

SCIENTIFIC PROGRAMME

12th INTERNATIONAL CERAMICS CONGRESS

OPENING SESSION

WELCOME ADDRESSES

Plenary Lectures

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

C:PL2 Ceramics in New Energy Technologies

Y.-M. CHIANG, Dept. of Materials Science and Engineering, Massachusetts Institute of Technology, Cambridge, MA, USA

C:PL3 Computer Modelling as a Tool in Materials Science

R. CATLOW, Department of Chemistry, University College London, UK

SYMPOSIUM CA

CERAMIC POWDERS: SYNTHESIS, PROCESSING AND SINTERING

Oral Presentations

Session CA-1

Powder Synthesis and Characterisation

CA-1:IL01 Hydrothermal Synthesis of Functional Ceramic Particles

J. HOJO, M. INADA, N. ENOMOTO, Dept. of Applied Chemistry, Kyushu University, Japan

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

CA-1:IL03 Nanoparticle Molybdenum Dioxide Catalyst for Direct Jet-A Solid Oxide Fuel Cells

M.G. NORTON, T. TURBA, K. WANG, J. AHN, School of Mechanical and Mats Engrg, Washington State University, Pullman, WA, USA; **J. BREIT**, Systems Concept Center, Boeing Commercial Airplanes, Everett, WA, USA; **O. MARIN-FLORES**, S. HA, Voiland School of Chemical Engineering and Bioengineering, Washington State University, Pullman, WA, USA

CA-1:IL04 Synthesis of Nitride (nano-)powders from Single-Source Pre-ceramic Precursors: Potentialities as Building Blocks of Nitride Workpieces by Additive-free Sintering

S. BERNARD¹, V. SALLES¹, S. FOUCAUD², A. MAITRE², P. MIELE¹, ¹Laboratoire des Multimateriaux et Interfaces (UMR CNRS 5615), Université Lyon1, Villeurbanne Cedex, France; ²SPCTS (UMR CNRS 6638), Faculté des Sciences et Techniques, Limoges, France

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

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

CA-1:L07 Hydrothermal Synthesis of (K,Na)NbO₃ Powders

B.-J. SHIN, S.-Y. CHOI, J.-B. LIM, J.-H. JEON, Korea Institute of Materials Science, Changwon, Korea

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

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

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

CA-1:IL11 Flame Synthesis of Ceramic Particles

Y. TAKAO, National Institute of Advanced Industrial Science and Technology (AIST), Nagoya, Japan

CA-1:L12 Detection Limit of XRD Phase Quantification

N. DOEBELIN, M. BOHNER, RMS Foundation, Bettlach, Switzerland

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

CA-1:L14 Preparation and Characterization of Rare Earth Doped SrTiO₃ Perovskite

A. ROCCA, L. LICCIULLI, D. DISO, A. CHIECHI, University of Salento, Lecce, Italy

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

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

CA-1:L17 Synthesis of Ceramic Materials from Waste Residues

S. PORTOFINO, S. GALVAGNO, ENEA, C.R. Portici, Portici (NA), Italy

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

CA-1:L19 Mechanochemical Treatment of Glycothermally Processed Aluminum Trihydroxides

K. SEZGIKER, Dept. of Chemical Engineering, METU, Ankara, Turkey; **B. MAVIS**, Dept. of Mechanical Engineering, HU, Ankara, Turkey; **G. GÜNDÜZ**, Dept. of Chemical Engineering, METU, Ankara, Turkey; **Ü. ÇOLAK**, Dept. of Nuclear Engineering, HU, Ankara, Turkey

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

CA-1:L21 Sol-gel Synthesis Assisted by Supercritical CO₂ - A Flexible Process for Ceramic Powder and Membrane Preparation

A. HERTZ¹, V. DURAND¹, S. SARRADE¹, C. GUIZARD², A. JULBE³, J.-C. RUIZ¹, F. CHARTON¹, ¹CEA, DEN/DTCD/SPDE/LFSM, Bagnols sur Ceze, France; ²Lab. de Synthèse et Fonctionnalisation des Céramiques, FRE 2770 CNRS-Saint-Gobain C.R.E.E., Cavailon, France; ³Institut Européen des Membranes, UMR 5635 CNRS-UMI-ENSCM, UM2-CC047, Montpellier, France

