D. DHANESWARA, N. SWASTIKA, Faculty of Engineering, University of Indonesia, Depok, Indonesia

Session CL-3 - Manufacturing, Selection, Design and Use

Room: **TURCHESE**

Chair: J. POIRIER, France

8.30 *CL-3:L03* **Application of Organic Thickening Agents to the Rheology Study of Ceramic Slurries Used in the Investment Casting Process**
J. FERENC[1], H. MATYSIAK[2], J. MICHALSKI[3], K.J. KURZYDLOWSKI[1], [1]Faculty of Materials Eng., Warsaw University of Technology, Warsaw, Poland; [2]University Research Centre "Functional Materials", Warsaw University of Technology, Warsaw, Poland; [3]Materials Engineers Group Sp. z o.o., Warsaw, Poland
(rescheduled time as for Author request)

8.50 *CL-3:IL11* **Engineered Expansion Design of in situ Spinel Castables**
M.A.L. BRAULIO, **V.C. PANDOLFELLI**, Federal University of Sao Carlos, Materials Engineering Dept., Materials Microstructure Engineering Group - GEMM, Sao Carlos, SP, Brazil

9.20 *CL-3:IL12* **Novel Refractory Development for Synthetic Rutile Manufacture via the Becher Process**
N.A. STONE, CSIRO Process Science & Engineering, Melbourne, Victoria, Australia; W.W. WRIGHT, Rio Tinto, Melbourne, Victoria, Australia; M.O'BYRNE, S.BOW, Iluka Resources Pty Ltd, Geraldton, Western Australia, Australia

9.50 *CL-3:IL13* **Nanostructured Refractories: Current Situation and Future Prospects**
SHAOWEI ZHANG, Dept. of Engineering Materials, The University of Sheffield, Sheffield, UK

10.20 *CL-3:L14* **Novel Basic Carbon Slidegate Refractory for Ca-treated Steel Application**
A. REZAIE, M. SNYDER, P. DESAI, **M. ZIEMNICKI**, R&D Dept., Vesuvius Research, Pittsburgh, PA, USA

10.40 *Break*

Session CL-4 - System Modeling, Simulation and Failure Analysis

Room: **TURCHESE**

Chair: S. HASHIMOTO, Japan

11.00 *CL-4:L06* **Sizing of a Refractory Castable Gas-burner Using Thermo-mechanical Simulations**
F. NAZARET[1], T. CUTARD[2], O. BARRAU[1], [1]AUROCK Pépinière Albisia, Albi, France; [2]Toulouse University, Mines Albi, Research Center on Tools Materials and Processes (ICA-CROMeP), Albi, France

11.20 *CL-4:L07* **Effect of Joint Condition and Friction Force on Thermal Stress Analysis of BOF**
Y. HINO, Slag and Refractories Dept., Steel Research Laboratory, JFE Steel Corporation, Chiba, Japan; Y. KIYOTA, Slag and Refractories Dept., Steel Research Laboratory, JFE Steel Corporation, Fukuyama, Japan; Y. HATTORI, JFE Sekkei Ltd., Kurashiki, Japan

11.40 *CL-4:L08* **Selection Criteria and Tools for Refractory Materials to be used in Pulverised Coal Combustion Reactors**
P. MICELI, A. DI DONATO, U. MARTINI, Centro Sviluppo Materiali SpA, Rome, Italy

12.00 *CL-4:L09* **Damage of High Zirconia Fused-cast Refractories During Cooling: an XRD and EBSD Study**
A. SIBIL, T. DOUILLARD, M. R'MILI, N. GODIN, **G. FANTOZZI**, Laboratoire MATEIS, INSA Lyon, Villeurbanne, France

12.20 *CL-4:L10* **Investigation of Refractory Corrosion of a Gas-stirred Steel Ladle by Simulation**
S. VOLLMANN, H. HARMUTH, University of Leoben, Leoben, Austria

12.40 *CL-4:L11* **Constitutive Equations for Creep of Cement Bonded Alumina-Magnesia Refractory Castables with Different Microsilica Contents**
A.G. TOMBA MARTINEZ, Materials Science and Technology Research Institute (INTEMA), Ceramics Division, Argentina; M.A.L. BRAULIO, V.C. PANDOLFELLI, Federal University of São Carlos, Materials Engineering Dept., Materials' Microstructural Engineering Group (GEMM), Brazil

Session CM-2 - Nanomaterials Characterization and Techniques

Room: **SMERALDO 2**

Chair: H. WOLF, Switzerland

9.00 *CM-2:IL06* **Effects of Surface Hydrogenation on Diamond-like Carbon Films by In-situ UPS**
D.H.C. CHUA, Dept. of Materials Science & Engineering, National University of Singapore, Singapore

9.30 *CM-2:L07* **MgO Nanocubes in Compressed Powders**
A.K. STERNIG, D. KOLLER, N. SIEDL, M. MÜLLER, J. BERNARDI, **O. DIWALD**, Inst. of Materials Chemistry, Vienna University of Technology, Austria; Inst. of Particle Technology, Friedrich-Alexander-University, Erlangen, Germany; K.P. MCKENNA, P.V. SUSHKO, A.L. SHLUGER, London Centre for Nanotechnology and Dept. of Physics & Astronomy, University College London, UK; WPI-Advanced Inst. for Materials Research, Tohoku University, Sendai, Japan

9.50 *CM-2:L08* **Scanning Auger Electron Spectroscopy: a New and Universal Technique for Identifying Graphene**
MINGSHENG XU, International Center for Young Scientists, NIMS, Tsukuba, Japan; D. FUJITA, Int. Center for Young Scientists, Advanced Nano Characterization Center, Int. Center for Materials Nanoarchitectonics, NIMS, Japan; N. HANAGATA, Nanotechnology Innovation Center, National Institute for Materials, Japan

10.10 *CM-2:L09* **Synthesis of Carbon Nanotubes/Gold Nanoparticles Hybrids for Environmental Applications**
L. MINATI[1], G. SPERANZA[1], S. TORRENGO[1, 2], L. TONIUTTI[2], B. ROSSI[2], C. MIGLIARESI[3], D. MANIGLIO[3], A. CHIASERA[4], M. FERRARI[4], [1]FBK, Povo-Trento, Italy; [2]Dept. Physics, University of Trento, Italy; [3]Dept. Material Eng., University of Trento, Italy; [4]CNR-IFN, CSMFO Lab., Povo-Trento, Italy

10.30 *Break*

Session CM-3 - Nanomanufacturing

Room: **SMERALDO 2**

Chair: K. ARIGA, Japan

11.00 *CM-3:IL02* **Opal-type Photonic Crystals: Fabrication and Application**
A. CHIAPPINI[1], G. ALOMBERT-GOGET[1], C. ARMELLINI[1, 2], S. BERNESCHI[3], M. BRENCI[3], I. CACCIARI[3], C. DUVERGER-ARFUSO[4], S. GUDDALA[1, 5, 6], M. FERRARI[1], E. MOSER[1, 5], D.N. RAO[6], G.C. RIGHINI[3], [1]CNR-IFN, CSMFO Lab., Povo, Trento, Italy; [2]FBK, Povo, Trento, Italy; [3]CNR-IFAC, Nello Carrara Inst. of Applied Physics, MDF-Lab, Sesto Fiorentino (FI), Italy; [4]Lab. LdOF, UMR CNRS 6010, Université du Maine, Le Mans, France; [5]Dip. Fisica, Università di Trento, Povo, Italy; [6]School of Physics, University of Hyderabad, Hyderabad, India

11.30 *CM-3:IL03* **Self-assembly and Soft Lithography for Nano-structure Fabrication**
H. WOLF, C. KÜMIN, E. LÖRTSCHER, A. REY, IBM Research GmbH, Zurich Research Lab., Rüschlikon, Switzerland; C. HÜCKSTÄDT, N.D. SPENCER, Dept. of Materials, ETH Zürich, Zürich, Switzerland

12.00 *CM-3:IL04* **Iron Oxide Nanostructural Materials and Their Enhanced Sensing Performance**
D. WANG, IPE CAS, Beijing, China; R.B. YU, USTB, Beijing, China; X.Y. LAI, J. LI, Z.M. LI, IPE CAS, Beijing, China

Session CN-3 - Laminated Composite Structures

Room: **AMBRA**

Chair: J. LAMON, France

9.00 *CN-3:IL01* **Design and Preparation of Laminated Composites**
DONGLIANG JIANG, The State Key Lab of High Performance Ceramics and Superfine Microstructure Shanghai Institute of Ceramics, CAS, Shanghai, China

9.35 *CN-3:IL02* **Joining and Integration of Ultra High Temperature Ceramic Composites**
R. ASTHANA, Dept. of Engineering and Technology, University of Wisconsin-Stout, Menomonie, WI, USA; M. SINGH, Ohio Aerospace Institute, NASA Glenn Research Center, Cleveland, OH, USA

10.10 *CN-3:IL03* **Damage-tolerant Laminate-type Hybrid Ceramics**
Y. KAGAWA, Research Center for Advanced Science and Technology (RCAST), The University of Tokyo and National Institute for Materials Science (NIMS), Tokyo, Japan

10.45 *CN-3:L04* **Optomechanical Borosilicate Glass Matrix Composites**
BO PANG, D. MCPHAIL, A.R. BOCCACCINI, Dept. of Materials, Imperial College London, London, UK

11.10 *Break*

Session CN-2 - Processing and Fabrication

Room: **AMBRA**

Chair: Y. KAGAWA, Japan

11.40 *CN-2:L03* **Hierarchical SiC-based Ceramic Matrix Composites Reinforced with SiC Nanowires Grafted Carbon Fibers**
B. LU[1, 3]; S.M. DONG[1, 2]; Z. WANG[1, 2]; X.Y. ZHANG[1, 2], Y.S DING[1, 2], [1]Structural Ceramics and Composites Engineering Research Center, Shanghai Institute of Ceramics, CAS, Shanghai, P.R. China; [2]State Key Laboratory of High Performance Ceramics and Superfine Microstructure, Shanghai Institute of Ceramics, CAS, Shanghai, P.R. China; [3]Graduate University of Chinese Academy of Sciences, Beijing, P.R. China

12.05 *CN-2:IL05* **Microstructures and Properties of Ultra-high-temperauture Ceramics (UHTCs) based Composites with Carbon Fibers as Reinforcements**
SHAOMING DONG, Shanghai Institute of Ceramics, Chinese Academy of Sciences, Shanghai, China

Session CA-3 - Shape Forming and Compaction Mechanisms

Room: **AUDITORIUM**

Chair: Y. HIRATA, Japan

8.45 *CA-3:IL01* **Printing Techniques for the Manufacture of Structures in the Micrometer Range**
A. ROOSEN, Institute of Glass and Ceramics, University of Erlangen-Nuremberg, Erlangen, Germany

9.15 *CA-3:IL02* **New Developments in the Electrophoretic Deposition (EPD) of Structured Compacts and Coatings**
R. CLASEN, Saarland University, Saarbrucken, Germany

9.45 *CA-3:L03* **Influence of Different Suspension Properties on Internal Structure and Deformation Behaviour of Spray Dried Ceramic Granules**
S. ECKHARD, M. FRIES, Fraunhofer Institute for Ceramic Technologies and Systems IKTS, Dresden, Germany

10.05 *CA-3:L04* **New Low-toxic Water-Soluble Monomers for Gelcasting of Ceramic Powders**
M. SZAFRAN, P. BEDNAREK, A. SZUDARSKA, T. MIZERSKI, Warsaw University of Technology, Faculty of Chemistry, Warsaw, Poland

10.25 *Break*

Session CA-4 - Sintering and Related Phenomena

Room: **AUDITORIUM**

Chair: V. TIKARE, USA

10.55 *CA-4:IL02* **Evidence of a Microwave Effect on the Sintering of Y-TZP Powder**
S. CHARMOND, C.P. CARRY, **D. BOUVARD**, Lab. SIMAP, Grenoble Institute of Technology / Université Joseph Fourier, Saint Martin d'Herès, France

11.25 *CA-4:IL03* **Sintering Kinetics of Powder Compact Containing Large Pores**
JINGZHE PAN, FAN LI, Dept. of Engineering, University of Leicester, Leicester, UK

11.55 *CA-4:IL04* **Microstructural Anisotropy during Constrained Sintering**
O. GUILLON, Technical University Darmstadt, Darmstadt, Germany

12.25 *CA-4:IL18* **Multi-physics Simulation of Sintering**
V. TIKARE, Sandia National Laboratories, Albuquerque, NM, USA
(rescheduled time as for Author request)

Session CB-4 - Spark Plasma Synthesis and Processing

Room: **ORSA MAGGIORE**

Chair: E. OLEVSKY, USA

8.30 *CB-4:L06* **Spark Plasma Sintering of Iodine-bearing Apatite**
S. LE GALLET, F. BERNARD, Laboratoire ICB, Université de Bourgogne, Dijon, France; L. CAMPAYO, E. COURTOIS, F. BART, CEA, DEN, Marcoule, DTCD/SECM/LDMC, Bagnols-sur-Ceze, France; S. HOFFMANN, YU. GRIN, Max-Planck-Institut für Chemische Physik fester Stoffe, Dresden, Germany

8.50 *CB-4:L08* **Effects of the SPS Parameters on the Reactive Sintering of a Cobalt Aluminate Powder**
A. PAVIA[1], C. ESTOURNES[1,2], A. WEIBEL[1], A. PEIGNEY[1], G. CHEVALLIER[1,2], CH. LAURENT[1], [1]Université de Toulouse, CIRIMAT, UMR CNRS-UPS-INP 5085, Université Paul-Sabatier, Toulouse cedex , France; [2]PNF2 CNRS, MHT, Université Paul-Sabatier, Toulouse cedex , France

9.10 *CB-4:L09* **Spark Plasma Sintering of AlON Ceramics**
H.E. KANBUR, B. APAK, F.C. SAHIN, Istanbul Technical University, Istanbul, Turkey

9.30 *CB-4:L10* **Spark Plasma Sintering of a Conductive Material, YZrTiO**
L. RAMOND, G. BERNARD-GRANGER, A. PRINCIVALLE, L. GUIZARD, LSFC- UMR 3080 CNRS, Saint-Gobain CREE, Cavaillon, France

9.50 *CB-4:L11* **Production and Characterisation of Boron Carbide - Titanium Diboride Ceramics by the Spark Plasma Sintering Method**
B. UYGUN, G. GOLLER, O. YUCEL, F. SAHIN, Istanbul Technical University, Metallurgical and Matls Eng. Dept, Istanbul, Turkey

Room: **LE PLEIADI**

Chair: J.H. SANDHAGE, USA

Session CB-7 - Hybrid Materials

8.30 *CB-7:IL04* **Mesoporous Silica Nanoparticles for Cell Specific Targeting and Drug Delivery**
M. LINDÉN, J. ROSENHOLM, Dept. of Physical Chemistry, Abo Akademi University, Turku, Finland; C. SAHLGREN, Dept. of Biology, Abo AKademi University, Turku, Finland

9.00 *CB-7:IL05* **Panascopic Assembling of Ceramic Materials for High Performance UV-ray Shielding Application**
T. SATO, X. LIU, S. YIN, IMRAM, Tohoku University, Sendai, Japan

9.30 *CB-7:IL06* **Energy Generation and Storage Applications of TiO_2 Nanotubular Arrays by Atomic Layer Deposition and Nanotemplating**
HYUNJUNG SHIN, School of Advanced Materials Engineering, Kookmin University, Seoul, Korea

Session CB-8 - Porous Ceramics

10.00 *CB-8:IL03* **Hybrid Foams, Colloids and Beyond: Integrative Chemistry**
R. BACKOV, CRPP-UPR CNRS 8641, Pessac, France
(rescheduled time as for Author request)

10.30 *Break*

Session CB-6 - Bio-inspired and Bio-enabled Processing

Room: **LE PLEIADI**

Chair: J.J. SCHNEIDER, Germany

10.50 *CB-6:IL01* **Formation of Hierarchically Structured Crystals through Bio-inspired Processing**
H. IMAI, Faculty of Science and Technology, Keio University, Yokohama, Japan

11.20 *CB-6:IL02* **Integration of Bio-Enabled and Synthetic Syntheses of Functional 3-D Nanostructured Assemblies**
K.H. SANDHAGE[1,2], S.C. DAVIS[1], J.P. VERNON[1], A.S. GORDON[1], J.D. BERRIGAN[1], S. SHIAN[1,2], Y. FANG[1], Y. CAI[1], M.B. DICKERSON[1,3], R.R. NAIK[3], S.R. MARDER[2,1], N. KROGER[2,1], [1]School of Materials Science and Engineering, Georgia Institute of Technology, Atlanta, GA, USA; [2]School of Chemistry and Biochemistry, Georgia Institute of Technology, Atlanta, GA, USA; [3]Materials and Manufacturing Directorate, Air Force Research Laboratory, Wright Patterson Air Force Base, OH, USA

11.50 *CB-6:IL03* **Bio-inspired Synthesis of Oxide-based Ceramics**
J. BILL, Inst. for Materials Science, University of Stuttgart, Stuttgart, Germany

12.20 *CB-6:IL04* **Nano-structured Ceramic Films by Aerosol Deposition**
DONG-SOO PARK, BYUNG-DONG HAHN, WOON-HA YOON, JUNGHO RYU, JONG-JIN CHOI, BYOUNG-KOOK LEE, JUNHWAN CHOI, Functional Materials Division, Korea Institute of Materials Science, Changwon, South Korea

12.50 *CB-6:L05* **Effect of the Hydrothermal Heat Treatment Conditions of Titanium on the Coating of Bio-mimetically Grown "Bone-Like" Apatite Layer**
D. TEKER, C. POYRAZ SAG, M. DINÇER, S. ALKOY, K. ÖZTÜRK, Gebze Institute of Technology, Material Science and Engineering, Kocaeli, Turkey

Session CB-12.3 - Modeling of Materials and Processes

Room: **ORSA MINORE**

Chair: M.P. DARIEL, Israel

9.00 *CB-12.3:IL01* **Processing of Ceramic Coatings and Multilayered Ceramics**
R. BORDIA, University of Washington, Seattle, WA, USA; O. GUILLON, Technische Universität Darmstadt, Darmstadt, Germany; C. MARTIN, CNRS/ Grenoble-INP, Laboratoire SIMAP, Saint Martin d'Heres cedex, France

9.30 *CB-12.3:IL03* **Dual Scale Failure Modeling of Composite Structures for a Fusion Reactor**
JEONG-HA YOU, Max-Planck-Institute of Plasma Physics, Garching, Germany

10.00 *CB-12.3:L04* **Magnetoelectric Characterization of Compositionally Graded Magnetostrictive-piezoelectric Layered Structures**
V. PETROV, Novgorod State University, Veliky Novgorod, Russia; G. SRINIVASAN, S.K. MANDAL, Oakland University, Rochester, MI, USA

10.20 *CB-12.3:L05* **Computation of Mixed-mode Stress Intensity Factors**
A. SHAGHAGHI MOGHADDAM, R. GHAJAR, Mechanical Eng. Dept., University of KNTU, Tehran, Iran; M. ALFANO, Mechanical Eng. Dept., University of Calabria, Rende (CS), Italy

10.40 *Break*

Session CB-11.3 - SHS of Ceramic Powders

Room: **ORSA MINORE**

Chair: P. BORDIA, USA

11.10 *CB-11.3:IL05* **Regulation of Crystallites Size in Ceramic SHS**
S.L. KHARATYAN, Institute of Chemical Physics NAS RA, Yerevan, Armenia and Yerevan State University, Yerevan, Armenia

11.40 *CB-11.3:L06* **Production of Zirconium Diboride Powder by Self Propagating High Temperature Synthesis**
B. AKKAS, M. ALKAN, O. YUCEL, Metallurgical & Matls Eng. Dept., Istanbul Technical University, Istanbul, Turkey

12.00 *CB-11.3:L07* **Combustion Synthesis of Tungsten Containing Ceramic Materials**
Kh.V. MANUKYAN[1,2], S.L. KHARATYAN[1,2], R.A. MNATSAKANYAN[2], A. ZURNACHYAN[2], A. VOSKANYAN[1], V. DANGHYAN[1], [1]Yerevan State University, Yerevan, Armenia; [2]A.B. Nalbandyan Institute of Chemical Physics NAS, Yerevan, Armenia

12.20 *CB-11.3:L09* **Catalyst-induced Vapor-solid Growth Route for Synthesis of B_4C Nanostructures: Nanobelts, Platelets and Whiskers**
S. ILDAY, Graduate Program of Materials Science and Nanotechnology, Bilkent University, Ankara, Turkey; **E. BENGU**, Dept. of Chemistry, Bilkent University, Ankara, Turkey

Session CD-4 - Residual Stresses, Joint Modeling Design, Characterization and Analysis

Room: **ZENITH**

Chair: N. EUSTATHOPOULOS, France

8.30 *CD-4:IL01* **Mechanical Properties and Residual Stress in Hermetic Feedthroughs for Medical Devices**
M.W. REITERER, Medtronic Strategy and Innovation, Medtronic, Inc., Minneapolis, MN, USA; B. TISCHENDORF, W.J. TAYLOR, A.J. THOM, Medtronic Energy and Component Center, Medtronic, Inc., Brooklyn Center, MN, USA

9.00 *CD-4:IL02* **Measured Residual Stress/Strain Distributions in a Micro-Area around a Ceramic/Metal Interfaces**
S.-I. TANAKA, Institute of Multidisciplinary Research for Advanced Materials, Tohoku University, Sendai, Japan

9.30 *CD-4:IL03* **Recent Advances in Joining of SiC Based Materials**
M. SALVO, V. CASALEGNO, M. FERRARIS, S.HAN, S. RIZZO, A. VENTRELLA, Politecnico di Torino, Dipartimento di Scienza dei Materiali e Ingegneria Chimica-DISMIC, Torino, Italy

10.00 *CD-4:IL04* **Residual Stress Measurement around the Interface of Copper Bi-crystal Developed by Uniaxial Extension**
T. HANABUSA[1], A. SHIRO[2], T. OKADA[1], [1]Institute of Technology and Science, The University of Tokushima, Tokushima, Japan; [2]Graduate School of Advanced Technology and Science, The University of Tokushima, Tokushima, Japan

10.30 *Break*

Chair: C. LEINENBACH, Switzerland

10.50 *CD-4:IL05* **Preparation, Characterization and Applications of Glass-ceramic-to-metal Seals**
I.W. DONALD, B.L. METCALFE, L.A. GERRARD, P.M. MALLINSON, J.A. FERNIE, Materials Science Research Div., AWE, Aldermaston, Berkshire, UK

11.20 *CD-4:IL06* **The Quality of Brazed Ceramic and Cemented Carbide Joints - A Mechanical and Metallurgical Assessment**
W. TILLMANN, L. WOJARSKI, Institute of Materials Engineering, TU Dortmund, Dortmund, Germany

11.50 *CD-4:IL07* **Design and Characterization of Metal-ceramic Joints for High Temperature Applications**
N. SOBCZAK[1], R. ASTHANA[2], M. SINGH[3], [1]Centre for High Temperature Studies, Foundry Research Institute, Cracow, Poland; [2]Dept. of Engineering & Technology, University of Wisconsin-Stout, Menomonie, WI, USA; [3]Ohio Aerospace Institute, NASA Glenn Research Center, Cleveland, OH, USA

12.20 *CD-4:IL08* **Modelling and Computer Simulation of Residual Stresses at Joined Interfaces**
S. SCHMAUDER, Institute for Materials Testing, Materials Science and Strength of Materials (IMWF), University of Stuttgart, Germany

12.50 *CD-4:L09* **Temperature Modeling for Friction Welding Process Between Ceramic and Metal**
HAZMAN SELI, A. IZANI Md. ISMAIL, E. RACHMAN, Z. ARIFIN AHMAD, Universiti Sains Malaysia (USM), School of Matls Eng, Penang, Malaysia