CA-1:L22 Size-controlled Hydrothermal Synthesis of Bismuth Sodium and Potassium Titanate Complex Perovskite Fine Particles and Application to Lead-free Piezoelectric Ceramics

A. MURAMATSU, **K. KANIE**, Y. NUMAMOTO, J. TANI, H. TAKAHASHI, IMRAM, Tohoku University & Fuji Ceramics Corporation, Sendai, Japan

CA-1:L23 Nano-sized BT Powder with High Tetragonality Synthesized by Hydrothermal Method

CHANGHAK CHOI, KUMJIN PARK, HYUNGJOON JEON, HYEYOUNG BAEG, SANGHYUK KIM, SANGHOON KWON, KANGHEON HUR, LCR Division, Samsung Electro-Mechanics Co. Ltd, Suwon, South Korea

CA-1:L24 Study on the Formation of Yttrium Aluminum Garnet by Positive and Reverse-strike Co-precipitation Method using Nitrates and Ammonium Hydrogen Carbonate

YUANHUA SANG, HONGLIU, YAOHUI LV, State Key Laboratory of Crystal Materials, Shandong University, Jinan, Shandong, China

CA-1:L25 Microemulsion Synthesis Strategies for ZrW₂O₈ Precursors

I. VURAL¹, N. KHAZENI¹, B. MAVIS², G. GÜNDÜZ¹, Ü. ÇOLAK², ¹Dept. of Chemical Engineering, METU, Ankara, Turkey; ²Dept. of Mechanical Engineering, HU, Ankara, Turkey

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-2 Colloidal Processing

CA-2:IL01 Strengthening with a Uniform Compressive Layer Produced by a Dip-Coating: A Study of Processing Variables

HAKSUNG MOON, R&D Department, Glidewell Dental Ceramics, Newport Beach, CA, USA; **F.F. LANGE**, Materials Department, University of California at Santa Barbara, CA, USA

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

CA-2:L03 Tape Casting of Boron Carbide

F. DE GENUA, V.M. SGLAVO, DIMTI, University of Trento, Trento, Italy

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, Università di Genova, Genova, Italy

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

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

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

CA-2:L08 Influence of Energy Input on Suspension Properties

A. MEYER, A. POTTHOFF, K. LENZNER, Fraunhofer IKTS, Dresden, Germany

CA-2:L09 Effects of Dispersion Surfactants on the Properties of Alumina - Carbon Nanotube (CNT) Nanocomposites

F. INAM¹, A. HEATON², P. BROWN², T. PEIJS^{1,3}, M.J. REECE^{1,3}, ¹Queen Mary University of London, Nanoforce Technology Ltd, London, UK; ²Dstl, Porton Down, Salisbury, Wiltshire, UK; ³Queen Mary University of London, School of Engineering and Materials Science, London, UK

CA-2:IL10 Interparticle Forces the Key to Colloidal Processing: from Porous Nanostructured Films to Transparent Polycrystalline Alumina

P. BOWEN¹, M. STUER¹, Z. ZHE², U. ASCHAUER³, ¹Laboratoire de Technologie des Poudres, EPFL, Lausanne, Switzerland; ²Dept. of Physical, Inorganic and Structural Chemistry, Arrhenius Lab., Stockholm University, Stockholm, Sweden; ³Dept. of Chemistry, Princeton University, Princeton, USA

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

CA-2:IL12 Colloidal Processing of Nanosized Titania Suspensions

R. MORENO, Instituto de Cerámica y Vidrio, CSIC, Madrid, Spain

CA-2:IL13 An Impact of Filter Pressing of Multicomponent Nanopowders on the Composite Microstructure

W. PYDA, N. MOSKALA, L. MIROWSKA, AGH University of Science and Technology, Faculty of Materials Science and Ceramics, Cracow, Poland

CA-2:IL14 Hierarchical Porous Materials through Microfluidics

A.R. STUDART, ETH Zurich, Department of Materials, Zurich, Switzerland

CA-2:IL15 Surface Characterization and Chemistry for Ceramic Powder Processing

T. SHIRAI, Nagoya Institute of Technology, Tajimi, Japan

Session CA-3 Shape Forming and Compaction Mechanisms

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

CA-3:IL02 New Developments in the Electrophoretic Deposition (EPD) of Structured Compacts and Coatings