Session CE-2 - Nitride, Carbide and Boride Ceramics

Room: **VENERE**

Chair: M.J. HOFFMANN, Germany

9.00 *CE-2:IL13* **Microstructural Design of Si3N4 Ceramics via Preceramic Polymer Additives**
G. MOTZ, University of Bayreuth, Bayreuth, Germany

9.30 *CE-2:IL14* **Robust Net Shape Forming of High Temperature Silicon Nitride Based Gas Turbine Components**
V.K. PUJARI, A. VARTABEDIAN, G. WAYMAN, Saint-Gobain Ceramics & Plastics Inc., Northboro, MA, USA

10.00 *CE-2:L15* **SiC Nanostructured Ceramics from Laser Grown Nano-powders Sintered by SPS**
Y. LECONTE, X. LANDREAU, S. COSTE-LECONTE, N. HERLIN-BOIME, CEA, IRAMIS, SPAM, LFP, Gif sur Yvette, France; G. BONNEFONT, G. FANTOZZI, MATEIS, UMR CNRS 5510, Université de Lyon, INSA de Lyon, Villeurbanne, France

10.20 *Break*

Session CE-4 - Ternary Compounds

Room: **VENERE**

Chair: V.K. PUJARI, USA

10.50 *CE-4:IL01* **The Max Phases: Ductile, Machinable Ternary Carbides and Nitrides for High Temperature and Other Applications**
M.W. BARSOUM, Dept. of Materials Science and Engineering, Drexel University, Philadelphia, PA, USA

11.20 *CE-4:IL02* **Low Cost Processing and Property Control of Layered Ternary Carbides and Nitrides (MAX Phases)**
YANCHUN ZHOU, High-performance Ceramic Division, Shenyang National Lab. for Materials Science, Institute of Metal Research, CAS, Shenyang, China

11.50 *CE-4:L03* **Thermal Stability of Ti3Al1-xSixC2 Solid Solutions**
JIXIN CHEN, Y.C. ZHOU, J. ZHANG, SYNL, Institute of Metal Research, CAS, Shenyang, China

12.10 *CE-4:L05* **Pressureless Sintering and Properties of Ti3AlC2**
X.P. LU, Y.C. ZHOU, High-performance Ceramic Division, Shenyang National Lab. for Materials Science, Institute of Metal Research, CAS, Shenyang, China

12.30 *CE-4:L04* **Thermal Stability of MAX Phases in Vacuum**
W.K. PANG, **I.M. LOW**, Dept. of Applied Physics, Curtin University of Technology, Perth, WA, Australia

Sub-session CF-3.1 - Ceramic Catalysts

Room: **ALBA 2**

Chair: I. YAMANAKA, Japan

8.30 *CF-3.1:IL01* **Aerogel Catalysts**
A.C. PIERRE, Université Lyon 1, CNRS, UMR 5256, IRCELYON, Villeurbanne, France

9.00 *CF-3.1:IL02* **Highly Efficient Visible Light Photocatalysts on the basis of Interfacial Charge Transfer and Multi-electron Oxygen Reduction Catalyst**
K. HASHIMOTO, University of Tokyo, Tokyo, Japan; **H. IRIE**, University of Yamanashi, Yamanashi, Japan

9.30 *CF-3.1:IL03* **Catalysts Supports for Energy Conversion Processes**
J.L.G. FIERRO, Inst. de Catalisis y Petroleoquimica, CSIC, Madrid, Spain

10.00 *CF-3.1:L04* **Effects of Surface CeO_2 Particle Size on Diesel Particulate Oxidation of Pr_6O_{11} Based Oxide**
T. ISHIHARA, S. HAMAMOTO, Dept. of Applied Chemistry, Faculty of Engineering, Kyushu University, Fukuoka, Japan

10.20 *CF-3.1:L05* **Ultra-divided Catalysts Tailored for Industrial Steam Reforming Processes**
C. BONHOMME, R. FAURE, S. GOUDALLE, F. ROSSIGNOL, T. CHARTIER, CNRS-ENSCI, Lab. de Sciences des Procédés Céramiques et de Traitements de Surface (SPCTS), UMR CNRS 6638, Limoges, France; C. BERTAIL, P. DEL-GALLO, Air Liquide, CRCD Research Center, Jouy-en-Josas, France

10.40 *Break*

Sub-session CF-4.3 - Materials for Electrochemistry

Room: **ALBA 2**

Chair: MEILIN LIU, USA

11.10 *CF-4.3:IL01* **Semiconducting Oxide Electrodes for Photoelectrochemical Water Splitting**
A. ROTHSCHILD, Dept. of Materials Engineering, Technion - Israel Institute of Technology, Haifa, Israel

11.40 *CF-4.3:IL02* **Photocatalytic Activity of Ceramic Foam Supported TiO2, TiO2/Ce and TiO2/Zr Thick Films**
G. PLESCH, M. VARGOVÁ, K. JESENÁK, Faculty of Natural Sciences, Comenius University, Bratislava, Slovak Rep.; U.F. VOGT, M. GORBÁR, Empa, Swiss Federal Labs for Materials Testing and Research, Dübendorf, Switzerland; T. MANCINO, P. COLOMBO, Università di Padova, Padova, Italy

12.10 *CF-4.3:L03* **Analysis of Degradation and Aging Processes in Solid Oxide Electrolyser Cells**
U.F. VOGT, D. WIEDENMANN, L. HOLZER, A. ZÜTTEL, Empa Materials Science and Technology, Dübendorf, Switzerland; A. HAUCH, National Lab. for Sustainable Energy, Risoe, Tech. University of Denmark, Roskilde, Denmark

12.30 *CF-4.3:L05* **Development of Porous ZrO2 Diaphragms for Alkaline Electrolysis**
M. GORBAR, U. VOGT, V. HERZOG, D. WIEDENMANN, A. ZÜTTEL, Empa Abt. 138 "Hydrogen & Energy", Dübendorf, Switzerland

Session CG-3 - Thermal Barrier Coatings

Room: **URANO**

Chair: P. GOUDEAU, France

9.00 *CG-3:IL01* **Advanced Thermal Barrier Coatings**
R. VAßEN, O. JARLIGO, D. MACK, T. STEINKE, D. STÖVER, Institute of Energy Research (IEF-1), Forschungszentrum Jülich GmbH, Jülich, Germany

9.30 *CG-3:IL02* **Technical and Economical Aspects of Current Thermal Barrier Coating Systems for Gas Turbine Engines**
A. BOLCAVAGE, Rolls Royce Corporation, Indianapolis, IN, USA

10.00 *CG-3:IL03* **Thermal Barrier Coatings as an Interacting Multilayer System: Performances and Degradation Mechanisms**
O. LAVIGNE, ONERA-DMSM, Chatillon, France

10.30 *CG-3:L04* **Thermal Conductivity and Sintering Resistance of Plasma Sprayed Dysprosia-Yttria-Zirconia Thermal Barrier Coatings**
S. WANG, **T. TROCZYNSKI**, Dept. of Materials Engineering, The University of British Columbia, Vancouver, BC, Canada; R. REED, Dept. of Metallurgy and Materials, The University of Birmingham Edgbaston, Birmingham, UK

10.50 *Break*

Session CG-4 - Thin Films and Coatings for Tribological and Multifunctional Applications

Room: **URANO**

Chair: S. KURODA, Japan

11.20 *CG-4:IL06* **Nanocomposite Metal Carbide/Amorphous Carbon Coatings for Tribological Applications**
J.C. SANCHEZ-LOPEZ, M.D. ABAD, D. MARTINEZ-MARTINEZ, A. FERNANDEZ, Instituto de Ciencia de Materiales de Sevilla (CSIC-Univ. Sevilla), Sevilla, Spain

11.50 *CG-4:IL07* **Hard Protective Thin Films: Mechanical and Tribological Behavior**
M. FENKER, H. KAPPL, FEM Research Institute Precious Metals & Metals Chemistry, Schwäbisch Gmünd, Germany

12.20 *CG-4:L09* **Boron Nitride Coatings Deposited onto Titanium. Use of an Alternative Ceramization Process**
B. TOURY, H. TERMOSS, A. BRIOUDE, S. BERNARD, P. MIELE, Lab. des Multimatériaux et Interfaces, UMR 5615 CNRS - Université Lyon 1, France; S. BENAYOUN, Lab. de Tribologie et Dynamique des Surfaces, UMR 5513 CNRS - Ecole Centrale de Lyon, Ecully, France

Session CH-3 - Magnetic Ceramics

Room: **SIRIO**

Chair: L. MORELLON, France

8.45 *CH-3:IL10* **Novel Materials for all Oxide-based Spintronics**
L. ALFF, Institute for Materials Science, TU Darmstadt, Darmstadt, Germany

9.15 *CH-3:IL11* **Magnetic Nanoparticles for Applications in Medicine and Technique**
P. GOERNERT, P. PAYER, M. ROEDER, Innovent, Jena, Germany; R. MUELLER, R. HERGT, IPHT, Jena, Germany; H. SPEPANKOVA, P. KRISTAN, V. CHLAN, Charles University, Prague, Czech Republic

9.45 *CH-3:IL12* **Application of Permanent Magnets for Microwave Absorbers in GHz Range**
S. SUGIMOTO, Dept. of Material Science, Tohoku University, Sendai, Japan

10.15 *Break*

Session CH-5 - Optical, Electro-optical and Magneto-optical Ceramics and Devices

Room: **SIRIO**

Chair: Jan MA, Singapore

10.45 *CH-5:IL01* **Bi-doped Glass Optical Fibers: Properties and Applications**
E. DIANOV, Fiber Optics Research Center, Moscow, Russia

11.15 *CH-5:IL03* **Abnormal Effects of Sonic Metamaterials**
YAN-FENG CHEN, National Lab. of Solid-State Microstructures & Dept. of Materials Science and Eng., Nanjing University, Nanjing, China

11.45 *CH-5:L04* **Design, Characterization and Fabrication of Nd3+ Doping Profiles in Transparent YAG Laser Ceramics**
R. GAUME, J.A. WISDOM, R.L. BYER, Stanford University, Stanford, CA, USA

12.05 *CH-5:L06* **Thermal Stability of Ge-Sb-Te Materials for Phase - Change Memory Devices**
A.A. SHERCHENKOV, Moscow Institute of Electronic Technology, Russia; S.A. KOZYUKHIN, Kurnakov Institute of General and Inorganic Chemistry, Moscow, Russia

12.25 *CH-5:IL02* **Ultra-compact Gbps PLZT Electro-optic Modulators on Si Substrate**
M. NAKADA[1, 2], T. SHIMIZU[1], H. MIYAZAKI[1], K. OHASHI[1], [1]MIRAI-Selete, Tsukuba, Ibaraki, Japan; [2]NEC Corporation, Tsukuba, Ibaraki, Japan; H. TSUDA, J. AKEDO, AIST, Tsukuba, Ibaraki, Japan

Session CH-6.5 - Structural Characterization and Spin Order of Multiferroics

Room: **ORSA MAGGIORE**

Chair: D. DREW, USA

11.00 *CH-6.5:IL01* **Magnetically-induced Electric Polarziation in a Collinear Oxide Antiferromagnet and in an Organo-metallic Quantum Magnet**
M. KENZELMANN, Paul Scherrer Institute, Villigen-PSI, Switzerland

11.30 *CH-6.5:IL02* **Structure, Electrical and Magnetic Properties of Hexagonal ReMnO3 Heterostructures**
C. DUBOURDIEU, I. GELARD, H. ROUSSEL, LMGP, CNRS, Grenoble INP, Grenoble, France; S. PAILHES, LLB, CNRS-CEA, CEA Saclay, Gif-sur-Yvette, France; N. JENATHAN, O. LEBEDEV, S. VAN TENDELOO, EMAT, University of Antwerp, Antwerpen, Belgium

12.00 *CH-6.5:IL03* **Magnetoelectronic Coupling in Frustrated Spin Systems**
T.T.M. PALSTRA, Zernike Institute for Advanced Materials, University of Groningen, Groningen, The Netherlands

12.30 *CH-6.5:L04* **Evidence for a Monoclinic alpha - Monoclinic beta First- Order Transition in BiFeO3 Thin Films**
H. TOUPET, **F. LE MARREC**, M.G. KARKUT, LPMC, Université de Picardie Jules Verne, Amiens, France; C. LICHTENSTEIGER, DPMC, Université de Genève, Genève, Switzerland; B. DKHIL, SPMS, Ecole Centrale Paris, Châtenay-Malabry, France

Session CI-7 - Spectroscopy of Magnetic Oxides

Room: **GIOVE**

Chair: T. GIAMARCHI, Switzerland

8.30 *CI-7:IL01* **Modeling Highly Resolved Spectroscopies of Complex Materials: From Qualitative to Quantitative**
A. BANSIL, Physics Dept., Northeastern University, Boston, MA, USA

9.00 *CI-7:IL02* **New Electronic States in the Magnetic Materials Revealed by ARPES**
CHANGYOUNG KIM, Dept. of Physics, Yonsei University, Seoul, Korea

9.30 *CI-7:L03* **RE L_3 X-ray Absorption Study of $REO_{(1-x)}F_xFeAs$ (RE = La, Pr, Nd, Sm) Oxypnictides**
B. JOSEPH[1], A. IADECOLA[1], M. FRATINI[2], A. BIANCONI[1], A. MARCELLI[3], **N.L. SAINI**[1], [1]Dip. Fisica, University of Rome "La Sapienza", Roma, Italy; [2]Istituto di Fotonica e Nanotecnologie, CNR Roma, Italy; [3]Laboratori Nazionali di Frascati, INFN, Frascati, Italy

9.50 *CI-7:IL04* **Photoemission Spectroscopy of Perovskite-type Oxides under Epitaxial Strain**
A. FUJIMORI, Dept. of Physics, University of Tokyo, Tokyo, Japan

10.20 *Break*

10.35 *CI-7:IL05* **Manipulation Electronic Structure by Laser Pump-photoemission Probe in Oxides**
T. MIZOKAWA, Dept. of Complexity Science and Engineering, University of Tokyo, Tokyo, Japan

Session CI-8 - Quantum Phase Transitions and Magnetism in Oxides

11.05 *CI-8:IL02* **Intrinsic Lattice Instabilities in Magnetic Oxides Close to the Metal-insulator**
F. RIVADULLA, Physical Chemistry Dept., University of Santiago do Compostela, Santiago do Compostela, Spain

11.35 *Break*

Session CI-5 - Novel Synthesis and Processing Techniques

Room: **GIOVE**

Chair: Y. MATSUMOTO, Japan

11.50 *CI-5:IL04* **Dps Protein as a Bio-reactor to Synthesise Magnetic Nanoparticles**
C. SANGREGORIO, L. CASTELLI, L. SORACE, C. INNOCENTI, D. GATTESCHI, INSTM and Dept. of Chemistry, Univ. di Firenze, Sesto Fiorentino, Italy; P. CECI, E. CHIANCONE, C.N.R. Inst. of Molecular Biology and Pathology, Dept. of Biochemical Sciences, “Sapienza” Univ. of Rome, Rome, Italy

12.20 *CI-5:IL05* **Bulk Synthesis and Crystal Growth of Magnetic and Superconducting Functional Materials**
T. ITO, National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Ibaraki, Japan

Session CJ-2 - Innovation in the Silicate Ceramics Industry

Room: **SMERALDO 1**

Chair: P. BLANCHART, France

9.00 *CJ-2:IL09* **Fracture Propagation in Porcelain Tiles During Cooling**
V. CANTAVELLA, E. SANCHEZ, E. BANNIER, F. GILABERT, Instituto de Tecnologia Ceramica (ITC), AICE, Universitat Jaume I, Castellon, Spain

9.30 *CJ-2:IL10* **Glassceramics from Vitreous and Ceramic Wastes**
J.Ma. RINCON, IETcc, CSIC, Madrid, Spain

10.00 *CJ-2:L11* **Comparison of Weibull Modulus of Aluminosilicate Ceramics Sintered at Various Temperatures**
D.A. PAPARGYRIS, **A.D. PAPARGYRIS**, General Dept. of Applied Sciences, Lab. of Materials Testing, Technological & Educational Institute of Larissa, Larissa, Greece

10.20 *Break*

Session CJ-3 - Nanotechnology and Advanced Solutions in Silicate Ceramics

Room: **SMERALDO 1**

Chair: G. BALDI, Italy

10.50 *CJ-3:IL01* **Development of New VOC Removal Composite Catalyst Using Silicate Honeycomb Substrate**
M. OZAWA, Ceramic Research Laboratory, Nagoya Institute of Technology, Tajimi, Gifu, Japan

11.20 *CJ-3:IL02* **Testing of Photocatalytic Activity of Self-cleaning Surfaces**
U. CERNIGO, M. KETE, **U. LAVRENCIC STANGAR**, Lab. for Environmental Research, University of Nova Gorica, Nova Gorica, Slovenia

11.50 *CJ-3:L03* **High Temperature Structural Stabilisation of Turkish Sepiolites**
I. KARA, A. OZCAN, Anadolu University, Eskisehir, Turkey; S. AKAR, Eskisehir Osmangazi University, Eskisehir, Turkey

12.10 *CJ-3:L04* **Microwave-assisted Green Synthesis of Noble Metal Nanoparticles**
M. BLOSI, M. DONDI, ISTEC-CNR Institute of Science and Technology for Ceramics, National Research Council, Faenza, Italy; S. ALBONETTI, F. GATTI, Dept. of Industrial Chemistry and Materials, University of Bologna, Bologna, Italy; G. BALDI, CERICOL Colorobbia Research Centre, Sovigliana Vinci, Italy

Session CK-2 - Characterization

Room: **SMERALDO 3**

Chair: S. ROSSIGNOL, France

8.45 *CK-2:IL01* **The Application of Micromechanics on Alkali-activated Materials**
F. SKVARA, Institute of Chemical Technology Prague, Prague; **V. SMILAUER**, J. NEMECEK, L. KOPECKY, Czech Technical University in Prague, Dept. of Mechanics, Prague, Czech Republic

8.15 *CK-2:IL02* **The Alkali-activation of Aluminosilicates - Some Chemical Perspectives**
D.E. MACPHEE, **I. GARCIA LODEIRO**, Dept. of Chemistry, University of Aberdeen, Old Aberdeen, Scotland

9.45 *CK-2:L03* **Mechanical Properties of Metakaolin Geopolymers: A Microstructural Study**
E. KAMSEU, **C. LEONELLI**, DIMA, Università di Modena e Reggio Emilia, Modena, Italy; A. TUCCI, L. ESPOSITO, Centro Ceramico Bologna, Bologna, Italy

10.05 *CK-2:L04* **High-temperature Mechanical Property of Cf/geopolymer Composites After Heat Treatment and Repeated Impregnation by Sol-SiO2**
DECHANG JIA, PEIGANG HE, TIESONG LIN, MEIRONG WANG, Harbin Institute of Technology, Harbin, P.R. China

10.25 *CK-2:L05* **Evaluation of the Stability of Waste-based Geopolymeric Artificial Aggregates for Wastewater Treatment Processes Under Different Curing Conditions**
I. SILVA, Castelo Branco Polytechnic Institute and Centre of Materials and Building Technologies, University of Beira Interior, Covilhã, Portugal; J. CASTRO-GOMES, A. ALBUQUERQUE, Centre of Materials and Building Technologies, University of Beira Interior, Covilhã, Portugal

10.45 *Break*

Chair: K. IKEDA, Japan

11.15 *CK-2:IL06* **Atomic Structure and Microstructure of Geopolymer and Crystallized Geopolymer Ceramics**
W.M. KRIVEN, J.L. BELL, P.E. DRIEMEYER, P. SARIN, R.P. HAGGERTY, N. XIE, University of Illinois at Urbana-Champaign, Dept. of Materials Science and Engineering, Urbana, IL, USA

11.45 *CK-2:IL07* **In Situ Characterization of Fresh and Aged Geopolymer Materials**
S. ROSSIGNOL, GEMH ENSCI, Limoges, France

12.15 *CK-2:L09* **Comparative Study of the Consolidation Process and Properties of Clay Based Geomaterials and "Geomimetic" Lateritic Clay Based Materials**
G.L. LECOMTE, G. LECOMTE, Groupe d'Etude des Matériaux Hétérogènes- ENSCI, Limoges, France; A. WATTIAUX, Institut de Chimie de la Matière Condensée de Bordeaux, Pessac, France

Session CL-4 - System Modeling, Simulation and Failure Analysis

Room: **TURCHESE**

Chair: R.C. BRADT, USA

8.30 *CL-4:IL01* **Thermal Shock Criteria of Refractory Ceramics: Limitations of Conventional Analyses and Some Numerical Approaches to Improve the Prediction of the Resistance to Thermal Shock**
N. SCHMITT, LMT Cachan (ENS de Cachan, CNRS, UPMC), Cachan, France, also at IUFM de Créteil (UPEC), Saint Denis, France

9.00 *CL-4:IL02* **A New Generation of Refractories to Enable Gasifier Fuel Flexibility**
J.P. BENNETT, KYEI-SING KWONG, H. THOMAS, R. KRABBE, J. NAKANO, National Energy Technology Laboratory, Albany, OR, USA

9.30 *CL-4:IL03* **Modelling of Joint Effect in Refractory Structures**
E. BLOND[1], A. GASSER[1], M. LANDREAU[2], T.M.H. NGUYEN[1], [1]Institut PRISME, Polytech' Orléans, Orléans, France; [2]CPM, Parc d'Activités Forbach Ouest, Forbach, France

10.00 *CL-4:L04* **Nozzle Wear Mechanisms Developed by Contact with Slag and Steel During Casting Process**
V. PEIRANI, L. SANTINI, E. BENAVÍDEZ, **E. BRANDALEZE**, Dpto de Metalurgia, Facultad Regional San Nicolás, Universidad Tecnológica Nacional, San Nicolás, Argentina

10.20 *CL-4:L05* **Simulation of Moulding of Refractory Bricks**
D. GRUBER, H. HARMUTH, Chair of Ceramics, University of Leoben, Leoben, Austria

10.40 *Break*

Session CL-2 - Testing

Room: **TURCHESE**

Chair: C. BAUDIN, Spain

11.10 *CL-2:IL09* **The Fracture Toughness of Refractories**
R.C. BRADT, The University of Alabama, Tuscaloosa, AL, USA

11.40 *CL-2:IL10* **Thermomechanical Characterisation of Monolithic Castables**
T. CUTARD, N. DONVAL, A. MAZZONI, C. MICHEL, Toulouse University, Mines Albi, Research Center on Tools Materials and Processes (ICA-CROMeP), Albi, France; F. NAZARET AUROCK, MDI, ZA Albitech, Albi, France

12.10 *CL-2:L11* **Electrical Characterization of Alumina-Based Bodies Containing Al-Rich Anodizing Sludge**
M.J. RIBEIRO, UIDM, ESTG, Polytechnique Institute of Viana do Castelo, Viana do Castelo, Portugal; J.A. LABRINCHA, Ceramics and Glass Engineering Dept., CICECO, University of Aveiro, Aveiro, Portugal

12.30 *CL-2:L12* **High Temperature Mechanical Behaviour of MgO-$CaZrO_3$-based Refractories for Cement Kilns**
C. BAUDÍN, P. PENA, Instituto de Cerámica y Vidrio, CSIC, Madrid, Spain; A. OBREGÓN, J.L. RODRÍGUEZ-GALICIA, CINVESTAV, Unidad Saltillo, Coahuila, Saltillo, Mexico

Session CM-3 - Nanomanufacturing

Room: **SMERALDO 2**

Chair: A. CHIAPPINI, Italy

8.30 *CM-3:IL05* **SPM-based Nanofabrication and Analysis of Atomic-scale Magnetic Systems**
R. WIESENDANGER, Interdisciplinary Nanoscience Center Hamburg, University of Hamburg, Hamburg, Germany

9.00 *CM-3:IL06* **Supramolecular Approaches for Novel Functional Hybrid Materials**
K. ARIGA, World Premier International (WPI) Research Center for Materials Nanoarchitectonics (MANA), National Institute for Materials Science (NIMS), Tsukuba, Ibaraki, Japan

9.30 *CM-3:IL07* **Luminescent Nanoparticles as Efficient Labels in DNA-Microarray**
F. ENRICHI, R. RICCO', A. MENEGHELLO, CIVEN and Nanofab, Marghera (Venezia), Italy

10.00 *CM-3:IL08* **Design of Size and Interconnection of Novel Complex Oxide Powder**
S. WADA, University of Yamanashi, Kofu, Japan

10.30 *Break*

Session CM-4 - Theory, Modeling and Simulation

Room: **SMERALDO 2**

Chair: G. SEIFERT, Germany

11.00 *CM-4:IL01* **Simulation of Complex Photonic Materials**
A. QUANDT, A. LEYMANN, Institut für Physik, Universität Greifswald, Greifswald, Germany

11.30 *CM-4:IL02* **Finite Bias Effects on the STM Images and STS Spectra of C60 Weakly Coupled to Au(111)**
M. COBIAN, **F.D. NOVAES**, A. GARCIA, ICMAB-CSIC, Bellaterra, Spain; H. UEBA, Dept. of Electronics, Toyama University, Gofuku, Toyama, Japan; P. ORDEJON, N. LORENTE, CIN2, Bellaterra, Spain

12.00 *CM-4:IL03* **Multiscale Simulation of Nanostructured Photovoltaic Cells**
ZHIGANG SHUAI, Dept. of Chemistry, Tsinghua University, Beijing, China

12.30 *CM-4:IL04* **Lithography Simulation: Modeling and Applications**
P. EVANSCHITZKY, A. ERDMANN, Fraunhofer IISB, Erlangen, Germany

Session CN-4 - Property, Modeling and Characterization

Room: **AMBRA**

Chair: G.L. VIGNOLES, France

9.00 *CN-4:IL01* **Interfaces and Interphases in Ceramic Matrix Composites: Influence on Mechanical Properties and Lifetime at High Temperature**
J. LAMON, CNRS/Université de Bordeaux, Laboratoire des Composites Thermostructuraux, Pessac, France

9.35 *CN-4:IL02* **Modeling Tools for CMC Materials**
D. KOCH, Advanced Ceramics Group, University of Bremen, Bremen, Germany

10.10 *CN-4:L04* **Investigation of Thermal Properties of 3D- C/SiC Composites**
PING HE, SHAOMING DONG, LE GAO,YUSHENG DING, XIANGYU ZHANG, Shanghai Institute of Ceramics, CAS, Shanghai, China

10.35 Break

Chair: D. KOCH, Germany

11.05 *CN-4:IL06* **High Temperature Creep of Metal- and Ceramic-matrix Composites**
S.T. MILEIKO, Inst. of Solid State Physics of RAS, Chernogolovka, Russia

11.40 *CN-4:IL07* **Modeling Infiltration of Fiber Preforms From X-ray Tomography Data**
G.L. VIGNOLES, W. ROS, I. SZELENGOWICZ, Univ. Bordeaux 1, LCTS, Pessac, France; C. MULAT, C. GERMAIN, M. DONIAS, Univ. Bordeaux, IMS, Talence, France

Session CN-2 - Processing and Fabrication

12.15 *CN-2:IL01* **Fabrication, Microstructures, Mechanical Properties and High Temperature Performance of Tungsten Matrix Composites Reinforced by TiC and ZrC Particles**
YU ZHOU, YUJIN WANG, Guiming SONG, Taiquan ZHANG, School of Materials Science and Engineering, Harbin Institute of Technology, Harbin, China
(rescheduled time as for Author request)

Session CA-3 - Shape Forming and Compaction Mechanisms

Room: **AUDITORIUM**

Chair: A. ROOSEN, Germany

15.00 *CA-3:IL06* **New Developments in Electrophoretic Deposition Processing**
T. UCHIKOSHI, T.S. SUZUKI, Y. SAKKA, Nano Ceramics Center, National Institute for Materials Science (NIMS), Tsukuba, Ibaraki, Japan

15.30 *CA-3:IL07* **Improving the Porosity Features Control of Ceramic Cellular Components through a Modified Gelcasting Process**
M. LOMBARDI, L. MONTANARO, Dept. DISMIC-Politecnico di Torino, INSTM- R.U. PoliTO - LINCE Lab., Torino, Italy; S. MEILLE, J. CHEVALIER, Université de Lyon, INSA-Lyon, MATEIS, CNRS UMR 5510, Villeurbanne, France

16.00 *CA-3:L08* **Processing and Superplastic Deformation of Zirconia-based Ceramic Nanocomposites**
K. VANMEENSEL, H. SHENG, A. LAPTEV, A.K. SWARNAKAR, O. VAN DER BIEST, J. VLEUGELS, Dept. of Metallurgy and Materials Eng., Katholieke Universiteit Leuven, Heverlee (Leuven), Belgium

16.20 *CA-3:L09* **Saccharides Derivatives in Shaping of Ceramic Powders - New Monomers and Dispersants**
P. BEDNAREK, M. SZAFRAN, T. MIZERSKI, Faculty of Chemistry, Warsaw University of Technology, Warsaw, Poland

16.40 *Break*

THURSDAY JUNE 10 AFTERNOON

Room: **AUDITORIUM**

Chair: K. HABERKO, Poland

Session CA-1 - Powder Synthesis and Characterization

17.00 *CA-1:L21* **Sol-gel Synthesis Assisted by Supercritical CO2 - A Flexible Process for Ceramic Powder and Membrane Preparation**
A. HERTZ[1], V. DURAND[1], S. SARRADE[1], C. GUIZARD[2], A. JULBE[3], J.-C. RUIZ[1], F. CHARTON[1], [1]CEA, DEN/DTCD/SPDE/LFSM, Bagnols sur Ceze, France; [2]Lab. de Synthese et Fonctionnalisation des Céramiques, FRE 2770 CNRS-Saint-Gobain C.R.E.E., Cavaillon, France; [3]Institut Européen des Membranes, UMR 5635 CNRS-UMII-ENSCM, UM2-CC047, Montpellier, France

17.20 *CA-1:L25* **Microemulsion Synthesis Strategies for ZrW2O8 Precursors**
I. VURAL[1], **N. KHAZENI**[1], B. MAVIS[2], G. GÜNDÜZ[1], Ü. ÇOLAK[2], [1]Dept. of Chemical Engineering, METU, Ankara, Turkey; [2]Dept. of Mechanical Engineering, HU, Ankara, Turkey

17.40 *CA-1:L26* **Production of Nanopowders with the Help of Fiber Laser**
M. IVANOV, Yu. KOTOV, O. SAMATOV, Institute of Electrophysics, Ural Division of Russian Academy of Sciences, Russia

Session CA-4 - Sintering and Related Phenomena

18.00 *CA-4:L12* **Microstructural and Phenomenological Analysis of the Reaction Sintering of a Nickel Ferrite Based Cermet**
G. LARGILLER, C. CARRY, D. BOUVARD, Grenoble-INP, CNRS/UJF, SIMaP, St Martin d'Heres, France; A. GABRIEL, Rio Tinto Alcan, CRV, Voreppe, France

18.20 *CA-4:L15* **Numerical Modelling and Experimental Characterization of the Pyroplasticity in Ceramic Materials During Sintering**
P. BENE, D. BARDARO, D. BELLO, O. MANNI, Consorzio Cetma, Brindisi, Italy

Session CB-8 - Porous Ceramics

Room: **LE PLEIADI**

Chair: J. BILL, Germany

15.30 *CB-8:IL01* **Confined Molecules in Porous Media for Controlled Release: NMR Characterization**
T. AZAIS, N. FOLLIET, G. LAURENT, F. BABONNEAU, Université Pierre et Marie Curie-Paris6 and CNRS, UMR 7574, Lab. Chimie de la Matiere Condensee de Paris, France; F. GUENNEAU, A. NOSSOV, Universite Pierre et Marie Curie and CNRS, Lab. de RMN des Matériaux Nanoporeux, FRE 3230, Paris, France; D. AIELLO, F. TESTA, Dept. of Chemical Eng. and Matls, CR-INSTM, University of Calabria, Arcavacata di Rende (CS), Italy

16.00 *CB-8:IL02* **Porous 1D Ceramics and Composite Ceramics via Electrochemical, Gas Phase and Precursor Routes**
J.J. SCHNEIDER, Technische Universität Darmstadt, Fachbereich Chemie Eduard Zintl Institut Anorganische Chemie, Darmstadt, Germany

16.30 *CB-8:L05* **Investigation on the Microstructure and Permeability of Porous SiC Ceramics**
IN-HYUCK SONG, IL-MIN KWON, HAI-DOO KIM, YOUNG-WOOK KIM, Korea Institute of Materials Science, The University of Seoul, Changwon, Korea

Session CB-2 - Near-Net-Shape Techniques

16.50 *CB-2:IL02* **Ceramic Injection Moulding for Microtechnology**
J. HAUSSELT, Karlsruhe Institute of Technology and IMTEK, University of Freiburg, Germany

Session CB-12.2 - Layered and Graded Thin and Thick Coatings

Room: **ORSA MINORE**

Chair: D.V. SHTANSKY, Russia

15.20 *CB-12.2:IL04* **Development of Functionally Graded Coating Based Plasma Facing Materials for Fusion Reactor**
CHANG-CHUN GE[1, 2], SHUANG-QUAN GUO[2], YUN-BIAO FENG[2], ZHANG-JIAN ZHOU[1], WEI-LIANG LIU[2, 3], **JUAN DU**[4], [1]Inst. Nuclear Materials, Univ. of Science and Technology Beijing (USTB), Beijing; [2]School of Materials Science & Eng., Southwest Jiaotong Univ., Chengdu; [3]Jingdezhen Ceramic Inst., Jingdezhen, P.R. China; [4]Max-Planck-Institute for Plasma Physics, München, Germany

15.50 *CB-12.2:IL05* **Electrodeposition of Functional Molecules for Biomaterials**
T. HANAWA, K. OYA, K. KURASHIMA, Y. TSUTSUMI, H. DOI, N. NOMURA, Institute of Bioamaterials and Bioengineering, Tokyo Medical and Dental University, Tokyo, Japan

16.20 *CB-12.2:L06* **Multifunctional Ti Oxide-based Films for Biomedical Applications**
A.C. ALVES[1], P. PONTHIAUX[2], **L.A. ROCHA**[1, 3], [1]CT2M, Univ. of Minho, Portugal; [2]LGPM - Ecole Centrale Paris, France; [3]DEM - Univ. of Minho, Portugal

16.40 *Break*

Session CB-11.4 - Direct Production of SHS Products and their Characterization

Room: **ORSA MINORE**

Chair: A.S. ROGACHEV, Russia

17.10 *CB-11.4:IL06* **Catalytic Properties of SHS Products**
G.G. XANTHOPOULOU, Institute of Materials Science, "Demokritos" National Center for Scientific Research, Athens, Greece

17.40 *CB-11.4:IL07* **Self-Propagating High-Temperature Synthesis of Cast Ceramics: Phenomenology, Mechanisms, Applications, and Practical Implementation**
V.I. YUKHVID, Institute of Structural Macrokinetics and Materials Science, RAS, Chernogolovka, Moscow region, Russia

Session CC-1 - Corrosion

Room: **ZENITH**

Chair: E.J. OPILA, USA

15.00 *CC-1:IL08* **Tribological Performance of Polymer Coatings for Aggressive Sliding Conditions**
A.A. POLYCARPOU, E. ESCOBAR NUNEZ, SEUNG MIN YEO, Dept. of Materials Science and Engineering, University of Illinois at Urbana-Champaign, Urbana, IL , USA

15.30 *CC-1:IL09* **Changes in Surface Properties of Alumina Toughened Zirconia (ATZ) by Hydrothermal Aging and Wear**
J. SCHNEIDER, CH. KAPS, Bauhaus University Weimar, Dept. of Building and Material Chemistry, Weimar, Germany; S. BEGAND, TH. OBERBACH, Mathys Orthopaedie GmbH, Moersdorf, Germany

16.00 *CC-1:L10* **Corrosion of Single Crystal Cordierite by Model Diesel Particulate Ashes**
N. MAIER, K.G. NICKEL, Univ. of Tuebingen, Applied Mineralogy, Tuebingen, Germany; C. ENGEL, A. MATTERN, Robert-Bosch AG, Stuttgart, Germany

16.20 *CC-1:L12* **Study of Corrosion Behavior of Conventional and Nanostructured WC-Co HVOF Sprayed Coats**
SH. KHAMENEH ASL[1], M.R. SAGHI BEYRAGH[2], M.G. KAKROUDI[1], [1]Dept. of Mats Eng., Faculty of Mechanical Engineering, University of Tabriz,Tabriz, Iran; [2]Faculty of Matls Eng., Sahand University of Technology, Tabriz, Iran

16.40 *Break*

Session CC-2 - Friction and Wear

Room: **ZENITH**

Chair: K. MIURA, Japan

17.10 *CC-2:IL01* **Wear Mechanisms of Nanocrystalline Ceramic/Metal Composites**
F. GAERTNER, H. KREYE, T. KLASSEN, Helmut Schmidt University, Hamburg, Germany

17.40 *CC-2:IL02* **Simulation of Atomic-scale Wear of Graphene**
N. SASAKI, Dept. of Matls and Life Science, Seikei University, Tokyo, Japan

18.10 *CC-2:IL03* **Wear in Nanofriction**
R. BENNEWITZ, P. EGBERTS, INM - Leibniz Institute for New Materials, Saarbrücken, Germany

Session CE-2 - Nitride, Carbide and Boride Ceramics

Room: **VENERE**

Chair: B. MIKIJELJ, USA

15.00 *CE-2:IL17* **Hot Rolling Steels and Super Alloys with Silicon Nitride Tools**
R. DANZER, Institut für Struktur- und Funktionskeramik, Montanuniversität Leoben, Leoben, Austria

15.30 *CE-2:IL18* **Silicon Nitride Ceramics for Product and Process Innovation**
K. BERROTH, FCT Ingenieurkeramik GmbH, Rauenstein, Germany

16.00 *CE-2:L19* **Electrical Discharge Machining of B4C-TiB2 Composites**
O. MALEK[1, 2], J. VLEUGELS[2], S. HUANG[2], Y. PEREZ[3], P. DE BAETS[3], B. LAUWERS[1], [1]K.U. Leuven, Dept. of Mechanical Eng., Leuven, Belgium; [2]K.U. Leuven, Dept. of Metallurgy and Materials Eng., Leuven, Belgium; [3]Universiteit Gent, Mechanical Construction and Production - Lab. Soete, Gent, Belgium

16.20 *Break*

Session CE-4 - Ternary Compounds

Room: **VENERE**

Chair: M.W. BARSOUM, Japan

16.50 *CE-4:IL06* **Structure and Property Control of Layered Ternary Carbides and Nitrides**
JINGYANG WANG, YANCHUN ZHOU, High-performance Ceramic Division, Shenyang National Lab. for Materials Science, Institute of Metal Research, CAS, Shenyang, China

17.20 *CE-4:L07* **Microstructure Evolution During the High Temperature Oxidation of Ti2AlN Ceramics**
BAI CUI, W.E. LEE, R. SA, D.D. JAYASEELAN, Dept. of Materials, Imperial College London, London, UK; F. INAM, M.J. REECE, Centre for Materials Research and School of Engineering and Materials Science, Queen Mary, University of London, London, UK

17.40 *CE-4:L08* **First-principles Investigation of Formation and Migration of Defects in Layered Ternary Carbides (MAX Phases)**
JIEMIN WANG, JINGYANG WANG, YANCHUN ZHOU, High-performance Ceramics Division, Shenyang National Laboratory for Materials Research, Institute of Metal Research, CAS, Shenyang, China

18.00 *CE-4:L09* **Porous Ti3AlC2 as Catalyst Support for Cleaning Vehicle Exhaust**
XIAOHUI WANG, Y.C. ZHOU, Shenyang National Laboratory for Materials Research, Institute of Metal Research, CAS, Shenyang, China

Sub-session CF-3.1 - Ceramic Catalysts

Room: **ALBA 2**

Chair: J.L.G. FIERRO, Spain

15.00 *CF-3.1:L06* **Cobalt-supported Alumina or Clay as Catalytic Film Prepared by Electrophoretic Deposition for Hydrogen Release Applications**
R. CHAMOUN[1, 2], U.B. DEMIRCI[1], D. CORNU[3], Y. ZAATAR[2], A. KHOURY[2], P. MIELE[1], [1]Université Lyon 1, CNRS, UMR 5615, Lab. des Multimatériaux et Interfaces, Villeurbanne, France; [2]Université Libanaise, Fac. des Sciences II, Lab. de physique appliquée, Jdeidet El Metn, Liban; [3]Université Montpellier 2, CNRS-ENSCM, UMR 5635, Inst. Européen des Membranes, Montpellier, France

15.20 *CF-3.1:L07* **BaYMn2O5+d: A Potential Material for Oxygen-Storage Applications**
T. MOTOHASHI, T. UEDA, Y. MASUBUCHI, S. KIKKAWA, Graduate School of Engineering, Hokkaido University, Sapporo, Japan; M. TAKIGUCHI, T. SETOYAMA, Mitsubishi Chemical Group, Science and Technology Research Center, Inc., Yokohama, Japan

15.40 *CF-3.1:L08* **Metal Oxides as Catalyst Supports for Hydrogen Release by Solvolysis of Boron Hydrides**
O. AKDIM, **U.B. DEMIRCI**, P. MIELE, Université Lyon 1, CNRS, UMR 5615, Lab. des Multimatériaux et Interfaces, Villeurbanne, France

16.00 *CF-3.1:L09* **High Activity Photocatalyst Powder Formed by Three Ceramic Oxides**
L. PERAZOLLI[1], G.F. PEGLER[1], R.A.J. INGINO[1], M.R.A. SILVA[2], M.O. ORLANDI[1], M.A. ZAGHETE[1], J.A. VARELA[1], [1]UNESP, Araraquara Chemical Institute, Araraquara, São Paulo, Brazil; [2]Itajubá Federal University, Itajubá, Minas Gerais, Brasil

16.20 *Break*

Sub-session CF-4.3 - Materials for Electrochemistry

Room: **ALBA 2**

Chair: G. PLESCH, Slovak Republic

16.50 *CF-4.3:L06* **Photocatalytic Efficiency of ZnO/TiO2 Composite Plates in Degradation of RR180 Dye Solutions**
M. KONYAR[a], D. OVALI[a], H.C. YATMAZ[b], C. DURAN[a], K. ÖZTÜRK[a], [a]Gebze Institute of Technology, Materials Science & Engineering Dept., Cayirova Campus Gebze, Kocaeli, Turkey; [b]Gebze Institute of Technology, Environmental Engineering Dept., Muallimkoy Campus Gebze, Kocaeli, Turkey

17.10 *CF-4.3:L07* **Chemical Etching of Advanced Ceramics**
H.T. TING, School of Engineering & Science, Curtin University of Technology, Miri, Malaysia; K.A. ABOU-EL-HOSSEIN, Dept. of Mechanical & Aeronautical Engineering, University of Pretoria, Pretoria, South Africa; H.B. CHUA, School of Engineering & Science, Curtin University of Technology, Miri, Malaysia

Session CG-4 - Thin Films and Coatings for Tribological and Multifunctional Applications

Room: **URANO**

Chair: R. GADOW, Germany

15.00 *CG-4:IL10* **WC-Co Coatings Fabricated by Warm Spraying for Wear Protection**
S. KURODA, G. SUNDARARAMAN, M. WATANABE, M. KOMATSU, NIMS, Tsukuba, Ibaraki, Japan; K. SATO, J. KITAMURA, Fujimi Inc., Japan

15.30 *CG-4:IL11* **Plasma Assisted Vapor Deposition on Nanostructured Hard Coatings**
P. MAYRHOFER, Physical Metallurgy and Materials Testing, Montanuniversität Leoben, Leoben, Austria

16.00 *CG-4:L12* **Characterization of Phase Transformation, Microstructure and Tribological Properties of Ni-B Coating during Heat Treatment**
S. PAL, N. VERMA, V. JAYARAM, S.K. BISWAS, Dept. of Materials Engrg, Indian Institute of Science, Bangalore, India; Y.E. Riddle, UCT Coatings Inc., FLorida, USA

16.20 *CG-4:L13* **Wear Resistance of AISI M2 Tool Steel Coated with TiN by PVD and Evaluated by the Pin-on-disc Testing**
J.D. BRESSAN, Dept. of Mechanical Eng., UDESC Joinville, Joinville, SC, Brazil; F. RESIN, Engenharia de Processos, Ciser, Cia Industrial H. Carlos Schneider, Joinville, SC, Brazil; R. GERBASI, Istituto ICIS, CNR, Padova, Italy

16.40 *CG-4:L14* **Tribological Behavior of Nanostructured Composite Coatings of Ceramics Manufactured by Suspension Plasma Spraying**
G. DARUT, H. AGEORGES, A. DENOIRJEAN, **G. MONTAVON**, P. FAUCHAIS, SPCTS - UMR CNRS 6638, University of Limoges, Limoges, France

17.00 *Break*

Chair: P. MAYRHOFER, Austria

17.30 *CG-4:L15* **Multi-nanolayering Effect on Carbon Films Mechanical Properties and Internal Stress**
N. LAIDANI, R. BARTALI, V. MICHELI, G. GOTTARDI, Fondazione Bruno Kessler, Centro Materiali e Microsistemi, Trento (Povo), Italy; P. CHEYSSAC, Lab. de Physique de la Matiere Condensée, UMR 6622 CNRS, Faculté des Sciences, Nice Cedex, France

17.50 *CG-4:L16* **Hydrogen Effect on Structure and Mechanical Properties of Zno Films Deposited by Sputtering in Ar-H2 Plasma**
R. BARTALI, I. LUCIU, V. MICHELI, G. GOTTARDI, N. LAIDANI, Fondazione Bruno Kessler, Centro Materiali e Microsistemi, Povo (Trento), Italy

18.10 *CG-4:L17* **Mechanical Reliability of ZnO Thin Films Used in Glass Stacking Applications**
F. CONCHON, P-O. RENAULT, **P. GOUDEAU**, E. LE BOURHIS, PHYMAT - UMR 6630, Poitiers, France; E. SONDERGARD, E. BARTHEL, S. GRACHEV, SVI - UMR 125, Aubervilliers, France; E. GOUARDES, V. RONDEAU, R. GY, SGR, Aubervilliers, France; R. LAZZARI, J. JUPILLE, INSP - UMR 7588, Paris, France; N. BRUN, LPS - UMR 8502, Orsay, France

Session CH-4 - Varistors and Thermistors

Room: **SIRIO**

Chair: A. FETEIRA, UK

15.00 *CH-4:IL01* **Low Temperature Deposition of Nickel Manganite Thin Films**
SONG WON KO, JING LI, E. DICKEY, S. TROLIER-McKINSTRY, Materials Research Institute, Pennsylvania State University, University Park, PA, USA

15.30 *CH-4:IL02* **Energetics and Electronic Structure of Native Defects and Dopants in ZnO**
F. OBA, Dept. of Materials Science and Eng., Kyoto University, Kyoto, Japan

16.00 *CH-4:IL03* **Preparing and Electric Properties of BaTiO3-based Lead-free PTCR Ceramics**
G.R. LI, S.L. LENG, L.Y. ZHENG, J.T. ZENG, H.R. ZENG, T.B. WANG, Q.R. YIN, Shanghai Institute of Ceramics, Chinese Academy of Sciences, Shanghai, China