R. CLASEN, Saarland University, Saarbrücken, Germany

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

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

CA-3:L05 Synthesis of Ytria Powder Using Urea Precipitation Method

HAIMING QIN, State Key Laboratory of Crystal Material, ShanDong University, Jinan, China

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

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

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 Engineering, Katholieke Universiteit Leuven, Heverlee (Leuven), Belgium

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

Session CA-4 Sintering and Related Phenomena

CA-4:IL01 Current and Pressure Effects in the Sintering and Reactive Sintering of Powders by the Spark Plasma Sintering Method

Z.A. MUNIR, S. KIM, Dept. of Chemical Engineering and Materials Science, University of California, Davis, CA, USA; M. MARTIN, Institute of Physical Chemistry, RWTH Aachen University, Aachen, Germany

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

CA-4:IL03 Sintering Kinetics of Powder Compact Containing Large Pores

JINGZHE PAN, FAN LI, Dept. of Engineering, University of Leicester, Leicester, UK

CA-4:IL04 Microstructural Anisotropy during Constrained Sintering

O. GUILLON, Technical University Darmstadt, Darmstadt, Germany

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

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

CA-4:L07 Modelling Multi-cracking in Thin Films during Constrained Sintering

FAN LI, JINGZHE PAN, Dept. of Engineering, University of Leicester, Leicester, UK

CA-4:L08 Contribution of Discrete Element Simulation to the Analysis of Ceramic Aggregated Powder Processing

P. PIZETTE¹, C.L. MARTIN¹, G. DELETTE², F. SANS³, D. BOUVARD¹, ¹Lab. SIMAP-GPM2, Grenoble Institute of Technology / Université Joseph Fourier / CNRS, Saint Martin d'Heres, France; ²CEA-Grenoble, DRT/LITEN/DTH/LEV, Grenoble Cedex, France; ³AREVA/MELOX DT/DIP, Bagnols sur Cèze, France

CA-4:L09 Production of Titanium Aluminium Carbide Ceramic and Sintering under Pressureless Condition

B.B. PANIGRAHI, J.J. GRACIO, TEMA, Dept. of Mechanical Engineering, University of Aveiro, Aveiro, Portugal; M.C. CHU, S.J. CHO, Division of Advanced Technology, Korea Research Institute of Standards and Science, Yuseong, Daejeon, Republic of Korea

CA-4:L10 Reactive Spark Plasma Sintering of Si3N4/SiC Composites

Z. TASILCUKUR¹, F. CINAR SAHIN², N. KUSKONMAZ¹, ¹Yildiz Technical University, Metallurgical and Matls Engrg Dept., Istanbul, Turkey; ²Istanbul Technical University, Metallurgical and Matls Engrg Dept., Istanbul, Turkey

CA-4:L11 Monitoring Constrained Sintering of Yttria Stabilised Zirconia Coatings Using Fluorescence Spectroscopy

I.P. SHAPIRO, PING XIAO, University of Manchester, Manchester, UK

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

CA-4:L13 The Role of Templating on Phase Transformation Kinetics and Microstructure Development in (Reactive) Templated Growth of Na0.5Bi0.5TiO3

S.Z. NERGIZ, E. SLAMOVICH, J. BLENDL, School of Materials Engineering, Purdue University, West Lafayette, IN, USA

CA-4:L14 Impedance Spectroscopy and Dilatometric Analysis of Zirconia-yttria Ceramic Solid Electrolytes During Sintering

R. MUCCILLO, E. N. S. MUCCILLO, Center of Science and Technology of Materials, Energy and Nuclear Research Institute, S. Paulo, SP, Brazil

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

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

CA-4:IL18 Multi-physics Simulation of Sintering

V. TIKARE, Sandia National Laboratories, Albuquerque, NM, USA

CA-4:L19 Contact Flattening vs. Pore Filling in Liquid Phase Sintering

SUK-JOONG L. KANG, DONG-YEOL YANG, Dept. of Materials Science and Engineering, Korea Advanced Institute of Science and Technology, Daejeon, Korea; SUNG-MIN LEE, Korea Institute of Ceramic Engineering and Technology, Gyeonggi-do, Korea

CA-4:L20 Flexural Strength Predicted from Observed Coarser Defects in Dry-pressed Ceramics