16.30 *CH-4:IL04* **Defect Structure of Zinc Oxide and Related Properties**
H. HANEDA[1], I. SAKAGUCHI[1], N. OHASHI[1], H. RYOKEN[1, 2], S. HISHITA[1], [1]National Institute for Materials Science, Tsukuba, Ibaraki, Japan; [2]Dept. of Appl. Sci. for Electronics & Matls, Kyushu University, Kasuga, Fukuoka, Japan

17.00 *CH-4:L09* **Defect Chemistry of Ba-excess Donor-doped BaTiO3 Thermistor Ceramics**
H. KATSU, C. PITHAN, R. WASER, Forschungszentrum Jülich, Jülich, Germany

17.20 *CH-4:L10* **Structure, Microstructure and Electrical Properties of $Mn_{3-x}Co_xO_4$ ($0<x<3$) Spinel Ceramics: an Interesting System for Negative Temperature Coefficient (NCT) Thermistors**
H. BORDENEUVE, CH. TENAILLEAU, **S. GUILLEMET-FRITSCH**, A. ROUSSET, Institut Carnot CIRIMAT/UPS/CNRS Université Paul Sabatier, Toulouse, France; V. POULAIN, S. SCHUURMAN, Vishay, Bruxelles, Belgium

17.40 *Break*

Session CH-1 - Dielectric and Microwave Materials

Room: **SIRIO**

Chair: P. LEGAGNEUX, France

18.00 *CH-1:L12* **Electric Field Breakdown of Polymer Based Nano-composite at Room and Cryogenic Temperatures**
H. RODRIGO[1], G.H. HELLER[1], A. INGROLE[2], Z (RICHARD) LIANG[2], D.G. CROOK[1], S.L. RANNER[1], [1]Center for Advanced Power Systems, Florida State University, Tallahassee, FL, USA; [2]Dept. of Industrial and Manufacturing Engineering, FAMU-FSU College of Engineering, Tallahassee, FL, USA

18.20 *CH-1:L13* **High-performance Varactors**
A. TESTINO, Innovative Task Corporate Material R&D, EPCOS OHG, Deutschlandsberg, Austria

18.40 *CH-1:L14* **Influence on the Annealing on the Thermal Stability of Ge-Sb-Te Materials for Recording Devices**
S.A. KOZYUKHIN, Kurnakov Institute of General and Inorganic Chemistry, Moscow, Russia; A.A. SHERCHENKOV, Moscow Institute of Electronic Technology, Russia

19.00 *CH-1:L15* **Low Temperature Electrical and Dielectric Properties of Nb Doped BaSnO3**
P. SINGH, Dept. of Applied Physics, Inst. of Technology, Banaras Hindu University, Varanasi, India; O. PARKASH , D. KUMAR, Dept. of Ceramic Engineering, Inst. of Technology, Banaras Hindu University, Varanasi, India

Session CH-2 - Ferroelectrics, Piezoelectrics

Room: **GIOVE**

Chair: T. TSURUMI, Japan

16.30 *CH-2:L15* **Electromechanical Properties of BaTiO3 Ceramics Prepared by Spark Plasma Sintering**
H. MAIWA, N. MATSUMOTO, Shonan Institute of Technology, Fujisawa, Japan

16.50 *CH-2:L17* **Impedance Modelling of Multi-layer Ceramic Capacitors**
JONG-SOOK LEE, YONG KIM, EUI-CHOL SHIN, HYUN-HO SEO, Chonnam National University, Gwangju, Korea; JI-YOUNG PARK, CHANG-HOON KIM, GANG-HUN HUR, Samsung Electro-mechanics, Korea

17.10 *CH-2:L18* **Stress Induced Effect on Electrical Properties of CSD-derived Ferroelectric Thin Films**
H. SUZUKI[1], T. OHNO[2], N. SAKAMOTO[1], N. WAKIYA[1], T. MATSUDA[2], T. HAYASHI[3], [1]Shizuoka University, Hamamatsu, Shizuoka, Japan; [2]Kitami Institute of Technology, Japan; [3]Shonan Institute of Technology, Japan

17.30 *CH-2:L19* **Synergistic Information Encoding by Combinatorial Pulse Operation of Ferroelectric Ceramic Capacitors**
D. RICINSCHI, T. KANASHIMA, M. OKUYAMA, Graduate School of Engineering Science, Osaka University, Toyonaka, Osaka, Japan

Session CH-6.2 - Advances in Materials, Synthesis and Processing

Room: **ORSA MAGGIORE**

Chair: V.S. AMARAL, Portugal

15.30 *CH-6.2:IL01* **Multiferroicity due to Charge Ordering**
F. VAN DEN BRINK, Leibniz Institute IFW Dresden, Dresden, Germany

16.00 *CH-6.2:L02* **Synthesis and Characterization of Aurivillius Phase Thin Films**
L. KEENEY, P.F. ZHANG, Tyndall National Institute, "Lee Maltings", Cork, Ireland; C. GROH, Materials Science Dept., Friedrich Schiller University of Jena, Germany; M.E. PEMBLE, R.W. WHATMORE, Tyndall National Institute, "Lee Maltings", Cork, Ireland

16.20 *Break*

Session CH-6.6 - New Effects

Room: **ORSA MAGGIORE**

Chair: A.P. PYATAKOV, Russia

16.50 *CH-6.6:IL01* **Electromagnons in Multiferroics**
D. DREW, CNAM, Physics Dept., University of Maryland, College Park, MD, USA

17.20 *CH-6.6:IL02* **Novel and Original Features on the Model Multiferroic BiFeO3 Under Strain Effects**
B. DKHIL, UMR-8580 Ecole Centrale Paris - CNRS, Chatenay-Malabry, France

17.50 *CH-6.6:IL03* **Multiferroic Phenomena in Charge Ordered Manganites**
V.S. AMARAL, F. FIGUEIRAS, Depto de Física and CICECO, Univ. de Aveiro, Aveiro, Portugal; I.K. BDIKIN, A.L. KHOLKIN, Depto de Engenharia Cerâmica e Vidro and CICECO, Univ. de Aveiro, Aveiro, Portugal; A.M.L. LOPES, CFNUL, Lisboa, Portugal; J.P. ARAÚJO, Depto de Física and IN-IFIMUP, Univ. do Porto, Porto, Portugal; J.G. CORREIA, CERN EP, Geneva, Switzerland and Inst. Tecnológico Nuclear, Sacavém, Portugal; Y. TOMIOKA, CERC, National Inst. of Advanced Industrial Science and Technology, Tsukuba, Ibaraki, Japan; Y. TOKURA, Dept. of Applied Physics, University of Tokyo, Tokyo, Japan

Session CJ-1 - Science of SIlicate Ceramics

Room: **SMERALDO 1**

Chair: D. CHATEIGNER, France

15.30 *CJ-1:IL12* **Synthesis and Properties of Hybrid Lamellar Silica**
G. TOUSSAINT, C. HENRIST, **R. CLOOTS**, Chemistry of Inorganic Materials, University of Liege, Liege, Belgium

16.05 *CJ-1:IL13* **Simple Rheological Tests and Protocols for SME Ceramic Producers**
C. GALASSI, **D. GARDINI**, CNR-ISTEC, Faenza, Italy

16.40 *Break*

Session CJ-4 - Decoration, Colour and Design of Silicate Ceramics

Room: **SMERALDO 1**

Chair: G. MONROS, Spain

17.10 *CJ-4:IL01* **Digital Decoration of Ceramic Tiles: Current Situation and Outlook**
M. DONDI, CNR-ISTEC, Faenza, Italy

17.45 *CJ-4:IL02* **Innovations and New Trends in Ceramic Tile Decoration**
A. MORENO BERTO, Instituto de Tecnologia Ceramica, AICE, Universitat Jaume I, Castellon, Spain

18.20 *CJ-4:L03* **CoAl2O4 Nanopigment Obtained by Combustion Synthesis**
F. BONDIOLI, **SH. SALEM**, S.H. JAZAYERI, A. ALLAHVERDI, M. SHIRVANI, Dept. of Material and Environmental Engineering, University of Modena and Reggio Emilia, Modena, Italy; School of Chemical Engineering, Iran University of Science and Technology, Tehran, Iran

Session CK-2 - Characterization

Room: **SMERALDO 3**

Chair: P. STRAKA, Czech Republic

15.10 *CK-2:L11* **Development of a National Database for Facilitating Widespread Recycling of Fly Ash into Geopolymer Concrete**
E.N. ALLOUCHE, I. DIAZ, Dept. of Civil Engineering, Louisiana Tech University, Ruston, LA, USA

15.30 *CK-2:L12* **New Geopolymers Based on Electric Arc Furnace Slag**
M.C. BIGNOZZI, F. SANDROLINI, Dipartimento di Chimica Applicata e Scienza dei Materiali, Università di Bologna, Bologna, Italy; L. BARBIERI, I. LANCELLOTTI, Dipartimento di Ingegneria dei Materiali e dell'Ambiente, Università di Modena e Reggio Emilia, Modena, Italy

15.50 *CK-2:L13* **Phase and Strength Evolution of Fly Ash Geopolymers Exposed to Standard Fire Conditions**
W.D.A. RICKARD, A. VAN RIESSEN, J. TEMUUJIN, R.P. WILLIAMS, Centre for Materials Research, Curtin University of Technology, Perth, WA, Australia

16.10 *CK-2:L14* **Evaluation of the Thermal Conductivity of Model Materials and Elaboration of a Porous Material**
J. BOURRET, E. PRUD'HOMME, S. ROSSIGNOL, D. SMITH, GEMH ENSCI, Limoges, France

16.30 *Break*

Session CK-3 - Industrialization & Application

Room: **SMERALDO 3**

Chair: K. SAGOE-CRENTSIL, Australia

17.15 *CK-3:L11* **Geopolymer Coating for Rehabilitation of Concrete-Based Wastewater Collection Systems**
E. ALLOUCHE, **C. MONTES**, Department of Civil Engineering, Louisiana Tech University, Ruston, LA, USA

17.40 *CK-3:L12* **Recycling of MSWI Residues by Means of Stabilization/Solidification in Geopolymer-based Matrix**
R. CIOFFI, F. COLANGELO, Dept. of Technology, University Parthenope, Naples, Italy; F. MONTAGNARO, L. SANTORO, University Federico II, Naples, Italy

18.05 *CK-3:L14* **How to Assess the Environmental Sustainability of Geopolymers? A Live Cycle Perspective**
M. WEIL, Karlsruher Institut for Technologie (KIT), Institute for Technology Assessment and Systems Analysis (ITAS), Germany; K. DOMBROWSKI, Freiberg University of Mining and Technology, Institute for Ceramic, Glass, and Construction Materials, Germany; A. BUCHWALD, Bauhaus-University Weimar, Chair of Building Chemistry, Germany

Session CM-4 - Theory, Modeling and Simulation

Room: **SMERALDO 2**

Chair: S.C. HENDY, New Zealand

15.00 *CM-4:IL05* **Computational Modeling and Design of Point Defects in Bioactive Calcium Phosphates**
K. MATSUNAGA, Dept. of Materials Science & Eng., Kyoto University, Kyoto, Japan; Nanostructures Research Lab., Japan Fine Ceramics Center, Nagoya, Japan

15.30 *CM-4:IL06* **1D Nanostructures from Carbon and Other Elements**
G. SEIFERT, Physikalische Chemie, Technische Universität Dresden, Dresden, Germany

16.00 *CM-4:L07* **Theory of Molecular Electronics: Wires, Diodes, and Transistors**
S.P. KARNA, G. MALLICK, US Army research Lab., Weapons and Materials Research Directorate, Aberdeen Proving Ground, MD, USA; H. HE, R. PANDEY, Dept. of Physics and Multi-Scale Technology Institute, Michigan Technological University, Houghton, MI, USA

16.20 *CM-4:L08* **Thermal Conductivity of Ceramic Nanocomposites - The Phase Mixture Modeling Approach**
W. PABST, J. HOSTASA, Institute of Chemical Technology, Prague, Dept. Glass and Ceramics, Prague, Czech Republic

16.40 *Break*

Chair: K. MATSUNAGA, Japan

17.10 *CM-4:L09* **Estimation Technique for Optical Dielectric Constant of Polymorphous SiO2 Through First-principles Molecular Orbital Calculation**
K. HIROSE, D. KOBAYASHI, Institute of Space and Astronautical Science, JAXA, Japan; S. IGARASHI, H. NOHIRA, Tokyo City University, Japan

17.30 *CM-4:IL10* **Structure, Magnetic and Spintronic Characteristics of Sandwiched Metal-organic Clusters and Molecular Wires**
JINLAN WANG, XIUYUN ZHANG, LIYAN ZHU, Department of Physics, Southeast University, Nanjing, P.R. China

18.00 *CM-4:IL11* **Models and Simulations of the Growth of Carbon Nanotubes**
S.C. HENDY, D. SCHEBARCHOV, MacDiarmid Institute for Advanced Materials and Nanotechnology, Victoria University of Wellington, Wellington, New Zealand; A. AWASTHI, Industrial Research Ltd, Lower Hutt, New Zealand; B. COX, University of Wollongong, Wollongong NSW, Australia

Session CN-5 - Composite for Thermal Management

Room: **AMBRA**

Chair: T. OHJI, Japan

15.30 *CN-5:IL01* **Integration of High Conductivity Carbon Based Materials for Thermal Management Applications: Technical Issues and Challenges**
M. SINGH, A.L. GYEKENYESI, Ohio Aerospace Institute, NASA Glenn Research Center, Cleveland, OH, USA; R. ASTHANA, Dept. of Engineering & Technology, University of Wisconsin-Stout, Menomonie, WI, USA

16.00 *CN-5:IL02* **Processing and Thermomechanical Properties of Copper-Carbon Nanofibres Composites for Thermal Management Applications**
J.M. MOLINA-ALDAREGUIA, Fundación IMDEA-Materiales, Madrid, Spain; J.M. CÓRDOBA, M. ODÉN, IFM, Linköping University, Sweden; J. TAMAYO-ARIZTONDO, M.R. ELIZALDE, CEIT and Tecnun, San Sebastián, Spain; E. NEUBAUER, AIT-Austrian Inst. of Technology GmbH, Seibersdorf, Austria

16.30 *CN-5:L04* **Low Cost Carbon Fiber Based Composites**
K. KOWBEL, FMC, Tucon, AZ, USA

16.50 *Break*

Session CN-6 - Applications

Room: **AMBRA**

Chair: J.A. DI CARLO, USA

17.20 *CN-6:IL01* **Carbon/Carbons and Their Industrial Applications**
R. WEISS, Schunk Kohlenstofftechnik GmbH, Heuchelheim, Germany

17.50 *CN-6:IL02* **CMCs for Friction Applications**
W. KRENKEL, H. MUCHA, N. LANGHOF, Ceramic Materials Engineering, University of Bayreuth, Bayreuth, Germany

Session CA-4 - Sintering and Related Phenomena

Room: **AUDITORIUM**

Chair: F.J. CLEMENS, France

9.30 *CA-4:IL17* **Spark Plasma Sintering of Ceramics: From Practice to Modelling**
ZHE ZHAO, Dept. of Physical-Inorganic and Structural Chemistry, Stockholm University, Stockholm, Sweden

10.00 *CA-4:L21* **Simultaneous Synthesis and Sintering of Al2O3/ Mo2N Composites Using Capsule-free Nitrogen Hot Isostatic Pressing and their Characterization**
K. HIROTA, K. TAKAOKA, Y. MURASE, M. KATO, Dept. of Molecular Chemistry & Biochemistry, Doshisha University, Kyo-Tanabe, Japan

10.20 *Break*

Session CA-5 - Innovation in Processing Equipment and Technology

Room: **AUDITORIUM**

Chair: D. HEINRICH, Germany

10.50 *CA-5:L03* **The Rapid Automated Materials Synthesis Instrument (RAMSI): A High Throughput Combinatorial Robot for Nanoceramics Discovery**
TIAN LIN, S. KELLICI, K. GONG, K. THOMPSON, J.A. DARR, University College London, London, UK

11.10 *CA-5:IL04* **Fabrication and Anisotropic Properties of Highly Textured Ceramics by Colloidal Processing in a High Magnetic Field**
Y. SAKKA, T.S. SUZUKI, T. UCHIKOSHI, National Institute for Materials Science (NIMS), Japan

11.40 *CA-5:IL05* **Thermoplastic Shaping - Advances in Extrusion Processes**
F.J. CLEMENS, M.R. ISMAEL, V.L. BUENO, EMPA, Swiss Federal Labs for Materials Testing and Research, Dübendorf, Switzerland

12..10 *CA-5:IL06* **Rapid Prototyping of Complex Ceramic Forms**
N. TRAVITZKY, Dept. of Materials Science, Glass and Ceramics, University of Erlangen-Nuremberg, Erlangen, Germany

Session CB-9 - Ultra-high Pressure Ceramics Synthesis and Processing

Room: **LE PLEIADI**

Chair: K. HIRAGA, Japan

9.00 *CB-9:IL02* **Synthesis of New Diamond-like B-C Phases Under High Pressure and Temperatures**
L.C. MING, P.V. ZININ, S.K. SHARMA, Hawaii Institute of Geophysics and Planetology, University of Hawaii, Honolulu, HI, USA

9.30 *CB-9:IL03* **High-purity Boron Nitrides: Ultra-high-pressure Synthesis and Properties**
T. TANIGUCHI, National Institute for Materials Science (NIMS), Ibaraki, Japan

10.00 *CB-9:IL04* **High-pressure / High-temperature Synthesis of Oxynitrides**
H. HUPPERTZ, Institut für Allgemeine, Anorganische und Theoretische Chemie, Leopold-Franzens-Universität Innsbruck, Innsbruck, Austria; S.A. HERING, Dept. Chemie und Biochemie, Ludwig-Maximilians-Universität München, München, Germany; C.E. ZVORISTE, Technische Universität Darmstadt, Material- und Geowissenschaften, Darmstadt, Germany; I. KINSKI, Fraunhofer-Institut für Keramische Techn. und Systeme, Dresden, Germany

10.30 *CB-9:IL05* **Synthesis of Superhard Nanocomposites by Microstructural Design**
E. KROKE, M. SCHWARZ, T. BARSUKOVA, TU Bergakademie Freiberg, Institute for Inorganic Chemistry, Freiberg, Germany; D. RAFAJA, C. SCHIMPF, TU Bergakademie Freiberg, Institute for Materials Science, Freiberg, Germany

11.00 *Break*

Session CB-10 - Other Nontraditional Processing Routes

Room: **LE PLEIADI**

Chair: H. HUPPERTZ, Austria

11.30 *CB-10:IL01* **Clay Aerogel Composite Materials**
D.A. SCHIRALDI, M.D. GAWRYLA, S. ALHASSAN, Dept. of Macromolecular Science & Engrg, Case Western Reserve University, Cleveland, OH, USA

12.00 *CB-10:IL02* **Heterogeneous Sol-gel Systems - derived Ceramics**
O.A. SHILOVA, I.V. Grebenschikov Institute for Silicate Chemistry of RAS, St. Petersburg, Russia

12.30 *CB-10:IL03* **Smart Processing for Ceramics Structure Tectonics: Fabrication of Dielectric Micro Patterns for Artificial Photosynthesis in Terahertz Wave Regions by Using Stereolithography**
S. KIRIHARA, Joining and Welding Research Institute, Osaka University, Osaka, Japan

Session CB-11.5 - Industrialization and Application of SHS Ceramics

Room: **ORSA MINORE**

Chair: J.A. PUSZYNSKI, USA

9.00 *CB-11.5:IL01* **Mass-forced SHS Technology of Ceramic Materials**
O. ODAWARA, Tokyo Institute of Technology, Yokohama, Japan

9.30 *CB-11.5:IL02* **Development and Industrialization of Nano Materials (Metal and Ceramic) by SHS Process**
CHANG WHAN WON, Advanced Nanomaterial Dept., Chungnam National University, Daejeon, South Korea

10.00 *CB-11.5:IL03* **SHS Refractory Materials Furnon and their Practical Implementations in Kazakhstan and Russia**
Z.A. MANSUROV, Al-Farabi Kazakh National University, Almaty, Rep.of Kazakhstan

10.30 *CB-11.5:L04* **On Isolation of Tc into Matrices Using SHS Process**
S. YUDINTSEV, IGEM RAS, Moscow, Russia; E.E. KONOVALOV, IPPE, Obninsk, Russia; A.V. KUPRIN, Moscow, Russia

10.50 *Break*

Chair: O. ODAWARA, Japan

11.20 *CB-11.5:IL05* **Development of Science Intensive Production Based on Important Scientific Discoveries**
A.G. MERZHANOV, ISMAN, Chernogolovka, Moscow region, Russia

11.50 *CB-11.5:IL06* **Past and Current Accomplishments in Production of Ceramic Powders and Structures by Self-Propagating High-Temperature Synthesis Method**
J.A. PUSZYNSKI[1], A. DEGRAW[2], [1]South Dakota School of Mines and Technology, Rapid City, SD, USA; [2]Advanced Material Technologies, Inc., Morristown, TN, USA

12.20 *CB-11.5:L07* **Porous SHS - Ceramics**
Yu.M. MAKSIMOV[1], A.I. KIRDYASHKIN[1], V.K. BAEV[2], A.N. GUSCHIN[1], [1]Department for Structural Macrokinetics of Tomsk Scientific Centre SB RAS, Tomsk, Russia; [2] Khristianovich Institute of Theoretical and Applied Mechanics, Novosibirsk, Russia

Session CC-2 - Friction and Wear

Room: **ZENITH**

Chair: V. PRESSER, Germany

8.45 *CC-2:IL04* **Advanced Evaluation Methods of Residual Stress in Bioceramics Wear Surfaces**
G. PEZZOTTI, Ceramic Physics Lab. and Research Inst. for Nanoscience, Kyoto Institute of Technology, Kyoto, Japan, The Center for Advanced Medical Eng. and Informatics, Osaka University, Osaka, Japan; Dept. of Orthopaedics, Orthopaedic Research Center, Loma Linda University, Loma Linda, CA, USA

9.15 *CC-2:L05* **In Situ Studies of Coatings Tribology**
C. MURATORE, A.A. VOEVODIN, Air Force Research Lab., Thermal Sciences and Materials Branch, Wright-Patterson AFB, OH, USA

9.35 *CC-2:L07* **Effect of Polymorphic Zirconia Phases on the Mechanical and Wear Properties of Cr3C2-NiCr Cermets**
Y.K. TÜR, **A. ÖZER**, C. DURAN, Gebze Institute of Technology, GYTE Material Science and Engineering, Kocaeli, Turkey

9.55 *CC-2:IL08* **Nanoadhesion and Nanopeeling of Nanotube on Graphite**
K. MIURA, M. ISHIKAWA, Dept. of Physics, Aichi Univ. of Education, Kariya, Japan; N. SASAKI, Dept. of Matls and Life Sci., Seikei Univ., Tokyo, Japan

10.15 *Break*

Chair: M. GRAHAM, Canada

10.35 *CC-2:IL09* **Nanoindentation and Small Scale Plasticity**
E. LE BOURHIS, Université de Poitiers, Lab. de Physique des Matériaux, UMR 6630 CNRS, SP2MI, Futuroscope-Chasseneuil, France

11.05 *CC-2:IL10* **Characterization of Wear Mechanisms of Silicon Carbide Materials**
V. PRESSER, K.G. NICKEL, C. BERTHOLD, Eberhard-Karls-Universität Tübingen, Inst. for Geosciences, Applied Mineralogy, Tübingen, Germany