S. TANAKA, S. NAKAMURA, R. FURUSHIMA, K. UEMATSU, Nagaoka University of Technology, Nagaoka, Japan

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

CA-5:IL02 Pulsed Electric Current Sintering of Electrical Discharge Machinable Ceramics

J. VLEUGELS¹, O. MALEK^{1,2}, K. VANMEENSEL¹, S. HUANG¹, S. RAN¹, O. VAN DER BIEST¹, B. LAUWERS², K.U. Leuven, ¹Dept. of Metallurgy and Materials Engineering; ²Dept. of Mechanical Engineering, Leuven, Belgium

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

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

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

CA-5:IL06 Rapid Prototyping of Complex Ceramic Forms

N. TRAVITZKY, Dept. of Materials Science, Glass and Ceramics, University of Erlangen-Nuremberg, Erlangen, Germany

Poster Presentations**CA:P01 Effects of Aging on the Characteristics of Nd:YAG Nanopowders**

XIAOLIN ZHANG, DUO LIU, HONG LIU, JIYANG WANG, State Key Lab. of Crystal Materials, Shandong University, Jinan, Shandong, P.R. China

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 Luminescence of Phosphors in Strontium Aluminate System Co-doped by Eu2O3 and Dy2O3 and Prepared by Solid State Reaction Processing

S.YESILAY KAYA¹, B. KARASU², G. KAYA³, E. KARACAOGLU², ¹Anadolu University, Dept. of Glass, Eskisehir, Turkiye; ²Anadolu University, Dept. of Materials Science and Engineering, Eskisehir, Turkiye; ³Dumlupinar 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:P06 Structure and Properties of Al2O3-Si3N4 and Al2O3-SiAlON Composites

A. ZAWADA, A. KUNICKI, A. OLSZYNA, Warsaw University of Technology, Warsaw, Poland

CA:P07 Synthesis and Characterization of Pure and Doped Ba(Mg1/3Ta2/3)O3 Nanopowders

CRISTINA JINGA, E. ANDRONESCU, CORNELIA JINGA, C. MATEI, D. BERGER, S. JINGA, University "Politehnica" of Bucharest, Bucharest, Romania

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

Session CA-5**Innovation in Processing Equipment and Technology****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

CA:P11 Production of Foundry Filters Using Alumina from the Aluminum Anodizing Process

G.G. MORAES¹, B.G. OLIVEIRA², C. SILIGARDI³, D. SIGHINOLFI⁴, M.D.M. INNOCENTINI⁵, A.A. MARTINS DE OLIVEIRA Jr.¹, D. HOTZA¹, **A.P. NOVAES DE OLIVEIRA**¹, ¹Federal University of Santa Catarina (UFSC), Florianópolis (SC), Brazil; ²University of the Joinville Region (UNIVILLE), Joinville (SC), Brazil; ³University of Modena and Reggio Emilia (UNIMORE), Modena, Italy; ⁴Expert System Solutions S.r.l., Advanced Laboratory Equipment, Modena, Italy; ⁵University of Ribeirão Preto, São Carlos - SP, Brazil

CA:P12 Role of Urea on the Morphology of Flame-sprayed ZnO Powders

R.M. TROMMER, A.K. ALVES, C.P. BERGMANN, Federal University of Rio Grande do Sul, Porto Alegre, RS, Brazil

CA:P13 Synthesis and Characterization of Fine Tungsten Powders via the Mechanochemical Route

D. AGAOGULLARI, A. GENC, M.L. OVECOGLU, I. DUMAN, Istanbul Technical University, Dept. of Metallurgical and Materials Engineering, Istanbul, Turkiye

CA:P14 Studies on the Production and Characterization Investigations of (W_{0.80}Ti_{0.20})C Powders

A. GENC, D. AGAOGULLARI, I. DUMAN, M.L. OVECOGLU, Istanbul Technical University, Dept. of Metallurgical and Materials Engineering, Istanbul, Turkiye

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. SINAËI 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:P18 Low Temperature Synthesis of Ba₃Ta₂ MgO₉ (BMT), Ba₃Nb₂MgO₉ (BMN) by Wet Chemical Route