11.35 *CC-2:L11* **Study on the Development of Resource-saving High Performance Slurry - Polishing/CMP for HDD Glass Substrates, Using Slurry Mixed with Manganese Abrasives to Replace Ceria Abrasives-**
T.K. DOI, T. YAMAZAKI, S. KUROKAWA, S. ISAYAMA, Y. UMEZAKI, Y. MATSUKAWA, Dept. of Mechanical Engineering, Kyushu University, Fukuoka-shi, Japan; Y. AKAGAMI, Akita Prefecturaru, R&D Center; Y. YAMAGUCHI, Mitsui Mining & Smelting Co., Ltd.; S. KISHII, Fujitsu Lab. Ltd., Japan

11.55 *CC-2:L12* **Wear Behaviour of Diamond Coated Silicon Nitride Ceramics**
M. HERRMANN, S. SEMPF, A. BALES, **M. HOEFER**, L. SCHAEFER, B. BLUG, T. HOLLSTEIN, J. KOENIG, Fraunhofer Allianz DIACER, Braunschweig, Germany

12.35 *CC-2:IL13* **Novel Approaches for Following Atomic Scale Wear**
W.G. SAWYER, Dept. of Mechanical and Aerospace Eng., University of Florida, Gainesville, FL, USA

Session CE-5 - Composites for Extreme Environments

Room: **VENERE**

Chair: G. HILMAS, USA

8.45 *CE-5:IL01* **Near-net-shape Thermoplastic Forming of Alumina-silicon Carbide Nanocomposites**
F. KERN, R. GADOW, IFKB - Universität Stuttgart, Stuttgart, Germany

9.15 *CE-5:IL02* **Ceramic Composites for High Temperature Propulsion System**
D.B. MARSHALL, Teledyne Scientific, Thousand Oaks, CA, USA

9.45 *CE-5:L03* **Evaluation of Fatigue Life of Ceramic Matrix Composites Utilizing Novel Evaluation Technique**
K. TOYOSHIMA, T. HINOKI, A. KOHYAMA, Kyoto University, Uji, Japan

10.05 *CE-5:L05* **Thermal Residual Stresses Generated during Processing of Cr-Al2O3 Composites and their Influence on Macroscopic Elastic Properties**
W. WEGLEWSKI[1], M. CHMIELEWSKI[2], D. KALINSKI[2], K. PIETRZAK[1,2], M. BASISTA[1], [1]Institute of Fundamental Technological Research, Polish Academy of Sciences, Warsaw, Poland; [2]Institute of Electronic Materials Technology, Poland

10.25 *Break*

Chair: A. ROUSSET, France

10.55 *CE-5:IL06* **Mechanical Behaviour at High Temperature of Ceramic Matrix Composites and Damage**
P. REYNAUD, M. R'MILI, N. GODIN, G. FANTOZZI, Université de Lyon, INSA-Lyon, MATEIS CNRS UMR 5510, Villeurbanne, France

11.25 *CE-5:IL07* **Boron Nitride and Boron Nitride Composites for Applications under Extreme Conditions**
J. EICHLER, C. LESNIAK, ESK Ceramics GmbH & Co. KG, Kempten, Germany

11.55 *CE-5:L08* **Microstructural and Thermo-mechanical Characterization of Yttria Ceramic Cores for Investment Casting, With and Without Particulate Reinforcement**
A. BRENTARI, M. VILLA, E. LEONI, **C. MINGAZZINI**, M. LABANTI, S. SANGIORGI, ENEA, Engineering of Components and Processes Section, Faenza Research Centre, Italy

12.15 *CE-5:L09* **Corrosion Resistance Under Wet Atmosphere of Coated and Uncoated Sic-based Composites**
G. DI VITA[1], S. FOUCAUD[1], A. MAÎTRE[1], T. CHARTIER[1], A. DENOIRJEAN[1], O. PREZIOSA[1], G. MONTAVON[2], C. BARTHÉLEMY[3], V. LAURENT[3], D. LOMBARD[4], [1]Lab. Science des Procédés Céramiques et de Traitements de Surface, UMR CNRS 6638, Université de Limoges, Limoges Cedex, France; [2]LERMPS - UTBM, site de Sévenans, Belfort Cedex, France; [3]Alcan CRV - URA Electrolyse et Matériaux Réfractaires, Voreppe Cedex, France; [4]Alcan LRF, Saint-Jean-de-Maurienne, France

Sub-session CF-4.2 - Energy Conversion and Storage

Room: **ALBA 2**

Chair: K. KANAMURA, Japan

9.00 *CF-4.2:IL06* **Mathematical Modeling of Electrochemical Systems. Application to Li-ion Batteries Aging**
M. SAFARI[1, 2], M. MORCRETTE[1], A. TEYSSOT[2], **C. DELACOURT**[1], [1]Laboratoire de Réactivité et Chimie des Solides, Université de Picardie Jules Verne, Amiens, France ; [2]Renault Research Dept., Guyancourt, France

9.30 *CF-4.2:IL07* **Cathode Materials for Large-scale Lithium-ion Batteries**
A. YAMADA, Dept. of Chemical System Engineering, The University of Tokyo, Tokyo, Japan

10.00 *CF-4.2:L08* **YSZ Self-supported Ultrathin Membranes for µSOFCs**
J. SANTISO[a], A. TARANCÓN[b], I. GARBAYO[b], A. CAVALLARO[a], J. ROQUETA[a], G. GARCIA[c], I. GRÀCIA[b], C. CANÉ[b], N. SABATÉ[b], [a]CIN2, Research Center for Nanoscience and Nanotechnology, CSIC-ICN, Bellaterra, Barcelona, Spain; [b]CNM-IMB (CSIC), National Institute of Microelectronics, CSIC, Bellaterra, Barcelona, Spain; [c]GFMI, Dept. of Physics, Autonomous University of Barcelona, Bellaterra, Barcelona, Spain

10.20 *CF-4.2:L09* **Thick Film and Multilayer Ceramic Technology for Innovative Fuel Cell Systems**
A. MICHAELIS, Fraunhofer Institute for Ceramic Technologies and Systems, IKTS, Dresden, Germany

10.40 *Break*

Chair: C. DELACOURT, France

11.10 *CF-4.2:L10* **Progress in the Development of Bulk-type All Solid State Lithium Batteries**
V. VIALLET, V. SEZNEC, M. MORCRETTE, J.M. TARASCON, LRCS UPJV, Amiens, France; G. DELAIZIR, P. ROZIER, M. DOLLE, CEMES, Toulouse, France; A. ABOULAICH, L. TORTET, R. BOUCHET, LCP, Marseille, France

11.30 *CF-4.2:IL11* **Three Dimensionally Ordered Composite Electrodes with Active Oxide Material and Ceramic Electrolyte for All Solid State Rechargeable Lithium Battery**
K. KANAMURA, Dept. of Applied Chemistry, Tokyo Metropolitan University, Tokyo, Japan

12.00 *CF-4.2:IL12* **Micro-solid Oxide Fuel Cells: From Thin Films to Power Delivering Membranes**
J.L.M. RUPP, A. BIEBERLE-HÜTTER, L.J. GAUCKLER, ETH Zurich, Zurich, Switzerland

Session CG-4 - Thin Films and Coatings for Tribological and Multifunctional Applications

Room: **URANO**

Chair: C. MURATORE, USA

9.00 *CG-4:IL18* **Nanostructured Thin Coating Architectures for Environ-mental Technology Applications**
V. TEIXEIRA, J. CARNEIRO, P. CARVALHO, University of Minho, Physics Dept., GRF-Functional Coatings Group, Guimarães, Portugal

9.30 *CG-4:IL19* **Computational and Experimental Investigation to Understand the Adaptation Mechanisms of Chameleon Coatings**
S.M. AOUADI, D. STONE, A. ABU-NADA, Dept. of Physics, Southern Illinois University, Carbondale, IL, USA; C. MURATORE, A.A. VOEVODIN, Air Force Research Laboratory, Materials and Manufacturing Directorate, Wright-Patterson AFB, Ohio, USA

10.00 *CG-4:L22* **Pros and Cons of Three Potential Easy-to-clean Coatings on Glazed Surfaces**
M. PIISPANEN, L. HUPA, Process Chemistry Centre, Abo Akademi University, Turku, Finland

10.20 *CG-4:IL23* **Damping Properties of Hard Coatings for Engine Applications**
P.J. TORVIK, Prof. Em., Air Force Institute of Technology, Xenia, OH, USA

10.50 *Break*

Chair: M. FENKER, Germany

11.20 *CG-4:IL24* **Correlation Between Mechanical Properties and Different Coating Architectures**
S.J. BULL, Chemical Engineering and Advanced Materials, Newcastle University, Newcastle upon Tyne, UK

11.50 *CG-4:IL25* **Adaptive Multifunctional Nanocomposite Coatings for Aerospace Applications**
A.A. VOEVODIN, C. MURATORE, Air Force Research Laboratory, Thermal Sciences and Materials Branch, Wright-Patterson AFB, OH, USA

12.20 *CG-4:L26* **Synthesis of TiO2 Thin Films by Ink-jet Printing from Water Based Sol-gel Precursors**
M. ARIN, P. LOMMENS, I. VAN DRIESSCHE, Dept. of Inorganic and Physical Chemistry, Ghent University, Ghent, Belgium

Session CH-4 - Varistors and Thermistors

Room: **SIRIO**

Chair: H. HANEDA, Japan

9.15 *CH-4:IL06* **Advances in Varistor Ceramics**
F. GREUTER, ABB Corporate Research, Baden-Daettwil, Switzerland

9.45 *CH-4:IL07* **Origin of Stoichiometry Influence in High Performance NaxCo2O4-y**
SEAN LI, School of Materials Science and Eng., The University of New South Wales, Sydney, Australia

10.15 *CH-4:IL08* **NTC Thermistors: Past, Present and Future**
A. FETEIRA, School of Chemistry, University of Birmingham & Dept. of Physics, University of Warwick, UK

10.45 *Break*

Session CH-5 - Optical, Electro-optical and Magneto-optical Ceramics and Devices

Room: **SIRIO**

Chair: Sean LI, Australia

11.15 *CH-5:IL07* **Advanced Ceramics for Optical Applications**
JAN MA, School of Materials Science and Engineering and Temasek Labs, Nanyang Technological University, Singapore

11.45 *CH-5:L10* **Development of Highly Sensitive Techniques for Characterizing Optical Gain and Losses in Laser Ceramics**
YE HE, R. GAUME, A. MARKOSYAN, R.L. BYER, Ginzton Lab., Stanford University, Stanford, CA, USA

12.05 *CH-5:L11* **Magnetic and Magneto-Optical Characterization of Diluted Magnetic Colloidal Suspensions**
O. PASCU, J.M. CAICEDO, J. FONTCUBERTA, G. HERRANZ, A. ROIG, Institut de Ciencia de Materials de Barcelona (ICMAB), CSIC, Bellaterra, Spain

12.25 *CH-5:IL09* **Charge Transfer Transitions in 3d Transition Metals Oxides**
R.V. PISAREV, Ioffe Physical-Technical Institute, St. Petersburg, Russia

Room: **ORSA MAGGIORE**

Chair: A. BARTHELEMY, France

Session CH-6.6 - New Effects

9.00 *CH-6.6:IL05* **Magnetoelectric Multiglass Ceramics (Sr,Mn)TiO3 and (K,Mn)TaO3**
W. KLEEMANN, V.V. SHVARTSMAN, P. BORISOV, S. BEDANTA, Angewandte Physik, Universität Duisburg-Essen, Duisburg, Germany; A. TKACH, P.M. VILARINHO, Dept. of Ceramics and Glass Engineering, CICECO, University of Aveiro, Aveiro, Portugal

Session CH-6.7 - Devices and Applications

9.30 *CH-6.7:IL01* **Microwave Magnetoelectric Interactions in Composites and Novel Devices**
Y. FETISOV, Moscow State Institute of Radio Engineering, Electronics and Automation, Moscow, Russia; G. SRINIVASAN, Dept. of Physics, Oakland University, Rochester, MI, USA

10.00 *CH-6.7:IL02* **Multiferroic Tunnel Junctions: from Theory to Experiment**
CHUN-GANG DUAN, Key Laboratory of Polar Materials and Devices, East China Normal University, Shanghai, China

10.30 *Break*

Chair: W. KLEEMANN, Germany

11.00 *CH-6.7:IL03* **Tunneling Across a Ferroelectric Barrier: A First-principles Study**
D. BILC[1], F.D. NOVAES[1,2], P. ORDEJON[3], J. IÑIGUEZ[2], P. GHOSEZ[1], [1]Physique Théorique des Matériaux, Université de Liège, Sart Tilman, Belgium; [2]Institut de Ciència de los Materials de Barcelona-CSIC, Bellaterra, Spain; [3]Centre d'Investigacio en Nanociència i Nanotecnologia-CSIC, Bellaterra, Spain

11.30 *CH-6.7:IL04* **Sub-THz Excitations in Ferrite-ferroelectric Heterostructures**
G. SRINIVASAN, Physics Dept., Oakland University, Rochester, MI, USA

12.00 *CH-6.7:IL05* **Taking Advantage of Interface Effects to Design New Oxide Based Heterostructures for Spintronics**
A. BARTHÉLÉMY[1], M.BIBES[1], Z. SEFRIOUI[3], V. GARCIA[1, 2], O. COPIE[1], M. BASLETIC[5], K. BOUZEHOUANE[1], S. FUSIL[1], E. JACQUET[1], D. IMHOFF[4], L.BOCHER[4], A. HAMZIC[5], J. SANTAMARIA[3], N. MATHUR[2], [1]Unité Mixte de Physique CNRS/Thales, Palaiseau, France; [2]University of Cambridge, Cambridge, UK; [3]GFMC, Dpto. Fisica Aplicada III, Universidad Complutense de Madrid, Spain; [4]Lab. de Physique des Solides, CNRS, Université Paris-Sud, Orsay, France; [5]Dept. of Physics, University of Zagreb, Zagreb, Croatia

12.30 *CH-6.7:IL06* **Ferroelectric Tunnel Barriers for Electronics and Spintronics**
M. BIBES, Unité Mixte de Physique CNRS/Thales, Palaiseau, France

Session CI-6 - Oxides with Diluted Magnetic Moments

Room: **GIOVE**

Chair: T. ITO, Japan

8.30 *CI-6:IL01* **Magnetism of Dilute Oxides**
J.M.D. COEY, School of Physics and CRANN, Trinity College, Dublin, Ireland

9.00 *CI-6:IL02* **Electric Field Control of Room Temperature Ferromagnetism in Co-doped TiO2**
T. FUKUMURA, Inst. for Materials Research, Tohoku University, Sendai, Japan

9.30 *CI-6:IL03* **Spin Manipulation in Co-doped ZnO**
H. SCHMIDT, Forschungszentrum Dresden-Rossendorf e.V., Dresden, Germany

10.00 *CI-6:L04* **A Structural and Magnetic Study of the Hydrogen Mediated Spin Ordering in ZnCoO**
SE-YOUNG JEONG, SEUNGHUN LEE, WON-KYUNG KIM, Dept. of Cogno-Mechatronics Engineering, Pusan National University, Miryang, Korea; YONG CHAN CHO, SU JAE KIM, Team of Nano Fusion Technology, Pusan National University; SUNGKYUN PARK, Dept. of Physics, Pusan National University; IL KYOUNG JEONG, CHUL HONG PARK, Dept. of Physics Education, Pusan National University, Korea

10.20 *Break*

Session CI-8 - Quantum Phase Transitions and Magnetism in Oxides

Room: **GIOVE**

Chair: N.L. SAINI, Italy

10.50 *CI-8:IL01* **Quantum Critically in Low Dimensional Oxides**
T. GIAMARCHI, University of Geneva, Geneva, Switzerland

11.20 *CI-8:IL04* **Novel Behaviour Near Quantum Phase Transitions and Beyond**
S.S. SAXENA, Cavendish Laboratory, University of Cambridge, Cambridge, UK

11.50 *CI-8:IL05* **Universality Classes for Coulomb-frustrated Phase Separation. From Incommensurate Charge Density Wave to Stripes**
C. DI CASTRO, Dipartimento di Fisica, Università "La Sapienza", Roma, Italy

12.20 *CI-8:IL06* **Quantum Critical Fluctuations in the Frustrated Kondo Lattice $Pr_2Ir_2O_7$**
M. BRANDO, J.G. DONATH, F. STEGLICH, Max Planck Institute for Chemical Physics of Solids, Dresden, Germany; P. GEGENWART, I Institute of Physics, University of Gottingen, Gottingen, Germany; S. NAKATSUJI, Institute for Solid State Physics, University of Tokyo, Tokyo, Japan

Session CJ-3 - Nanotechnology and Advanced Solutions in Silicate Ceramics

Room: **SMERALDO 1**

Chair: R. CLOOTS, Belgium

9.00 *CJ-3:IL05* **Nano-sized Coatings Modification Applied in Microfiltration Membrane Technology**
JIAN-ER ZHOU, QIBING CHANG, YONGQING WANG, XUEBING HU, XIAOZHEN ZHANG, Jingdezhen Ceramic Institute, Jingdezhen, P.R. China

9.30 *CJ-3:IL06* **Nanostructured Glassy and Ceramic Surfaces: Development of "Active" Materials for an Innovative Approach to Building Industry**
G. BALDI, A. CIONI, V. DAMI, Colorobbia Italia, Soligliana-Vinci (FI), Italy

10.00 *CJ-3:L07* **Effect of Nanosized TiO2 on Nucleation and Growth of Cristobalite in Sintered Fused Silica Cores for Investment Casting**
G. CASARANO, A. LICCIULLI, Università del Salento, Dipartimento Ingegneria dell'Innovazione, Lecce, Italy; **A. CHIECHI**, D. DISO, Salentec Advanced Technologies, Cavallino (LE), Italy; P. BENE, D. BARDARO, Centro di Progettazione Design e Tecnologie dei Materiali, Brindisi, Italy; M. DI FOGGIA, Europea Microfusioni Aerospaziali Spa, Morra de Sanctis (AV), Italy

10.20 *CJ-3:L08* **New Low Temperature Routes For the Preparation of Strontium Orthosilicate Using High Surface Area Mesostructured Silica**
J.L. SOARES, **F.M. VICHI**, Institute of Chemistry, University of Sao Paulo, Sao Paulo, Brazil

10.40 *Break*

Session CJ-4 - Decoration, Colour and Design of Silicate Ceramics

Room: **SMERALDO 1**

Chair: A. MORENO BERTO, Spain

11.10 *CJ-4:IL04* **Development of New Ceramic Dyes**
G. MONROS, Dpt. Quimica Inorganica i Organica, Universitat Jaume I, Castellon, Spain

11.40 *CJ-4:IL05* **New nMetal-sepiolite Bioactive Nanocomposites as a Special Effects Pigments (Colors and Shining) for Decoration of Ceramic Tiles**
J.S. MOYA, ICMM-CSIC Cantoblanco, Madrid, Spain

12.10 *CJ-4:IL06* **Novel Ceramic Pigments Based on Industrial Wastes**
W. HAJJAJI[1], G. COSTA[2], M.J. RIBEIRO[2], M.P. SEABRA[1], **J.A. LABRINCHA**[1], [1]Ceramics and Glass Eng. Dept., CICECO, University of Aveiro, Aveiro, Portugal; [2]ESTG, Polytechnic Institute of Viana do Castelo, Viana do Castelo, Portugal

Session CK-3 - Industrialization & Application

Room: **SMERALDO 3**

Chair: M. WEIL, Germany

9.00 *CK-1:IL09* **Recent Development of Magnesium-based Cements - Magnesium Phosphate Cement and Magnesium Oxychloride Cement**
ZONGJIN LI, FEI QIAO, C.K. CHAU, Dept. of Civil and Environmental Eng., The Hong Kong University of Science and Technology, Hong Kong, China
(rescheduled time as for Author request)

9.30 *CK-3:IL01* **Medium to Long Term Engineering Properties and Performance of High-strength Geopolymer Concrete Systems**
K. SAGOE-CRENTSIL, CSIRO Materials Science and Engineering, Highett, Victoria, Australia

10.00 *CK-3:IL02* **Geopolymers in Conservation of Stone Monuments and Buildings**
A. TEIXEIRA-PINTO, Universidade de Tras-os-Montes e Aldo Douro, Vila Real, Portugal

10.30 *CK-3:L03* **Use of Local Raw Materials for Construction Purposes**
H. RAHIER, M. ESAIFAN, J. WASTIELS, Vrije Universiteit Brussel, Brussels, Belgium; I. ALDABSHEH, F. SLATYI, M. ALSHAAER, H. KHOURY, Materials Research Laboratory, University of Jordan, Amman, Jordan

10.50 *Break*

Chair: A. TEIXEIRA-PINTO, Portugal

11.20 *CK-3:L05* **Development of Building Materials Through Alkaline Activation of Construction and Demolition Waste (CDW)**
J.G. RAPAZOTE, C. LAGINHAS, A. TEIXEIRA-PINTO, Universidade de Trás-os-Montes e Alto Douro, Dpto de Engenharias, Vila Real, Portugal

11.40 *CK-3:L08* **Geopolymers as Waste Encapsulation Materials: Impact of Anions on the Materials Properties**
F. FRIZON, D. LAMBERTIN, Atomic Energy Commission, DEN, Marcoule, Waste Treatment and Conditioning Research Dept., Bagnols-sur-Cèze, France

12.00 *CK-3:L09* **Bond Strength of Geopolymers Concrete with Reinforcing Steel**
P.K. SARKER, R. VASILE, Dept. of Civil Engineering, Curtin University of Technology, Perth, Australia

12.20 *CK-3:L10* **Metal Ion Exchanged Geopolymers and Their Applications**
O. BORTNOVSKY, P. BEZUCHA, Research Institute of Inorganic Chemistry, Usti nad Labem, Czech Republic; P. SAZAMA, Z. SOBALIK, Z. TVARUZKOVA, **J. DEDECEK**, J. Heyrovsky Institute of Physical Chemistry, Academy of Sciences of the Czech Republic, Prague, Czech Republic

Session CM-5 - R&D Advances in Devices and Applications

Room: **SMERALDO 2**

Chair: K. NIIHARA, Japan

8.50 *CM-5:IL01* **Design of Biomolecule-nanoparticle Complexes for Highly Sensitive Biological Detection**
CHUNHAI FAN, Shanghai Institute of Applied Physics, CAS, Shanghai, China

9.20 *CM-5:IL02* **Development of Carbon Nantube Alumina Composite and Their Application to Industrial Production**
M. OMORI, G. YAMAMOTO, T. HASHIDA, Graduate School of Engineering, Tohoku University, Sendai, Japan; A. OKUBO, H. KIMURA, Institute for Materials Research, Tohoku University, Sendai, Japan

9.50 *CM-5:L03* **The Ballistic Impact Characteristics of Woven Fabrics Impregnated with a Colloidal Suspension and Flattened Rolls**
CHUN-GON KIM, IL-JIN KIM, GUN LIM, Dept. of Aerospace Engineering, KAIST, Daejeon, Korea; Byung-il YOON, Agency for Defense Development, Daejeon, Korea

10.10 *CM-5:IL04* **Design of Nanostructured Sol-Gel Coatings for Targeted Applications**
E. SCOLAN, R. PUGIN, S. PASCHE, B. WENGER, G. VOIRIN, Centre Suisse d'Electronique et Microtechnique SA, Neuchâtel, Switzerland

10.40 *Break*

Chair: CHUNHAI FAN, China

11.10 *CM-5:IL06* **Environmental Applications of Photocatalysis**
J.C. YU, Dept. of Chemistry and Environmental Science Programme, The Chinese University of Hong Kong, Shatin, New Territories, Hong Kong, China

11.40 *CM-5:IL08* **Preparing of Nano MLCC Powders for Ultrathin-layer BME-MLCC Application**
X.H. WANG, Y.C. ZHANG, L.T. LI , State Key Laboratory of New Ceramics and Fine Processing, Dept. of Materials Science and Engineering, Tsinghua University, Beijing, China