M.Y. KHALADKAR, N.S. SARAF, Dept. of Applied Science of Engineering Pune, India

CA:P19 Ultrafine Powders Based on the MgO-Al₂O₃-SiO₂-ZrO₂ System

O. SKORODUMOVA, Ukrainian Engineering-Pedagogical Academy, Kharkov, Ukraine

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:P21 Interactions of Organic Additives in Alumina Slurries

C. ROEDEL, TU Dresden, Dresden, Germany; **A. POTTHOFF**, Fraunhofer IKTS, Dresden, Germany

CA:P22 Extruding and Sintering of Silicon Nitride Ceramics with Hydraulic Alumina Binder as Sintering Additive

T. NAGAOKA, C. DURAN*, H. HYUGA, K. WATARI, AIST, Nagoya, Japan; *Gebze Inst. Tech., Gebze, Turkey

CA:P23 Description of Carbides Sintering Process using Kuczynski and Frenkel Sintering Models

A. GUBERNAT, AGH University of Science and Technology, Faculty of Materials Science and Ceramics, Cracow, Poland

CA:P24 Two-step Sintering of Yttria-stabilized Zirconia: Grain Growth and Ionic Conductivity

E.N.S. MUCCILLO, R. MUCCILLO, Energy and Nuclear Research Institute, S. Paulo, SP, Brazil

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:P30 Studies on Preparation of Transparent Yttria and Magnesium Aluminate Ceramics

A. WAJLER, H. WEGLARZ, H. TOMASZEWSKI, Z. LIBRANT, Institute of Electronic Materials Technology, Warsaw, Poland

CA:P31 Microwave Sintering of Mg and Electroless Ni Plated WC Powders

A. EROL, **A. YONETKEN**, M. ERDOGAN, Afyon Kocatepe University, Metal Education Department, Afyonkarahisar, Turkey

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. RAMÍREZ¹, R. PARRA², M.M. REBOREDO², J.A. VARELA¹, M.S. CASTRO², L. RAMAJO², ¹Chemistry Institute of São Paulo State University (UNESP), Araraquara, Brazil; ²Institute 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

SYMPOSIUM CB

NOVEL ROUTES FOR CERAMICS SYNTHESIS AND PROCESSING

Oral Presentations

Session CB-1

Soft Solution Processing

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

CB-1:IL02 Novel Hydrothermal Solution Routes of Advanced Nanomaterials and Nanoceramics Processing

K. BYRAPPA, DOS in Geology, University of Mysore, Mysore, India

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

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

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

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

CB-1:IL07 Glycol-based Precursors in the Synthesis of Mesoscopically Organized and Porous Nanoparticles

N. HUESING, Inorganic Chemistry, Ulm University, Ulm, Germany

CB-1:IL08 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

CB-1:IL09 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.**, Physical and Life Sciences, Lawrence Livermore Nat. Lab., Livermore, CA, USA

CB-1:IL10 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 Thermostructuraux, University of Bordeaux 1, Pessac, France

CB-1:IL11 Synthesis of Monodispersed Plate-like CeO₂ Particles by Mild Solution Process

S. YIN, **Y. MINAMIDATE**, **T. SATO**, **IMRAM**, Tohoku University, Sendai, Japan

CB-1:IL12 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

CB-1:IL13 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

CB-1:IL14 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 Científicas de Materiales de Barcelona (CSIC), Bellaterra, Spain

CB-1:IL15 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

CB-1:IL16 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

CB-1:IL17 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

CB-1:IL18 Soft Solution Processing of Ceramic Powders and Films: Preparation, Properties and Application

YANFENG GAO, **HONGJIE LUO**, Shanghai Institute of Ceramics, CAS, Shanghai, China

CB-1:IL19 Nano-Boehmite Production and Isocyanate Functionalization of Nano-Boehmite for the Synthesis of Polyurethane Based Coating

G. EROGLU, **U. COLAK**, **B. MAVIS**, **G. GUNDUZ**, Hacettepe Universitesi, Ankara, Turkey; Orta Dogu Teknik Universitesi, Ankara, Turkey

Session CB-2

Near-Net-Shape Techniques

CB-2:IL01 Direct Writing of Metallic, Oxide, and Polymeric Functional Architectures