12.10 *CM-5:IL09* **A ZnO Nanorod Homojunction Light-Emitting Diode**
X.W. SUN, School of Electrical and Electronic Engineering, Nanyang Technological University, Singapore

Session CN-5 - Composites for Thermal Management

Room: **AMBRA**

Chair: T. ISHIKAWA, Japan

8.40 *CN-5:IL05* **Atomistic Scale Thermal Transport in Composites and Its Interfaces**
AJIT K. ROY, Air Force Research Lab., Materials and Manufacturing Directorate Thermal Sciences and Materials Branch (AFRL/RXBT), Wright-Patterson AFB, OH, USA

9.10 *CN-5:IL06* **Design Aspects and Requirements of Ceramic Matric Composites (CMC´s) for Space Engines**
S. BEYER, S. SCHMIDT, Astrium Space Transportation, Munich, Germany; C. WILHELMI, EADS Innovation Works, Munich, Germany; M. BOUCHEZ, MBDA, Bourges, France

9.40 *CN-5:L07* **Mechanical Properties of High Thermal Conductivity Silicon Nitride *In-Situ* Composite**
Y. ZHOU, K. HIRAO, **T. OHJI**, National Institute of Advanced Industrial Science and Technology (AIST), Nagoya, Japan

10.00 *CN-5:L08* **The Development of Alumina-based Ceramic Matrix Composites for the SHEFEX II Thermal Protection System (TPS)**
P. MECHNICH, B. KANKA, M. SCHMÜCKER, DLR Institute of Materials Research, Cologne, Germany; B. ESSER, DLR Institute for Aerodynamics and Flow Technology, Cologne, Germany

10.20 *Break*

10.50 *CN-1:IL03* **Electrospinning of Ceramic Nanofibers**
W. SIGMUND, University of Florida, Gainesville, FL, USA, and Hanyang University
(rescheduled time as for Author request)

Session CN-6 - Applications

Room: **AMBRA**

Chair: W. KRENKEL, Germany

11.20 *CN-6:IL03* **SA-Tyannohex-based Composites for High Temperature Applications**
T. ISHIKAWA, Ube Industries, Ltd., Ube, Japan

11.50 *CN-6:IL04* **Modeling and Characterization of SiC/SiC Composites for Aerospace Applications**
J.A. DiCARLO, NASA Glenn Research Center, Cleveland, OH, USA

12.20 *CN-6:IL05* **Carbon/Carbon Brake Materials**
P. FILIP, Center for Advanced Friction Studies, Southern Illinois University Carbondale, IL, USA

POSTER DISCUSSION

THURSDAY JUNE 10: 18.30 - 20.00

Posters desmounting:
(after the Poster Discussion Session or on June 11 morning)

SYMPOSIUM CA

CERAMIC POWDERS: SYNTHESIS, PROCESSING AND SINTERING

CA:P02 **Elaboration and Mechanical Characterization of Al2O3-ZrO2-YAG Ultra-fine Composites**
P. PALMERO, V. NAGLIERI, **G. SPINA**, L. MONTANARO, Dept. of Materials Science and Chemical Engineering, Politecnico di Torino, LINCE lab., INSTM PoliTO R.U., Torino, Italy

CA:P03 **Effects of Firing Temperature and Time on the Luminescency of Phosphors in Strontium Aluminate System Co-doped by Eu2O3 and Dy2O3 and Prepared by Solid State Rection Processing**
S.YESILAY KAYA[1], B. KARASU[2], G. KAYA[3], **E. KARACAOGLU**[2], [1]Anadolu University, Dept. of Glass, Eskisehir, Turkiye; [2]Anadolu University, Dept. of Materials Science and Engineering, Eskisehir, Turkiye; [3]Dumlupinar University, Dept. of Ceramic Engineering, Kutahya, Turkiye

CA:P04 **Influence of Eu+3 and Dy+3 Contents on the Properties of Long Afterglow Strontium Aluminate Phosphors**
S. KAYA YESILAY, Anadolu University, Dept. of Glass, Eskisehir, Turkiye; B. KARASU, Anadolu University, Dept. of Materials Science and Engineering, Eskisehir, Turkiye; G. KAYA, Dumlupinar University, Dept. of Ceramic Engineering, Kutahya, Turkiye

CA:P05 **Glycine-nitrate Synthesis of Sr Doped La2Zr2O7 Pyrochlore Powder**
YAN CHEN, N. ORLOVSKAYA, Dept. of Mechanical, Materials and Aerospace Engineering, University of Central Florida, Orlando, FL, USA; N. MILLER, H. ABERNATHY, D. HAYNES, D. TUCKER, R. GEMMEN, U.S. Dept. of Energy, National Energy Technology Laboratory, USA

CA:P08 **Synthesis of Gadolinium Oxynitride with Cuspidine Structure and its Luminescence Properties**
S. MIHARA, K. YAMAGUCHI, S. KODA, K. ITATANI, Sophia University, Tokyo, Japan; H.T. HINTZEN, A.C.A. DELSING, Eindhoven University of Technology, Eindhoven, The Netherlands

CA:P09 **The Isothermal and Non-isothermal Crystallization Kinetics of La2O3 Doped, Sol-gel Derived Mullite**
V. MANDIC, E. TKALCEC, S. KURAJICA, University of Zagreb, Faculty of Chemical Engineering and Technology, Zagreb, Croatia

CA:P10 **Piezoelectric Lead Free Ceramics in the Solid Solution KNN**
R. LÓPEZ, **M.E. VILLAFUERTE-CASTREJÓN**, Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México, México D.F., México; F. GONZÁLEZ, Depto de Ingeniería de Procesos e Hidráulica, Universidad Autónoma Metropolitana-Iztapalapa, México D.F., México; A.M. GONZÁLEZ, Grupo Poemma, Technical University of Madrid, EUIT Telecomunicación, Madrid, Spain

CA:P11 **Production of Foundry Filters Using Alumina from the Aluminum Anodizing Process**
G.G. MORAES[1], B.G. OLIVEIRA[2], C. SILIGARDI[3], D. SIGHINOLFI[4], M.D.M. INNOCENTINI[5], A.A. MARTINS DE OLIVEIRA Jr.[1], D. HOTZA[1], **A.P. NOVAES DE OLIVEIRA**[1], [1]Federal University of Santa Catarina (UFSC), Florianópolis (SC), Brazil; [2]University of the Joinville Region (UNIVILLE), Joinville (SC), Brazil; [3]University ofi Modena and Reggio Emilia (UNIMORE), Modena, Italy; [4]Expert System Solutions S.r.l., Advanced Laboratory Equipment, Modena, Italy; [5]University of Ribeirão Preto, São Carlos - SP, Brazil

CA:P15 **On the Hydrothermal Synthesis of xCr2O3-(1-x)Fe2O3 Nanoparticle System**
L. DIAMANDESCU, D. TARABASANU-MIHAILA, F. VASILIU, M. FEDER, I. MERCIONIU, T. POPESCU, National Institute of Materials Physics, Bucharest, Romania

CA:P16 **Synthesis of High Purity Fine B4C Powders via the Sol Gel Process**
H. SINAEI POUR FARD, H.R. BAHARVANDI, Faculty of Materials and Manufacturing Process, MUT, Tehran, Iran

CA:P17 **Preparation and Characterization of New Oxyfluoride Phases (Ba,Na)(Ti,Mg)(O,F)**
D. TALANTIKITE-TOUATI, Dept. of Chemistry, Abderrahmane Mira University, Bejaia, Algeria; L. BENZIADA, Faculty of Chemistry, USTHB,El-Alia, Bab-Ezzouar, Algiers, Algeria

CA:P20 **Synthesis of Scandium Oxide Nanopowders by the Sol-gel Route**
N. POIROT, LEMA, UMR 6157, CNRS-CEA, IUT de Blois, Blois cedex, France; P. BOY, Laboratoire Sol Gel, CEA/Le Ripault, Monts, France; C. AUTRET-LAMBERT, LEMA, UMR 6157, CNRS-CEA, Parc Grandmont UFR Sciences, Tours, France; **P. BELLEVILLE**, L. BIANCHI, Laboratoire Sol Gel, CEA/Le Ripault, Monts, France

CA:P23 **Description of Carbides Sintering Process using Kucszynski and Frenkel Sintering Models**
A. GUBERNAT, AGH University of Science and Technology, Faculty of Materials Science and Ceramics, Cracow, Poland

CA:P25 **Effect of the Two-steps Sintering in the Microstructure of Ultrafine Alumina**
A.S.A. CHINELATTO, M.K.MANOSSO, A.L. CHINELATTO, UEPG, Ponta Grossa, PR, Brazil; E.M.J.A. PALLONE, USP-FZEA, Pirassununga, SP, Brazil

CA:P26 **Densification Study of HA-Mg Samples Synthesized with Ultrasound**
D.S. GOUVEIA, A.H.A. BRESSIANI, **J.C. BRESSIANI**, Materials Technology and Science Center-CCTM, Institute of Energetics and Nuclear Research-IPEN, S. Paulo, SP, Brazil

CA:P27 **Enhanced Densification and Grain-size Refinement in Cation-doped Tetragonal Zirconia**
K. HIRAGA, H. YOSHIDA, K. MORITA, B.-N. KIM, National Institute for Materials Science, Tsukuba, Ibaraki, Japan

CA:P28 **Synthesis and Sintering of Mullite Ceramics Using Microwave Heating**
T. EBADZADEH, H. BARZEGAR-BAFROEI, Ceramic Division, Materials & Energy Research Centre, Tehran, Iran

CA:P29 **Low-temperature Sintering of Apatite-type Lanthanum Silicate with Fluoride Additives**
J. TAKAHASHI, H. HONDA, T. AKASHI, Graduate School of Engineering, Hokkaido University, Sapporo, Japan; H. ITOH, Dept. of Materials Science, Kitami Institute of Technology, Kitami, Japan; M. KISHI, Dept. of Mechanical Systems Engineering, Hokkaido Institute of Technology, Sapporo, Japan

CA:P32 **Processes of Phase-formation in the Solid State Synthesis of Ferrite Garnets**
T.S. LIVSHITS, IGEM RAS, Moscow, Russia

CA:P33 **Alumina - Zirconia Ceramics Synthesized via Aluminum Oxidation**
S.N. PARANIN, V.V. IVANOV, S.V. ZAYATS, V.R. KHRUSTOV, A.V. SPIRIN, S.Yu. IVIN, A.S. KAYGORODOV, V.I. KRUTIKOV, Yu.N. KOROLEVA, V.P. LOZNUKHO, R.D. NEVMYVAKO, Institute of Electrophysics, RAS, Ekaterinburg, Russia

CA:P34 **A New Powder Filler, Obtained by Applying a New Technology for Fly Ash Inertisation Procedure**
E. BONTEMPI, A. ZACCO, L. BORGESE, A. GIANONCELLI, L.E. DEPERO, Chemistry for Technologies Laboratory, University of Brescia, Brescia, Italy

CA:P35 **Elastic Modulus and Hardness of CaTiO3, CaCu3Ti4O12 and CaTiO3.CaCu3Ti4O12**
M.A. RAMÍREZ[1], R. PARRA[2], M.M. REBOREDO[2], J.A. VARELA[1], M.S. CASTRO[2], L. RAMAJO[2], [1]Chemistry Institute of São Paulo State University (UNESP), Araraquara, Brazil; [2]Institute of Research in Material Science and Technology (INTEMA) (CONICET - University of Mar del Plata), Mar del Plata, Argentina

CA:P36 **Rheology Behavior of Yttria Aqueous Suspensions for the Impregnation Method**
S.C. SANTOS, C. YAMAGATA, **S.R.H. MELLO-CASTANHO**, Nuclear and Energy Research Institute-IPEN, Sao Paulo, SP, Brazil

CA:HP37 **Sintering of High Density Ceramics Based on SiC Using Cold Hydrostatic Pressing**
D.A. KOLESNIKOV, O.N. MARADUDINA, M.G. KOVALEVA, Joint Research Centre "Diagnostics of structure and properties of nanomaterials" at Belgorod State University, Belgorod, Russian Federation

CA:HP38 **Synthesis and Characterization of Al_2O_3(matrix)-30%ZrO_2 and Al_2O_3(matrix)- 30%$Y_{0.1}Zr_{0.9}O_2$ Nanocomposites**
V.V. SIROTA, R.A. LYUBUSHKIN, M.G. KOVALEVA, Joint Research Centre "Diagnostics of structure and properties of nanomaterials" at Belgorod State University, Belgorod, Russian Federation

CA:HP39 **Homogeneous Nano-alloyed Ceramic Powders for Compacting**
P. LINTUNEN, T. RITVONEN, U. KANERVA, J. LAGERBOM, T. SUHONEN, T. VARIS, O. SÖDERBERG, S-P. HANNULA, VTT, Advanced Materials, Tampere, Finland

SYMPOSIUM CB

NOVEL ROUTES FOR CERAMICS SYNTHESIS AND PROCESSING

CB:P01 **Silica Tube Gel Manufactured by Electrolysis**
N. FURUYA, University of Yamanashi, Kofu, Japan

CB:P03 **SiCN Xerogels and Ceramic Materials Derived from Polymers Containing vinyl- and Carbodiimide Functional Groups**
H.J. CHENG, Y.L. LI, Key Laboratory of Advanced Ceramics and Machining Technology, Tianjin University, Ministry of Education, Tianjin, China; E. KROKE, M. SCHWARZ, Institute of Inorganic Chemistry, TU Bergakademie Freiberg, Freiberg, Germany; S. HERKENHOFF, J. WOLTERSDORF, Max-Planck-Institut für Mikrostrukturphysik, Halle, Germany

CB:P06 **The Effect of Pulsing on the Spark Plasma Sintering of Silicon Nitride Materials**
J. GONZALEZ-JULIAN, P. MIRANZO, **M.I. OSENDI**, M. BELMONTE, Institute of Ceramics and Glass (CSIC), Madrid, Spain

CB:P07 **The Effects of Codoping Y2O3 on MgO Doped Spark Plasma Sintered Al2O3**
B. APAK, F.C. SAHIN, G. GOLLER, O. YUCEL, Istanbul Technical University, Istanbul, Turkey

CB:P08 **Spark Plasma Sintering of B4C-SiC Composites**
H.D. GENCKAN, **F. CINAR SAHIN**, Adnan Tekin Research Center of Materials Science and Production Technologies, Istanbul Technical Univ., Istanbul, Turkey

CB:P11 **Crystal Growth of Calcite Nano-plates by Alternate Soaking Method, Using CDS Single Crystal Templates**
K. HAYASHI, M. TOMOHARA, K. FUJINO, G. SAKANE, Y. KATAYAMA, LSSC Okayama University of Science, Okayama, Japan

CB:P13 **Highly Porous Hydroxyapatite Ceramics for Engineering Applications**
H. IVANKOVIC, S. ORLIC, D. KRANZELIC, E. TKALCEC, Uiversity of Zagreb, Faculty of Chemical Engineering and Technology, Zagreb, Croatia

CB:P14 **Aluminum Oxide Ceramics with Gradient Porosity Obtained by Commercial Starch Consolidation and Conformation**
R.P. MOTA, M.A. ALGATTI, DFQ-UNESP, Guaratinguetá, SP, Brazil; R.S. FERNANDES, Universidade Federal de Alfenas, Depto de Ciencia e Tecnologia, Campus de Poços de Caldas; E. CAMPOS, Escola de Especialistas da Aeronáutica, Guaratinguetá, SP, Brazil

CB:P15 **New Methodology in Modeling Ceramics Morphology**
M.A. ALGATTI, R.P. MOTA, DFQ-UNESP, Guaratinguetá, SP, Brazil; E.C. CAMPOS, E.E. LUCENA, Escola de Especialistas da Aeronáutica, Guaratinguetá, SP, Brazil

CB:P17 **Preparation of Porous Silicon Nitride by Sacrificial Templating**
R.M. MESQUITA, **A.H.A. BRESSIANI**, L.A. GENOVA, Instituto de Pesquisas Energeticas e Nucleares, IPEN - CNEN, Sao Paulo, Brazil

CB:P18 **Influence of Binder on Porous Ceramic Properties Prepared by the Polymeric Sponge Method**
K. JACH, D. KALINSKI, M. CHMIELEWSKI, K. PIETRZAK, Institute of Electronic Materials Technology, Warsaw, Poland

CB:P19 **Mechanical Properties of Si3N4 - SiC Composites Sintered by the HPHT Method**
P. KLIMCZYK, The Institute of Advanced Manufacturing Technology, Cracow, Poland

CB:P20 **Phosphate Bonded Alumina: Effect of Crystalline (AlPO4) Polymorph Phase Transformation on Mechanical Properties**
P. KUMAR, A.N. TIWARI, P. BHARGAVA, Dept. of Metallurgical Engineering and Materials Science, Indian Institute of Technology Bombay, Mumbai, India

CB:P22 **Reactive Milling and Mechanical Alloying in Electroceramics**
C. GOMEZ-YANEZ, I.A. VELASCO-DAVALOS, C.A. PERALTA-ZENTENO; J.J. CRUZ-RIVERA, Dept. of Metallurgy and Materials Engineering, ESIQIE, National Polytechnic Institute, Mexico city, Mexico; Faculty of Metallurgy, UASLP, San Luis Potosi, Mexico

CB:P23 **Synthesis of High-Temperature Stable Anatase Titania Polymorph Through the Addition of La(III), Cu(II), Ba(II) and Sr(II)**
M. MORAES LEITE[1], F. MARON VICHI[1], E. JOAQUIM DE SOUZA VICHI[2,3], [1]Chemistry Institute, University of Sao Paulo, Sao Paulo, Brazil; [2]Chemistry Institute, State University of Campinas, Campinas, Brazil; [3]in memoriam

CB:P26 **Microwave Synthesis of Silicon Carbide; Rapid Processing and Nanowire Formation**
L. CARASSITI[1], I. MacLAREN[2], P. DOBSON[3,4], P. HARRISON[4], D.H. GREGORY[1], [1]WestCHEM, Dept. of Chemistry; [2]Dept. of Physics; [3]Dept. of Electrical Engineering; [4]Dept. of Mechanical Engineering, University of Glasgow, Glasgow, UK

CB:HP27 **Spark Plasma Sintering of Boron Carbide and Effects of Various Additives on Sintering and Material Properties**
YUSUF CELIK, GULTEKIN GOLLER, ONURALP YUCEL, FILIZ SAHIN FILIZ SAHIN, Istanbul Technical Universty, Metallurgical And Material Engineering, Istanbul, Turkey

CB-11:P02 **Utilization of NbC Nanoparticles Obtained by Reactive Milling in the Production of Alumina Niobium Carbide Nanocomposites**
V. TROMBINI, A.H.A. BRESSIANI, Instituto de Pesquisas Energeticas e Nucleares, Sao Paulo, SP, Brazil; E.M.J.A. PALLONE, USP, Faculdade de Zootecnia e Engenharia de Alimentos, Pirassununga,SP, Brasil; R. TOMASI, UFSCAR-DEMa Sao Carlos, SP, Brazil

CB-12:P01 **Defect Crystal Structure of Low Temperature Modifications of Li2MO3 (M=Ti, Sn) and Related Hydroxides**
N.V. TARAKINA, **T.A. DENISOVA**, Y.V. BAKLANOVA, L.G. MAKSIMOVA, Institute of Solid State Chemistry, Ural Branch of RAS, Ekaterinburg, Russia; R.B. NEDER, Kristallographie und Strukturphysik, Universität Erlangen, Erlangen, Germany

CB-12:P02 **Layered Alumina Ceramics with Porosity Steps**
E. GREGOROVA, M. CHMELICKOVA, Z. ZIVCOVA, W. PABST, ICT Prague, Prague, Czech Republic

CB-12:P03 **Relationship Between Microstructure and Hardness of ZrN/TiN Multi-Layers with Various Bilayer Thickness**
Y. AOI, S. FURUHATA, Ryukoku University, Otsu, Shiga, Japan; H. NAKANO, Toyohasi University of Technology, Toyohasi, Japan

CB-12:P04 **Atomic and Electronic Structure of Zinc and Copper Pyrovanadates with Negative Thermal Expansion**
T. KRASNENKO, N. MEDVEDEVA, V. BAMBUROV, Inst. of Solid State Chem., Urals Div. RAS, Ekaterinburg, Russia

SYMPOSIUM CC

PROGRESS IN THE UNDERSTANDING AND CONTROL OF CERAMICS SURFACES FOR TRIBOLOGY AND CORROSION

CC:P02 **Performance of Blended Cement Concrete Against Seawater Attack**
H.EL-DIN H. SELEEM*, **A.M. RASHAD***, B.A. EL-SABBAGH**, *Building Materials Research and Quality Control Institute; **Raw Building Materials Technology and Processing Research Institute Housing & Building National Research Center, HBRC, Cairo, Egypt

CC:P03 **Oxidation Resistance and Corrosion Resistance of Molybdenum-Chromium Nitride**
M. NAGAE, N. ISE, H. KUWAHARA, Research Institute for Applied Science, Kyoto, Japan; J. TAKADA, Graduate School of Natural Science and Technology, Okayama University, Japan

CC:P04 **Mechanical Properties of Silicon Nitride Using RUS & C-Sphere Methodology**
M. HADFIELD[a], WEI WANG[a], A. WERESZCZAK[b], [a]School of Design, Eng. and Computing, Bournemouth University, Poole, UK; [b]Materials Science and Technology Division, Oak Ridge National Laboratory, Oak Ridge, TN, USA

SYMPOSIUM CD

CERAMIC JOINING

CD:P01 **Finite Element Modeling of Thermal Stress in ITER Prototype Optical Windows and its Influencing Parameters**
M. JACOBS[1,2], G. VAN OOST[1], J. DEGRIECK[1], I. DEBAERE[1], A. GOUSSAROV[2], V. MASSAUT[2], [1]Ghent University, Ghent, Belgium; [2]SCK·CEN, Mol, Belgium

CD:P02 **Interfacial Microstructure and Properties of (SiC / SiC) Joint brazed with Ag-Cu-Ti Alloys**
A. NEMATI, **A.h. GHAZI DARYANI**, A.h. KOKABI, Dept. of Material Science & Eng., Sharif University of Technology, Tehran, Iran

SYMPOSIUM CE

CERAMICS AND COMPOSITES IN EXTREME ENVIRONMENTS

CE:P01 **Processing and Characterization of Zr-, Hf- and Ta- based Ultra High Temperature Ceramics**
R. LICHERI, R. ORRU', C. MUSA, **G. CAO**, Dip. Ingegneria Chimica e Materiali, Centro Studi sulle Reazioni Autopropaganti (CESRA), Unità di Ricerca del Consorzio Interuniversitario Nazionale per la Scienza e Tecnologia dei Materiali (INSTM), Unità di Ricerca del CNR - Dip. di Energia e Trasporti, Università degli Studi di Cagliari, Cagliari, Italy, IM-Innovative Materials S.r.l., Sestu, Cagliari, Italy

CE:P04 **Production and Characterization Alumina-diamond Composites and Nanocomposites**
E.M.J.A. PALLONE, USP, FZEA, Pirassununga, SP, Brazil; V. TROMBINI,

Instituto de Pesquisas Energéticas e Nucleares, Sao Paulo, SP, Brazil; K.L. SILVA, L.O. BERNARDI, M. YOKOYAMA, R. TOMASI, UFSCAR-DEMa Sao Carlos, SP, Brazil

CE:P05 **Effects of the Pin-on-disc Test Parameters on the Wear of Alumina**
N.R. TEDESCO*, E.M.J.A. PALLONE**, R. TOMASI*, *UFSCAR, Sao Carlos, SP, Brazil; **USP, FZEA, Pirassununga, SP, Brazil