J.A. LEWIS, Materials Research Lab., University of Illinois, Urbana, IL, USA

CB-2:IL02 Ceramic Injection Moulding for Microtechnology

J. HAUSSELT, Karlsruhe Institute of Technology and IMTEK, University of Freiburg, Germany

Session CB-3

Polymer-based Processing

CB-3:IL01 Quo Vadis Polymer-derived Ceramics? Novel Insights in Basic Science and Applications

R. RIEDEL, Darmstadt Technical University, Darmstadt, Germany

CB-3:IL02 Processing of SiCO from Polysiloxane-based Preceramic Polymers

G.D. SORARU, Dip. Ingegneria dei Materiali, Università di Trento, Trento, Italy

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 Mats Science and Eng., Tianjin University, Tianjin, P.R. China

CB-3:IL04 Electronic Behavior of Polymer-derived Ceramics

LINAN AN, Advanced Materials Processing and Analysis Center, University of Central Florida, Orlando, FL, USA

CB-3:IL05 Nanostructured Boron- and Silicon-based Mesoporous Materials via Preceramic Polymer Nanocasting

X.-B. YAN, **P. DIBANDJO**, **O. MAJOLET**, **J. ALAUZUN**, **S. BERNARD**, **P. MIELE**, LMI - UMR 5615, Université Lyon 1, Villeurbanne Cedex, France

CB-3:IL06 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

CB-3:IL07 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. WOLTERS DORF**, Max-Planck-Institut für Mikrostrukturphysik, Halle, Germany

CB-3:IL08 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. MAÏTRE**, Laboratoire Science des Procédés Céramiques et de Traitements de Surface - UMR CNRS 6638 - Université de Limoges, Limoges Cedex, France

Session CB-4

Spark Plasma Synthesis and Processing

CB-4:IL01 Modelling of Spark Plasma Sintering Process

E. OLEVSKY, Dept. of Mechanical Engineering, San Diego University, San Diego, CA, USA

CB-4:IL02 Shaping of Nanostructured Materials or Coatings Through Spark Plasma Sintering

C. ESTOURNÈS¹, **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 AND **CH. LAURENT**⁶, ¹CNRS, Institut Carnot Cirimat, Toulouse Cedex, France; ²Université de Toulouse, UMR CNRS-UPS-INP 5085, CIRIMAT, INPT-ENSIACET, Toulouse cedex, France; ³ICMCB-CNRS, Université Bordeaux, Pessac Cedex, France; ⁴Dept. of Materials Engineering, Technion-Israel Institute of Technology, Haifa, Israel; ⁵LMI, UMR CNRS 5615, Université Claude Bernard-Lyon 1, Villeurbanne Cedex, France; ⁶Université de Toulouse, UMR CNRS-UPS-INP 5085, CIRIMAT, Université Paul-Sabatier, Toulouse cedex, France

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

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

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

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

CB-4:L07 Properties of Al₂O₃-ZrO₂-TiO₂ Composites Prepared by Spark Plasma Sintering

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CB-4:L08 Effects of the SPS Parameters on the Reactive Sintering of a Cobalt Aluminate Powder

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CB-4:L09 Spark Plasma Sintering of AION Ceramics

H.E. KANBUR, F.C. SAHIN, O. YUCEL, G. GOLLER, Istanbul Technical University, Istanbul, Turkey

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, Cavailon, France

CB-4:L11 Production and Characterisation of Boron Carbide - Titanium Diboride Ceramics by the Spark Plasma Sintering Method

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Session CB-5

Microwave Processing

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

CB-5:IL02 Synthesis of High Performance Ceramics Materials via Microwave Processing

H. TAKIZAWA, Dept. of Applied Chemistry, Tohoku University, Sendai, Japan

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

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

CB-5:L05 Microwave Assisted Reaction Sintering of ZrSiO₄/α-Al₂O₃ Mixture

O. ERTUGRUL, S. AKPINAR, I.M. KUSOGLU, K. ONEL, Dept. of Metallurgical and Materials Engineering, Dokuz Eylul University, Buca-Izmir, Turkey

Session CB-6

Bio-inspired and Bio-enabled Processing

CB-6:IL01 Formation of Hierarchically Structured Crystals through Bio-inspired Processing

H. IMAI, Faculty of Science and Technology, Keio University, Yokohama, Japan

CB-6:IL02 Integration of Bio-Enabled and Synthetic Syntheses of Functional 3-D Nanostructured Assemblies