CE:P08 **Structure Evolution in Al2O3 - ZrO2 (Y2O3) Ceramic Composites during Sintering**
Ya. DYATLOVA, À. OSMAKOV, V. PESIN, V. RUMYANTSEV, VIRIAL Ltd., Saint-Petersburg, Russia

CE:P09 **Fabrication of Reaction-Bonded SiC Composites by Liquid Silicon Infiltration**
B.K. JANG, Y. SAKKA, Nano Ceramics Center, National Institute for Materials Science, Tsukuba, Ibaraki, Japan; S.Y. KIM, I.S. HAN, S.K. WOO, Convergence Energy Materials Research Center, Korea Institute of Energy Research, Daejeon, Korea

CE:P10 **Structural Ceramics Based on Nanosized Si3N4 Powders**
V. RUMYANTSEV, **N. KORABLEVA**, À. OSMAKOV, N. BELYKH, VIRIAL Ltd., Saint-Petersburg, Russia; L. STAFECKIS, Neomat Co., Salaspils, Latvia

CE:P11 **Stereological Description of Microstructure of Silicon Carbide-based Structural Ceramics as a Composite Material**
V. RUMYANTSEV, S. BOYKOV, **À. OSMAKOV**, VIRIAL Ltd., Saint-Petersburg, Russia; V. FISCHEV, Saint-Petersburg State Technology Institute, Technical University, Saint-Petersburg, Russia

CE:P12 **Consolidation of SiC Deposits by Polymer Infiltration and Pyrolysis Method**
A. IVEKOVIC, K. KÖNIG, S. NOVAK, G. DRAZIC, Jozef Stefan Institute, Ljubljana, Slovenia

CE:P13 **Processing and Thermal Properties of Cu-AlN Composites**
M. CHMIELEWSKI, K. PIETRZAK, D. KALIÑSKI, Institute of Electronic Materials Technology, Warsaw, Poland

CE:P14 **Diffusion Studies Involving Nanometric and Submicrometric Alumina Based Composites with Gray Cast Iron**
K.P.S. TONELLO, V. TROMBINI, A.H.A. BRESSIANI, J.C. BRESSIANI, IPEN, Sao Paulo, SP, Brazil

CE:P15 **Phase, Structural and Microstructural Changes in TiC1-x - Cr3C2 Materials**
P. RUTKOWSKI, L. STOBIERSKI, M.M. BUCKO, AGH University of Science and Technology, Faculty of Material Science and Ceramics, Krakow, Poland

CE:P16 **Influence of Residual Thermal Stresses on the Properties of the NiAl Matrix Composites Reinforced with Ceramic Particles**
D. KALINSKI, M. CHMIELEWSKI, K. PIETRZAK, Institute of Electronic Materials Technology, Warsaw, Poland

CE:HP17 **Silicon Carbonitride/Zirconia Ceramic Nanocomposites - Synthesis and High Temperature Behavior**
C. LINCK, E. IONESCU, H.-J. KLEEBE, R. RIEDEL, Technische Universität Darmstadt, Institut für Materialwissenschaft, Darmstadt, Germany

CE:HP18 **Control of Electrical Conductivity of CNT Dispersed Si3N4 Ceramics by Double Percolation**
S. YOSHIO, J. TATAMI , T. WAKIHARA, T. YAMAKAWA, K. KOMEYA, T. MEGURO, Yokohama National University, Graduate school of Environment and Information Sciences, Yokohama, Kanagawa, Japan

CE:HP19 **The Influence of Microstructure on Mechanical Properties of Cr_3C_2-TiC Composites**
G. GRABOWSKI, AGH - University of Science and Technology, Faculty of Materials Science and Ceramics, Department of Advanced Ceramics, Cracow, Poland

SYMPOSIUM CF

CERAMICS FOR CHEMICAL, ELECTROCHEMICAL AND ENVIRONMENTAL APPLICATIONS

CF:P01 **Study of Tungsten Oxide Nanostructured Films for Gas Micro Concentrations Measurements**
O.M. IVANOVA, A.E. TARASOVA, S.A. KRUTOVERTSEV, A.V. PISLYAKOV, A.V. SHEVCHENKO, JSC "Practic-NC", Zelenograd, Moscow, Russia

CF:P02 **Development of Noninvasive Diagnosis with Semiconductor Sensors**
S.A. KRUTOVERTSEV, M.V. CHUPRIN, O.M. IVANOVA, A.V. PISLYAKOV, A.V. SHEVCHENKO, JSC "Practic-NC", Zelenograd, Moscow, Russia; V.V. KALINOVSKY, V.V. KONOVALOV, VNIIEF, Sarov, Nizhniy Novgorod Region, Russia

CF:P03 **Characterization of a Flexible Ceramic Membrane and the Effect of its Chemical Modification on the Transport of Ions**
R. DE LARA[1], L. PELÁLEZ[1], D. TOLEDO[1], F.J. CASADO[2], J. HIERREZUELO[2], J.M. LÓPEZ-ROMERO[2], **J. BENAVENTE**[1], [1]Grupo de Caracterización Electrocinética en Membranas e Interfases. Depto Física Aplicada I, Universidad de Málaga, Málaga, Spain; [2]Depto de Química Orgánica, Facultad de Ciencias, Universidad de Málaga, Málaga, Spain

CF:P04 **Determination of Lead Traces by Stripping Voltammetry Using Ti(N,C) Working Electrodes**
M. ZIEMNICKA, B. BAS, M. JE, L. STOBIERSKI, Faculty of Materials Science and Ceramics, AGH University of Science and Technology, Cracow, Poland

CF:P05 **Solid Oxide Electrolyte Based Oxygen Pump**
A.V. SPIRIN, A.S. LIPILIN, V.V. IVANOV, S.N. PARANIN, A.V. NIKONOV, V.R. KHRUSTOV, D.S. PORTNOV, N.V. GAVRILOV, A.S. MAMAEV, Institute of Electrophysics, RAS, Ekaterinburg, Russia

CF:P06 **Oxygen Permeability and Methane Conversion Rate Properties of the LaxSr1-xTi1-yFeyO3-δ Perovskite type Membrane**
EUN JEONG YI, HAE JIN HWANG, Division of Material Science and Engineering, Inha University, Incheon, Korea; JI-WOONG MOON, Research Institute of Industrial Science & Technology, Pohang, Korea

CF:P07 **Development of Ultrasonic-optical Fiber Hydrogen Sensor**
JONG-CHUL YOO, TAI-HONG CHENG, IL-KWON OH, School of Mechanical Systems Engineering, Chonnam National University, Gwang-Ju, Korea

CF:P09 **Understanding ac Response of Proton Conducting Perovskites**
JONG-SOOK LEE, **YONG KIM**, EUI-CHOL SHIN, Chonnam National University, Gwangju, Korea; JONG-SUNG PARK, YU-EUN PARK, BYUNG-KOOK KIM, Korea Institute of Science and Technology, Seoul, Korea

CF:P10 **Thermoelectric Properties of Sr-doped RECoO3 (RE=Pr,Sm)**
T. OHTANI, K. MINAMI, Okayama University of Science, Okayama, Japan

CF:P11 **Creep and Fracture of Proton-conducting Perovskite Oxides**
C. VAQUERO-AGUILAR, **M. JIMENEZ-MELENDO**, Dpto. de Fisica de la Materia Condensada, Universidad de Sevilla, Sevilla, Spain

CF:P13 **Synthesis and Characterization of LiMnP1-xVxO4-delta Solid Solutions**
D. KELLERMAN, Inst. of Solid State Chem., Urals Div. RAS, Ekaterinburg, Russia; N. MUKHINA, V. GORSHKOV, B. TSAREV, OOO Eliont, Ekaterinburg, Russia; N. ZHURAVLEV, E. ZABOLOTSKAYA, Inst. of Solid State Chem., Urals Div. RAS, Ekaterinburg, Russia

CF:P14 **Direct Synthesis of Lithium Ion Electrode Composition**
V. GORSHKOV, B. TSAREV, OOO Eliont, Ekaterinburg, Russia; D. KELLERMAN, Inst. of Solid State Chem., Urals Div. RAS, Ekaterinburg, Russia

CF:P17 **Production of Nano Size TiO2 Sol and Highly Efficient Photocatalytic TiO2 Powder by Mechanical Ball Milling**
E. CORAPCI[1], B. AYSIN[1], J. PARK[2], A. OZTURK[1], [1]Dept. of Metallugical and Materials Engineering, Middle East Technical University, Ankara, Turkey; [2]Dept. of Materials Engineering, Atilim University, Ankara, Turkey

CF:P19 **Photocatalytic Redox Reaction of Nitro Aromatics and Secondly Alcohols to Amino Aromatics and Ketones in Suspension of Titanium(IV) Oxide**
K. IMAMURA, SHIN-ICHI IWASAKI, T. MAEDA, K. HASHIMOTO, H. KOMINAMI, Kinki University, Higashi-Osaka, Japan

CF:P20 **Degradation of Organic Acids in Aqueous Suspensions of Gold/Cerium(IV) Oxide Powder Under Irradiation of Visible Light**
A. TANAKA, K. HASHIMOTO, H. KOMINAMI, Kinki University, Higashi-Osaka, Japan

CF:P21 **Correlation Between Physical Properties and Photocatalytic Activities of Metal Ion-titanium Oxide Responding to Visible Light**
S. KITANO, K. HASHIMOTO, Kinki University, Higashi-Osaka, Japan

CF:P22 **Preparation and Characterization of Complex Oxides for Water Photolysis**
EUI-CHOL SHIN, YONG KIM, HYUN-HO SEO, JONG-SOOK LEE, School of Matls Science and Eng., Chonnam National University, Gwangju, Korea

CF:P23 **Sintering by Activated Surface of Cermet Materials**
T.G. RESTIVO, C. YAMAGATA, S.R.H. MELLO-CASTANHO, Nuclear and Energetic Research Institute-IPEN, Sao Paulo, SP, Brazil

CF:HP24 **Photocatalytic Reduction of Nitrogen Oxides to Dinitrogen in Aqueous Suspension of Metal-loaded Titanium(IV) Oxide**
HIROSHI KOMINAMI, HITOSHI GEKKO, YUMIKO SHIMADA, KEIJI HASHIMOTO, Department of Applied Chemistry, Kinki University, Higashiosaka, Osaka, Japan

SYMPOSIUM CG

CERAMIC THIN FILMS AND COATINGS FOR PROTECTIVE, TRIBOLOGICAL AND MULTIFUNCTIONAL APPLICATIONS

CG:P01 **Application of SEM/STEM and XPS to Tests on Pt Distribution in Al2O3 Films Obtained by Oxidising FeCrAl Steel Foil Coated with Pt-Al Nanofilms**
K. RESZKA, Inst. of Mechatronics, Nanotechnology and Vacuum Technique, Koszalin University of Technology, Koszalin, Poland; J. RAKOCZY, Inst. of Organic Chem. and Tech., Cracow University of Technology, Cracow, Poland; J. MORGIEL, Inst. of Metallurgy and Matls Science, PAS, Cracow, Poland

CG:P02 **A Chemometric Study of Alumina/PEEK Suspension Prepared for Electrophoretic Deposition of Multifunctional Coatings**
M.F. DE RICCARDIS, **V. MARTINA,** D. CARBONE, ENEA Brindisi Research Centre, Brindisi, Italy

CG:P03 **ESR Study of Elements Added-DLC Films Deposited by PBII and RF-CVD Methods**
N. MOOLSRADOO, H. SATO, S. WATANABE, Nippon Institute of Technology, Saitama, Japan

CG:P04 **Corrosion Resistance of Titanium Aluminide Layers on Two Phase (a+b) Ti6Al4V Titanium Alloy**
R. SITEK[1], J. KAMINSKI[1], M. PISAREK[2], H. MATYSIAK[3], K.J. KURZYDLOWSKI[1], [1]Faculty of Materials Science and Engineering, Warsaw University of Technology, Warsaw, Poland; [2]Institute of Physical Chemistry, Polish Academy

of Sciences, Warsaw, Poland; [3]Research Centre for Functional Materials, Warsaw University of Technology, Warsaw, Poland

CG:P07 **Slurry Coating of Environmental Barrier Coating (EBC) on Silicon Carbide Based Material**
F. BEZZI, P. FABBRI, A. BRENTARI, C. MINGAZZINI, E. BURRESI, S. SANGIORGI, ENEA, Engineering of Components and Processes Section - Faenza Research Centre, Faenza, Italy

CG:P08 **Formation of an Alumina-containing Scale for the Surface Protection of TiAl Alloys and Ti Against Environmental Degradation at Elevated Temperatures**
R.A. YANKOV, A. KOLITSCH, F. MUNNIK, J. VON BORANY, Institute of Ion Beam Physics and Materials Research, Forschungszentrum Dresden-Rossendorf , Dresden, Germany; A. DONCHEV, M. SCHÜTZE, Karl-Winnacker-Institut, High-Temperature Materials, DECHEMA e.V., Frankfurt am Main, Germany

CG:P09 **Advances in the Field of New Smart Thermal Barrier Coatings**
F. ANSART, J. FENECH, L. PIN, J.P. BONINO, P. LOURS, T. LE MAOULT, Université Paul Sabatier, Toulouse, France

CG:P10 **Optimisation of the Ceramic Phase for Ceramizable Silicone Rubber Based Composites**
Z. PEDZICH[1], K. HABERKO[1], D.M. BIELINSKI[2, 3], J. DUL[2], [1]AGH University of Science & Technology, Dept. of Advanced Ceramics, Cracow, Poland; [2]Div. of Elastomers & Rubber Technology, Inst. for Polymers & Dyes Tech., Piastow, Poland; [3]Inst. of Polymers, Technical Univ. of Lodz, Lodz, Poland

CG:P11 **Influence of Thermal Annealing in the Bonding States and Structural Arrangements of Multifunctional Ti(C,O,N) Coatings**
C. MOURA[1], L. CUNHA[1], J.-M. CHAPPÉ[2], F. VAZ[2], M.C. MARCO DE LUCAS[3], L. IMHOFF[3], O. HEINTZ[3], [1]Physics Dept., University of Minho, Braga, Portugal; [2]Physics Dept., University of Minho, Guimarães, Portugal; [3]Institut Carnot de Bourgogne, UMR 5209 CNRS-Université de Bourgogne, Dijon Cedex, France

CG:P12 **Chromium Nitride and Silicon Doped Chromium Nitride Coatings Produced by Magnetron Sputtering: Effects of The Nitrogen Flow on the Structure and Mechanical Properties**
L. CUNHA, C. MOURA, Physics Dept., University of Minho, Braga, Portugal

CG:P13 **Study of the Films of Secondary Structures on the Interface in Sliding Friction Pairs**
I.I. KURBATKIN, A.YU. ISHLINSKY, Institute for Problems in Mechanics, RAS, Moscow, Russia

CG:P14 **Amorphous Si:C:H and Si:N:H as Antireflective and Protective Coatings**
B. SWATOWSKA, T. STAPINSKI, S. ZIMOWSKI, AGH University of Science and Technology, Krakow, Poland

CG:P15 **Influence of Inorganic Sealant in Hot and Cold Erosive Wear in Plasma Sprayed Alumina Coating**
J. VICENZI, A.S. TAKIMI, R. BRAMBILLA, C.P. BERGMANN, Federal University of Rio Grande do Sul, Porto Alegre, RS, Brazil

CG:P17 **Low-temperature Synthesis of TiO2 Coatings by Sol-gel Chemistry**
M. CUADRADO GIL, P. LOMMENS, I. VAN DRIESSCHE, K. DE BUYSSER, Universiteit Gent, Gent, Belgium

CG:P18 **Effect of Methane Flow Rate on the Microstructural and Mechanical Properties of Silicon Carbide Thin Films Deposited by Reactive DC Magnetron Sputtering**
E. BASKURT, T. TAVSANOGLU, O. YUCEL, Dept. of Metallurgical & Materials Engineering, Istanbul Technical University, Istanbul, Turkey

SYMPOSIUM CH

ADVANCES IN ELECTRICAL, MAGNETIC AND OPTICAL CERAMICS

CH:P02 **Preparation and Characterization of Dielectric Behavior of A2/3Cu3Ti4O12 (A= Nd, Sm, Gd, Dy) Ceramics**
D. SZWAGIERCZAK, J. KULAWIK, Institute of Electron Technology, Cracow Division, Cracow, Poland

CH:P04 **Microwave Dielectric Properties of Doped Ba(Mg1/3Ta2/3)O3 Ceramics**
C. JINGA, E. ANDRONESCU, C. JINGA, S. JINGA, University "Politehnica" of Bucharest, Bucharest, Romania; A. IOACHIM, National Institute of Materials Physics, Bucharest-Magurele, Romania

CH:P10 **Polydomain Structure in PbTiO3 / PbZr0.2Ti0.8O3 Superlattices**
C. HUBAULT, M.G. KARKUT, N. LEMÉE, Lab. de Physique de la Matiere Condensée, Université de Picardie Jules Verne, Amiens, France; L. DUPONT, K. DJELLAB, Lab. de Réactivité et Chimie des Solides, LRCS UMR 6007, Amiens, France; A. PERRIN, Unité Sciences Chimiques de Rennes, UMR 6226 CNRS/Université de Rennes 1, Rennes, France; J. HOLC, M. KOSEC, Jozef Stefan Institute, Ljubljana, Slovenia

CH:P14 **Fabrication and Magnetorheological Characteristics of Hollow Fe3O4 Nanoparticles**
B.O. PARK, B.J. PARK, **H.J. CHOI**, Dept. of Polymer Science and Engineering, Inha University, Incheon, Korea

CH:P15 **Magnetic Properties and High Frequency Response of Single-Phase Z-type Strontium Cobalt Hexaferrite Prepared by Polymerizable Complex Method**
T. KIKUCHI, T. NAKAMURA, T. YAMASAKI, Graduate School of Energy, University of Hyogo, Himeji, Japan; M. NAKANISHI, T. FUJII, J. TAKADA, Okayama University, Okayama, Japan; Y. IKEDA, Research Institute of Production Development, Kyoto, Japan

CH:P16 **Effects of the Co-presence of Conflicting Magnetic Anisotropies in Ba Ferrite Particles**
G. BOTTONI, Dept. of Physics, University of Ferrara, Ferrara, Italy

CH:P17 **In-situ Measurement of Phase Transition of Layered Perovskite BaLn2Mn2O7**
H. NAKANO[1], N. ISHIZAWA[2], H. SATOH[1], **N. KAMEGASHIRA**[1], [1]Toyohashi University of Technology, Toyohashi, Japan; [2]Nagoya Institute of Technology, Japan

CH:P19 **Simplified Method of Measuring Magnetic Permeability Temperature Profile for RF Device Applications**
A. KURAMOTO[1], T. AOYAMA[2], T. KANIE[3], Y. NORO[1], **T. TAKEO**[1], [1]Mie University, Tsu, Mie, Japan; [2]Tokai Polytechnic College; [3]Aoyama Technology, Japan

CH:HP28 **Diffuse Phase Transition and Ferroelectric Properties of Ceramic Solid Solutions in New $SrTiO_3$-$BiScO_3$ System**
O.N. IVANOV, E.P. DANSHINA, Joint Research Centre "Diagnostics of structure and properties of nanomaterials" at Belgorod State University, Belgorod, Russian Federation

Focused Session CH-6

MULTIFERROICS

CH-6:P02 **Microstructure, Magnetic and Dielectric Properties of CoFe2O4-Pb(Fe1/2Ta1/2)O3-PbTiO3 Composites**
J. KULAWIK, P. GUZDEK, D. SZWAGIERCZAK, Institute of Electron Technology, Cracow Division, Cracow, Poland

CH-6:P04 **Synthesis of Some Aurivillius Phases in the Bi-Fe-Ti-O System by Wet Chemical Methods**
D. ZIENTARA, M.M. BUCKO, J. POLNAR, AGH - University of Science and Technology, Faculty of Materials Science and Ceramics, Cracow, Poland

CH-6:P05 **Eu0.5Ba0.5TiO3 - A New Magnetoelectric Multiferroics**
V. GOIAN, S. KAMBA, P. VANEK, M. SAVINOV, D. NUZHNYY, K. KNIZEK, Institute of Physics ASCR, Prague, Czech Republic; J. PROKLESKA, Charles University, Prague, Czech Republic

CH-6:P06 **Magnetic Properties of Some Aurivillius Phases in the Bi-Fe-Ti-O System**
M.M. BUCKO, C. KAPUSTA, AGH - University of Science and Technology, Faculty of Materials Science and Ceramics, Cracow, Poland

CH-6:P07 **Effects of Magnetic Ordering on Ferroelectric Polarization Switching Behavior of YMnO3 Epitaxial Thin Film**
K. MAEDA, T. YOSHIMURA, N. FUJIMURA, Graduate School of Engineering, Osaka Prefecture University, Osaka, Japan

CH-6:HP11 **The Interplay of Coupled Charge, Spin and Structure in the Presence of Dynamics in Magnetoelectric $EuTiO_3$**
L.J. SPALEK[1, 2], S.E. ROWLEY[2], M. SHIMUTA[3], T. KATSUFUJI[3], O. PETRENKO[4], C. MAZZOLI[5], V. SCAGNOLI[5], H. WALKER[5], M. ALLIETTA[6], M. SCAVINI[6], S.S. SAXENA[2], C. PANAGOPOULOS[1-7], [1]Institute of Electronic Structure and Laser, FORTH, Greece; [2]Cavendish Laboratory, University of Cambridge, UK; [3]Department of Physics, Waseda University, Japan; [4]Department of Physics, University of Warwick, UK; [5]ESRF, France; [6]Department of Physical Chemistry, University of Milan, Italy; [7]Department of Physics, University of Crete, Greece

CH-6:HP12 **Synthesis, Characterization, and Magnetic Properties of Multiferroic Chromates**
ANNA PIMENOV[1], P. MANDAL[2], V. TSURKAN[1], M. HEMMIDA[1], F. MAYR[1], H.-A. KRUG VON NIDDA[1], A.LOIDL[1], [1]Experimentalphysik V, EKM, University of Augsburg, Augsburg, Germany; [2]Saha Institute of Nuclear Physics, Calcutta, India

SYMPOSIUM CI

MAGNETIC AND TRANSPORT PROPERTIES OF OXIDES

CI:P02 **Comprehensive Study of Mn doped-ZnO Thin Films Grown by rf Sputtering and Ion Implantation Techniques**
A.G. ROLO, M.F. CERQUEIRA, F. OLIVEIRA, T. VISEU, J. AYRES DE CAMPOS, **T. DE LACERDA-ARÔSO**, M.I. VASILEVSKIY, Centro de Física, Universidade do Minho, Braga, Portugal; J.S. MARTINS, N.A. SOBOLEV, I3N and Dpto de Física, Universidade de Aveiro, Aveiro, Portugal; E. ALVES, ITN, Ion Beam Laboratory, Sacavém, Portugal

CI:P04 **Phase Coexistence in Nano-sized (La,Ca)MnO3 Manganites Investigated by Neutron Powder Diffraction and Magnetization Measurements**
M. FERRETTI, A. MARTINELLI, CNR-INFM-LAMIA, Genova, Italy; M.R. CIMBERLE, CNR-IMEM, Genova, Italy

CI:P05 **Multiferroic Mn-doped BaTiO3 Thin Films**
Y. SHUAI, D. BUERGER, L. LI, S. ZHOU, M. HELM, H. SCHMIDT, Inst. of Ion Beam Physics and Materials Research, Forschungszentrum Dresden-Rossendorf, Dresden, Germany

CI:P08 **Characterization of Mn-doped ZnO/Al2O3 Multilayered Nanostructures Grown by Pulsed Laser Deposition**
A. KHODOROV[1], S. LEVICHEV[1], O. KARZAZI[2], A. CHAHBOUN[1, 2], **A.G. ROLO**[1], N.P. BARRADAS[3], E. ALVES[3], C.J. TAVARES[1], D. EYIDI[4], J.-P. RIVIÈRE[4], M.F. BEAUFORT[4], M.J.M. GOMES[1], [1]Physics Centre, University of Minho, Braga, Portugal; [2]LPS, Physics Department, Faculty of Sciences, Fes, Morocco; [3]ITN, Ion Beam Laboratory, Sacavém, Portugal; [4]PhyMat, University of Poitiers, Futuroscope-Chasseneuil, France

CI:P09 **Electron Spin Resonance of Nickelate Lanthanum**
N. POIROT, LEMA, UMR 6157 CNRS-CEA, Université François Rabelais, Tours, France; R.A. SOUZA, Swiss Light Source, Paul Scherrer Institut, Villigen PSI, Switzerland

SYMPOSIUM CJ

SCIENCE AND TECHNOLOGY FOR SILICATE CERAMICS

CJ:P01 **Almost Complete Nitridation of Mesoporous Silica to Mesoporous Silicon (Oxy)Nitride with Ammonia**
F. HAYASHI, **M. IWAMOTO**, Chemical Resources Laboratory, Tokyo Institute of Technology, Yokohama, Japan

CJ:P02 **Microstructural Evolution of Fast Firing Floor Tiles Produced by Experimental Design Method**
A. KODA, G. ARSLAN, Anadolu University, Material Science and Engineering Dept., Eskisehir, Turkey

CJ:P03 **Use of Spodumene in Porcelain Stoneware Formulations**
T. AYDIN, Dept. of Material Science and Engineering, Anadolu University, Material Science and Engineering Dept., Eskisehir, Turkey; A. KARA, Ceramic Research Center, Eskisehir, Turkey

CJ:P06 **Fast Firing of Glazed Tiles Containing Paper Mill Sludge and Glass Cullet**
G. TONELLO, E. FURLANI, S. MASCHIO, D. MINICHELLI, S. BRUCKNER, Universita di Udine, Dipartimento Scienze e Tecnologie Chimiche, Udine, Italy; E. LUCCHINI, Universita di Trieste, Dipartimento di Ingegneria dei Materiali e delle Risorse Naturali, Trieste, Italy

CJ:P08 **Influence of Clayey Material on the Sintering Behaviour of Ceramics Containing Paper Sludge and Glass Cullet**
E. FURLANI, S. MASCHIO, G. TONELLO, E. ANEGGI, D. MINICHELLI, S. BRUCKNER, Università di Udine, Dipartimento di Scienze e Tecnologie Chimiche, Udine, Italy; E. LUCCHINI, Universitò di Trieste, Dipartimento di Ingegneria dei Materiali e delle Risorse Naturali, Trieste, Italy

CJ:P10 **Development of Synthetic Soapstone from Natural Soapstone Powder and Debris**
C.E.S. AMORIM, M.G.A. RANIERI, R.P. MOTA, M.A. ALGATTI, FEG-DFQ-UNESP, Guaratinguetá, SP, Brazil; E. CAMPOS, Escola de Especialistas da Aeronáutica, Guaratinguetá, SP, Brazil; F.C.L. MELO, AMR/IAE/CTA, Sao José dos Campos, SP, Brazil

CJ:P11 **Determining the Chemical Composition of Glass Phases in Sanitarywares by Quantititive X-ray Diffraction Analysis**
H. SARI, S. KURAMA, Anadolu University, Department of Materials Science and Engineering, Eskisehir, Turkey

CJ:P12 **Research-studies on Hard Porcelain Glazes**
A. GOLEANU, S.C. Apulum S.A., Alba Julia, Romania

CJ:P14 **Quantitative Infrared Thermography (IRT) and Holographic Interferometry (HI): Nondestructive Testing (NDT) for defects detection in the Silicate Ceramics Industry**
S. SFARRA, D. AMBROSINI, A. PAOLETTI, D. PAOLETTI, Dept. of Mechanical, Management and Energy Eng. (DIMEG), University of L'Aquila, Loc. Monteluco di Roio (AQ), Italy; C. IBARRA-CASTANEDO, A. BENDADA, X. MALDAGUE, Computer Vision and Systems Lab., Dept. of Electrical and Computer Engineering, Laval University, Quebec City, Canada

CJ:P15 **Visible and Infra-red Reflectance of Several Typical Japanese Glazes for Roof Tiles and Wall Tiles**
T. SUGIYAMA, H. KAKIUCHIDA, M. OHASHI, National Institute of Advanced Industrial Science and Technology, Materials Research Institute for Sustainable Development, Nagoya, Japan

CJ:P16 **Colour Properties of Y2O3-Al2O3-Cr2O3 Pigments as a Result of Precursors Morphology**
E. STOBIERSKA, M.M. BUCKO, J. LIS, **K. KUZMINSKA**, AGH - University of Science and Tech., Fac. of Materials Science and Ceramics, Cracow, Poland

CJ:P17 **New Red Chromium-calcium Titanate Red Ceramic Pigment**
C. GARGORI, R. GALINDO, M. LLUSAR, S. CERRO, A. GARCIA, G. MONROS, Dpt. Quimica Inorganica i Organica, Universitat Jaume I, Castellon, Spain

CJ:P18 **The Effect of Ferrochromium Fly Ash as a Pigment on Wall Tile Glaze**
Z. BAYER, N. AY, Anadolu University, Dept. of Materials Science and Eng., Eskisehir, Turkey

CJ:P21 **Crystallisation of Gahnit in CMAS Glass Forming System. Mechanism and Kinetics of the Process**
D. HERMAN, T. OKUPSKI, Koszalin University of Technology, Koszalin, Poland

CJ:HP22 **Investigation of Usage of Clay with Rheological Difficulties in Wall Tile**
B. TARHAN[1, 2], N. AY[1], C. YILDIZ[2], [1]Anadolu University, Material Science and Eng. Dept., Eskisehir, Turkey; [2]Seramiksan Turgutlu Seramik San.ve Tic.A.S., Manisa, Turkey

CJ:HP23 **The Investigation of Glassy Phase Compositions for Porcelain Tile Bodies**
M. TARHAN[1], F. KARA[2], F. AYDIN EGRI[3], [1]Kutahya Seramik, Kutahya, Turkey; [2]Anadolu University, Dept. of Materials Science and Engineering, Eskisehir, Turkey; [3]Yurtbay Seramik, Eskisehir, Turkey

CJ:HP24 **Using Ultrasonic Test Method in Characterization of Physical and Mechanical Properties of Porcelain Tile**
E. EREN, S. KURAMA, Anadolu University, Dept. of Materials Science and Engineering, Eskisehir, Turkey

CJ:HP25 **Using High Power Diode Laser for Repairing Sanitary-Ware Ceramics Surface Imperfections**
E. BASKUT, A. DOGAN, Anadolu University, Dept. of Materials Science and Engineering, Eskisehir, Turkey

CJ:HP26 **Kinetic Study on Controlled Crystallization of a Ca2ZnSi2O7 Phase in Materials Obtained from Vitrification of Metallurgical Slag and Recycled Soda Lime Glass**
E.I. CEDILLO GONZÁLEZ[1], J.J. RUIZ VALDÉS[1, 2], A. ÁLVAREZ MÉNDEZ[1], [1]Fac. de Ciencias Químicas, Univ. Autónoma de Nuevo León, Monterrey, N.L. México; [2]Centro de Innovación, Investigación y Desarrollo en Ingeniería y Tecnología CIIDIT, Univ. Autónoma de Nuevo León, Apodaca, N.L., México

CJ:HP27 **Reducing Pyroplastic Deformation of Sanitaryware Porcelain Bodies**
D. YESIM TUNÇEL[1], M. KERIM KARA[2], E. ÖZEL[3], [1]Anadolu University, Graduate School of Sciences, Ceramic Eng. Dept., Eskisehir, Turkey; [2]Duravit Yapý Ürünleri San. ve Tic. A.ª., Organize Deri Sanayi Bölgesi, Tuzla,Ýstanbul; [3]Anadolu University, Dept. of Materials Science & Eng., Eskisehir, Turkey

SYMPOSIUM CK

GEOPOLYMERS AND GEOCEMENTS: LOW ENVIRONMENTAL IMPACT CERAMIC MATERIALS

CK:P01 **Formation of Tetra-coordinated Aluminum in the Low Temperature Ashes**
P. STRAKA, Institute of Rock Structure and Mechanics ASCR, v.v.i., Prague, Czech Republic

CK:P02 **Geopolymerization of Meta-kaolins with Different Morphologies**
J. DEDECEK, J. Heyrovsky Institute of Physical Chemistry, Academy of Sciences of the Czech Republic, Prague, Czech Republic; **V. MEDRI**, S. FABBRI, ISTEC-CNR, Faenza, Italy; Z. SOBALIK, Z. TVARUZKOVA, J. Heyrovsky Institute of Physical Chemistry, Academy of Sciences of the Czech Republic, Prague, Czech Republic; A. VACCARI, Dipartimento di Chimica Industriale e dei Materiali, University of Bologna, Bologna, Italy

CK:P05 **Chemical and Biological Characterization of Geopolymers for Potential Application as Hard Tissue Prostheses**
M. CATAURO, F. BOLLINO, D. VERARDI, Dept. of Mechanical and Aerospace Engineering, Second University of Naples, Aversa, Italy; I. LANCELLOTTI, E. KAMSEU, C. LEONELLI, Dept. of Materials and Environmental Engineering, University of Modena and Reggio Emilia, Modena, Italy

SYMPOSIUM CL

REFRACTORIES: RECENT DEVELOPMENTS IN MATERIALS, PRODUCTION AND USE

CL:P01 **Thermal Shock Behavior of Zircon Based Refractories**
N.M. RENDTORFF, G. SUAREZ, Y.L. BRUNI, L.B. GARRIDO, **E.F. AGLIETTI**, CETMIC, Centro de Tecnología de Recursos Minerales y Cerámica (CONICET La Plata-CIC), M.B. Gonnet, Prov. de Buenos Aires, Argentina

CL:P02 **Calcium Zirconate as the Secondary Phase of Magnesia Refractories**
J. SZCZERBA, AGH - University of Science and Technology, Dept. of Ceramics, Cracow, Poland

CL:P03 **The Effect of Type of Spinel on the Thermal and Mechanical Properties of Magnesite Refractories**
A. CAKIR[1, 3], S. TURAN[2], A. SESVER[3], B. ÖZDEMIR[3], [1]Anadolu University, Graduate School of Sciences, Ceramic Engineering Program A.D, Eskisehir, Turkey; [2]AnadoluUniversity, Material Science and Engineering, Eskisehir, Turkey; [3]Kütahya Magnesite Company, Kütahya, Turkey

CL:P04 **Corrosion of an Alumina Refractory by Potassium Salts Refractory in High Temperature Combustion Environments**
NA LI, L. HUPA, P. YRJAS, M. HUPA, Process Chemistry Centre, Åbo Akademi University, Turku, Finland

CL:HP05 **Alumina-Mullite Refractories: Prototypal Components Production for Thermal Shock Tests**
A. BRENTARI*, M. LABANTI, F. MAZZANTI, C. MINGAZZINI, S. SANGIORGI, M. VILLA, ENEA, Engineering of Components and Processes Section, Faenza Research Centre, Faenza, Italy; S. MARTELLI, D. OLEVANO, Centro Sviluppo Materiali S.p.A., Rome, Italy

CL:HP06 **New Materials for Ceramic Tile Bodies**
GÜLFEM BYNAL, NURAN AY, Anadolu University, Department of Materials Science and Engineering, Eskisehir, Turkey

CL:HP07 **Examination of Microstructural Characteristics and Mechanical Properties of MgO-$MgAl_2O_4$ Composite Refractories with the Addition of ZrO_2-Y_2O_3**
TUBA AKSOY, CEMAIL AKSEL, Anadolu University, Department of Materials Science and Engineering, Eskisehir, Turkey

CM - 2nd International Conference

DISCLOSING MATERIALS AT NANOSCALE

CM:P01 **Room Temperature Fabrication of Highly Crystallized ZnO Thin Films on Polymer Substrates by using Nanosheet Seed Layer**
T. SHIBATA, T. OHNISHI, I. SAKAGUCHI, M. OSADA, K. TAKADA, T. SASAKI, NIMS & JST-CREST, Tsukuba, Ibaraki, Japan; T. KOGURE, The University of Tokyo, Tokyo, Japan

CM:P03 **Preparation of PVA/Sm2O3 Composites Nanofibers by Electrospinning Tecnique**
P. FRONTERA, C. BUSACCA, V. MODAFFERI, P.L. ANTONUCCI, Dip. Meccanica e Materiali, Università Mediterranea di Reggio Calabria; M. LOFARO, CNR-ITAE Institute, Messina, Italy

CM:P05 **Growth Kinetics of Nanowires in Glass-ceramic with Rare Earths for Optical Data Storage**
S. JINGA, E. ANDRONESCU, C. JINGA, Dept. of Science and Engineering of Oxide Materials, Politehnica University, Bucharest, Romania; E. ROTIU, L. IONESCU, C. MAZILU, National Glass Institute, Bucharest, Romania; E. PAVEL, Storex Technologies, Bucharest, Romania

CM:P06 **Irradiation of a Nanocomposite of Pseudoboehmite-nylon 6,12**
A.H. MUNHOZ Jr.[1], R. MENEGHETTI PERES[1], L.H. SILVEIRA[1], L.G. ANDRADE E SILVA[2], L.F. DE MIRANDA[1], [1]Universidade Presbiteriana Mackenzie, Sao Paulo, SP, Brasil; [2]Instituto de Pesquisas Energeticas e Nucleares - IPEN

CM:P07 **Synthesis of Photocatalytically Active Titania Nanoparticles**
O. MASHTALIR, S. POGULAY, M. VEROVCHUK, **A. GOGOTSI**, Materials Research Center, Kiev, Ukraine; M. KURTOGLU, I. KNOCKE, Y. GOGOTSI, Drexel University, Philadelphia, PA, USA

CM:P08 **Preparation of Perovskite-Type Niobate Nanosheets Having a Variable Thickness Composed of (NbO6)n Octahedron (n=4-6)**
Y. EBINA, K. AKATSUKA, T. SASAKI, National Institute for Materials Science, Tsukuba, Japan

CM:HP09 **Nanotoxicity of CdTe quantum dots**
YUANYUAN SU, MEI HU, CHUNHAI FAN, YAO HE, QINGNUAN LI, WENXIN LI, **QING HUANG**, Shanghai Institute of Applied Physics, CAS, Shanghai, China

CM:HP10 **Nanoscale Smart Materials Fabrication and Integration in Novel MEMS Structures**
I. AULIKA, M. CERRATO, M. CREPALDI, D. DA PRÀ, D. DE MARCHI, A. DI MONTE, M. PIZZI, P. CIVERA, Fondazione Istituto Italiano di Tecnologia, Genova,Italy

CN - 6th International Conference

ADVANCED INORGANIC FIBRE COMPOSITES FOR STRUCTURAL AND THERMAL MANAGEMENT APPLICATIONS

CN:P01 **Application of Fibre Produced by Plasma Spray Method in Cementitious Composition**
R. DICKUVIENE, K.BRINKIENE, J.CESNIENE, R. KEZELIS, Lithuanian Energy Institute, Kaunas, Lithuania

CN:P02 **Irradiation of a Polypropylene-glass Fiber Composite**
L.H. SILVEIRA[1], L.G. ANDRADE E SILVA[2], **L.F. MIRANDA**[1], [1]Universidade Presbiteriana Mackenzie, São Paulo, SP, Brazil; [2]Instituto de Pesquisas Energéticas e Nucleares (IPEN/CNEN-SP), Brazil

CN:P03 **Numerical Modelling of SiC-Matrix Composite Production by Liquid Silicon Infiltration Process**
A.V. KULIK, V.I. KULIK, YU.V. ZAGASHVILI, Baltic State Technical University, St.Petersburg, Russia; M.S. RAMM, S.E. DEMIN, Reseach-and-production company "Ceracom" Ltd, St.Petersburg, Russia

CN:P04 **Effect of Surface-modified Si-Al-C® Fibre Addition on Mechanical Properties of Silicon Carbide Composite**
H. MORIYASU, J. KITA, H. SUEMASU, S. KODA, K. ITATANI, Sophia University, Tokyo, Japan; I.J. DAVIES, Curtin University of Technology, Perth, Australia

CN:P06 **Study of Tribotechnical Properties of Cf/SiC-Composites in Combination with Different Riders**
V.I. KULIK, Baltic State Technical University, St.Petersburg, Russia; A.S. NILOV, S.E. RYABIKOV, L.I. SOLOV'EV, Reseach-and-production company "Ceracom" Ltd, St.Petersburg, Russia; A.P. GARSHIN, St.Petersburg State Polytechnical University, St.Petersburg, Russia; V.V. SAVICH, N.A. SHIPITSA, A.PH. ILYUSCHENKO, A.A. DMITROVICH, Powder metallurgy institute, Minsk, Republic of Belarus

Social Programme

Opening Concert
"NuovoTeatro Verdi"
Montecatini Terme

Monday June 7
21.30 - 23.30

The Opening Concert of CIMTEC 2010 will be performed by the "Strauss Konzert Orchestra" of Sophia, Bulgarie, at the "Nuovo Teatro Verdi" of Montecatini Terme. The Orchestra is composed by about sixty players selected from the three main orchestras of the Bulgarian Capital, i.e. the Rundfunksorchester, the Staatsoper Orchestra -well known for its cooperation with Herbert Von Karajan- and the Sophia Philarmonic Orchestra.

The programme will include pieces by: G. Bizet, G. Puccini, G. Verdi, P. Wagner, G. Rossini, W.A. Mozart, F. Lehar. Soprano: Silvia Pacini; Basso: Roberto Lorenzi; Tenori: Riccardo Buoncristiani e Nicola Mugnaini; Director Maestro Andrea Colombini.

Entrance ticket for non-registered companions: 25.00 EURO (subjected to place availability)

Tour to FIRENZE (FLORENCE)
THE CITY CENTER

Wednesday June 9
14.45 - 19.30

Visit to the City Center. An unrivalled itinery of art and culture in the heart of Florence, Cathedral (Santa Maria del Fiore), with its Cupola by Brunelleschi, the Campanile (Bell Tower) by Giotto, and the Baptistery with the famous Gates of Paradise by Ghiberti and Andrea Pisano, Piazza della Signoria dominated by imposing Palazzo della Signoria flanked by the Loggia of Lanzi and the beautiful Neptune Fountain, Ponte Vecchio, the Uffizi Gallery, etc.

Meeting point: Montecatini Terme Central Railway Station (Piazza Italia) at 14.45. The participation fee for not registered companions (subjected to place availability) is 20 EURO and includes transportation, English speaking hostess and local guide. Departure from Florence: Santa Maria Novella Railway Station at about 19.00. Return to Montecatini Terme at about 20.20.

Tour to PISA

Friday June 11
14.45 - 19.30

Shown is one of the loveliest architectural complexes in the world. On a large smooth lawn stands the Cathedral, the Baptistery and the famous Leaning Tower, a unique group of buildings in an unrivaled setting, the legacy of a past age which now belongs to all mankind. Along the southern side of the piazza lie the buildings of the old University, center of research and thought and famous for scientific disciplines.

Meeting point: main entrance of the Palazzo dei Congressi at 14.45. The participation fee for not registered companions (subjected to place availability) is 25 EURO and includes transportation, English speaking hostess and local guide. Return to Montecatini Terme at about 19.30.

Conference Dinner

"Lidò Le Panteraie"

Friday June 11
21.00 - 23.30

Entrance ticket for non-registered companions: 40.00 EURO (subjected to place availability)

Optional Tours

VOLTERRA

Monday June 7, afternoon
14.30 - 19.30

The "magic and mysterious" city of Volterra has its roots in three thousand years of history. It is possible to find evidence and traces from every historical period which gives the city a unique aspect.
The ancient city walls, the imposing Porta all'Arco, the Necropolis of Marmini and the numerous archeological finds conserved in the Museo Etrusco Guarnacci bear testimony of the Etruscan period.
The Theatre of Vallebona survives from the period of Augustus and suggests the importance of Volterra under Roman domination.

Today the city conserves above all a Medieval aspect not only for the 12th century city walls but also because of the urban layout with narrow streets, palaces, tower houses and churches.
The Renaissance had an important influence on Volterra but without changing the city's Medieval character. From this period are the superb palaces of Minucci Solaini, Incontri-Viti and Inghirami, which are built into the Medieval city, the imposing Fortezza Medicea and the Convent of San Girolamo.

Meeting point: entrance of the "Palazzo dei Congressi" at 14.30. Return to Montecatini Terme at about 19.30.
The participation fee (30 EURO) includes transportation, city entrance tax, English speaking hostess and local guide.

SIENA - SAN GIMIGNANO

Tuesday June 8, full day
9.00 - 19.30

Takes you through one of the most attractive landscapes of Central Italy, with wooded hills and valleys and the renowned Chianti area, famous throughout the world for its high-quality wines. Siena is a

treasure of history and art with its rich School of Sienese Painting, its marvellous Cathedral, the Palazzo Comunale rising majestically from the lovely fan-shaped Piazza del Campo, the Tower of Mangia, San Domenico, Piazza Salimbeni, Palazzo Ghigi, Piazza del Capitano, etc. It will leave unforgettable memories.

In the afternoon, visit to S. Gimignano, a small town famous for its numerous towers. It is a real gem of Medieval architecture which takes you back to the time of great battles and romantic love stories, as described by minstrels' tales.

Meeting point: entrance of the "Palazzo dei Congressi" at 9.00. Return to Montecatini Terme at about 19.30.
The participation fee (65 EURO) includes transportation, cities entrance taxes, English speaking hostess, local guides and lunch.

FIRENZE (FLORENCE)

Wednesday June 9, full day
9.00 - 19.30

In the morning, before lunch, visit to Poggio Imperiale, Piazzale Michelangelo and San Miniato Church.
In the afternoon visit to the City Center. An unrivalled itinery of art and culture in the heart of Florence, Cathedral (Santa Maria del Fiore), with its Cupola by Brunelleschi, the Campanile (Bell Tower) by Giotto, and the Baptistery with the famous Gates of Paradise by Ghiberti and

Andrea Pisano, Piazza della Signoria dominated by imposing Palazzo della Signoria flanked by the Loggia of Lanzi and the beautiful Neptune Fountain, Ponte Vecchio, the Uffizi Gallery, etc.

Meeting point: entrance of the "Palazzo dei Congressi" at 9.00. Return to Montecatini Terme at about 19.30.
The participation fee (60 EURO) includes transportation, city entrance tax, English speaking hostess, local guide and lunch.

THE "CINQUE TERRE"

Thursday June 10, full day
9.00 - 19.30

The Cinque Terre are one of the most uncontaminated areas in the Mediterranean Sea. Five miles of rocky coast among two promontories, thousands of kilometres of dry-laid stone walls, five small towns castled up on stone spurs in minuscule creeks. For their history and their position, the Cinque Terre have not suffered a massive expansion. The vineyards, typical of this area, have contributed to create a unique landscape with dry-laid stone walls, winding paths, enchanting beaches between cliffs and clear waters. Not only sea, the Cinque Terre offer beautiful footpaths with take breathing view, churches, oratories and old castles, diving, food and wines of first quality. The Cinque Terre are National Park and UNESCO protected territory since 1997. Riomaggiore, Corniglia, Manarola, Vernazza, Monterosso are the five villages that form the Cinque Terre, suspended between sea and land on sheer cliffs upon the beautiful sea.

Meeting point: entrance of the "Palazzo dei Congressi" at 9.00. Return to Montecatini Terme at about 19.30.
The participation fee (60 EURO) includes transportation, English speaking hostess and guide, and lunch.