K.H. SANDHAGE^{1,2}, S.C. DAVIS¹, J.P. VERNON¹, A.S. GORDON¹, J.D. BERRIGAN¹, S. SHIAN^{1,2}, Y. FANG¹, Y. CAI¹, M.B. DICKERSON^{1,3}, R.R. NAIK³, S.R. MARDER^{2,1}, N. KROGER^{2,1}, ¹School of Materials Science and Engineering, Georgia Institute of Technology, Atlanta, GA, USA; ²School of Chemistry and Biochemistry, Georgia Institute of Technology, Atlanta, GA, USA; ³Materials and Manufacturing Directorate, Air Force Research Laboratory, Wright Patterson Air Force Base, OH, USA

CB-6:IL03 Bio-inspired Synthesis of Oxide-based Ceramics

J. BILL, Inst. for Materials Science, University of Stuttgart, Stuttgart, Germany

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

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-7

Hybrid Materials

CB-7:IL01 Novel Strategies for the Design of Nanostructured Advanced Porous Materials

C. SANCHEZ, Lab. de Chimie de la Matière Condensée de Paris, CNRS, Université Pierre et Marie Curie, Collège de France, Paris, France

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

CB-7:IL03 Co-assembly of Ceramic Nanosheets with Drug Molecules for Nanomedicine

J.H. CHOY, CINBM - WCU, Dept. of Chemistry and Nano Science, Ewha Womans University, Seoul, Korea

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

CB-7:IL05 Panoscopic Assembling of Ceramic Materials for High Performance UV-ray Shielding Application

T. SATO, X. LIU, S. YIN, IMRAM, Tohoku University, Sendai, Japan

CB-7:IL06 Energy Generation and Storage Applications of TiO₂ Nanotubular Arrays by Atomic Layer Deposition and Nanotemplating

HYUNJUNG SHIN, School of Advanced Materials Engineering, Kookmin University, Seoul, Korea

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 Matière Condensée de Paris, Université Pierre et Marie Curie-UPMC and CNRS, Collège de France, Paris, France; P.M. AGUIAR, D. SAKELLARIOU, Lab. de Structure et Dynamique par Résonance Magnétique, Service Interdisciplinaire sur les Systèmes Moléculaires et les Matériaux (Lab. Claude Frejaccques, CNRS URA 331) DSM/IRAMIS/SIS2M, CEA Saclay, Gif-sur-Yvette, France

CB-7:L08 Thermal and Dimensional Stability of Filled Hybrid Foam

MING Y. CHEN¹, CHENGGANG CHEN^{1,2}, ¹Air Force Research Laboratory, Materials & Manufacturing Directorate, Wright-Patterson AFB, OH, USA; ²University of Dayton Research Institute, Dayton, OH, USA

CB-7:L09 In-situ TEM Observation of the Crystallization Process for Li NbO₃ and NaNbO₃

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CB-7:L10 Ceramic/Polymeric Hybrids with Reduced Coefficients of Thermal Expansion

CHENGGANG CHEN^{1,2}, K.H. HOOS^{1,3}, MING Y. CHEN¹, ¹Air Force Research Laboratory, Materials & Manufacturing Directorate, Wright-Patterson AFB, OH, USA; ²University of Dayton Research Institute, Dayton, OH, USA; ³Southwestern Ohio Council for Higher Education, USA

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

CB-7:L12 Synthesis and Characterization of Silica/Polyamide-imide Composites for Enamel Wire

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Session CB-8 Porous Ceramics

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 Matière Condensée de Paris, France; F. GUENNEAU, A. NOSSOV, Université 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 Matis, CR-INSTM, University of Calabria, Arcavacata di Rende (CS), Italy

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

CB-8:IL03 Hybrid Foams, Colloids and Beyond: Integrative Chemistry

R. BACKOV, CRPP-UPR CNRS 8641, Pessac, France

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

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

CB-8:L06 Synergy of Different Types of Boron-containing Wastes for the Production of Lightweight Aggregates

A. CHRISTOGEROU¹, T. KAVAS², G.N. ANGELOPOULOS¹, P. NIKOLOPOULOS³, ¹Lab. of Materials and Metallurgy, Dept. of Chemical Engineering, University of Patras, Rio, Greece; ²Dept. of Materials Science and Engineering, Afyon Kocatepe University, Afyonkarahisar, Turkey; ³Lab. of Ceramics and Composite Materials, Dept. of Chemical Engineering, University of Patras, Rio, Greece

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

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

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-9

Ultra-high Pressure Ceramics Synthesis and Processing

CB-9:IL01 Shock Wave and Ultra-high-pressure Synthesis of Ceramic Powders

T. SEKINE, National Institute for Materials Science, Tsukuba, Japan

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

CB-9:IL03 High-purity Boron Nitrides: Ultra-high-pressure Synthesis and Properties

T. TANIGUCHI, National Institute for Materials Science (NIMS), Ibaraki, Japan

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

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

Session CB-10

Other Nontraditional Processing Routes

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

CB-10:IL02 Heterogeneous Sol-gel Systems - derived Ceramics

O.A. SHILOVA, I.V. Grebenschikov Institute for Silicate Chemistry of RAS, St. Petersburg, Russia

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

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

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

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. GHOLEN, McGill University, McGill Metals Processing Centre (MMPC), Montreal, Canada

Poster Presentations

CB:P01 Silica Tube Gel Manufactured by Electrolysis

N. FURUYA, University of Yamanashi, Kofu, Japan

CB:P02 Polyol Mediated Route of Porous Hafnium Oxide Nanostructures

M. VILLANUEVA-IBÁÑEZ, M.-A FLORES-GONZÁLEZ, Laboratorio de Nanotecnología y BioElectroMagnetismo Aplicado, Universidad Politécnica de Pachuca, Hidalgo, Mexico; M.-A. HERNÁNDEZ-PÉREZ, H.J. DORANTES-ROSAS, Escuela Superior de Ingeniería Química e Industrias Extractivas, Instituto Politécnico Nacional, D.F., MEXICO; H. MONTIEL-SÁNCHEZ, Grupo de Materiales y Nanotecnología, CCADET-UNAM, Mexico

CB:P03 Diametral Compression Testing of Mullite Green Bodies Prepared by Pre-gelling Starch Consolidation

M.H. TALOU, A.G. TOMBA MARTINEZ, M.A. CAMERUCCI, Laboratorio de Materiales Estructurales, División Cerámicos, INTEMA-CONICET, Fac. de Ingeniería/UNMdP, Mar del Plata, Argentina

CB:P04 Influence of the Starch Type on the Mullite Pre-firing Microstructure Developed by Pre-gelling Starch Consolidation

M.H. TALOU, M.A. CAMERUCCI, Laboratorio de Materiales Estructurales, División Cerámicos, INTEMA-CONICET, Fac. de Ingeniería/UNMdP, Mar del Plata, Argentina

CB:P05 Protein Forming Method: Rheological Behavior of Albumin-mullite Aqueous Suspensions

M.L. SANDOVAL, A.G. TOMBA MARTINEZ, M.A. CAMERUCCI, Laboratorio de Materiales Estructurales, División Cerámicos, INTEMA-CONICET, Fac. de Ingeniería/UNMdP, Mar del Plata, Argentina

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.C. SAHIN, Adnan Tekin Research Center of Materials Science and Production Technologies, Istanbul Technical Univ., Istanbul, Turkey

CB:P10 Functional Biogenic Surfactants as Complexing and Structure Directing Agents

N. BACCILE, LCMCP, CNRS, UPMC, Collège de France, Paris, France

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:P12 New Materials Tailored from Diatoms

K. KONOPKA, Warsaw University of Technology, Faculty of Materials Science and Engineering, Warsaw, Poland

CB:P13 Highly Porous Hydroxyapatite Ceramics for Engineering Applications

H. IVANKOVIC, S. ORLIC, D. KRANZELIC, E. TKALCEC, University 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, DFO-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, DFO-UNESP, Guaratinguetá, SP, Brazil; E.C. CAMPOS, E.E. LUCENA, Escola de Especialistas da Aeronáutica, Guaratinguetá, SP, Brazil

CB:P16 Porous Silicon Carbide for Biomedical Applications

V.L. ARANTES, C.L.M. GUSMAO, C.P. SOARES, Universidade do Vale do Paraíba, Sao José dos Campos, 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:P21 Effect of Flour Source on Sintering and Crystallization of Fluoro-Phlogopite Glass-ceramic

A. FAEGHIANIA, M.G. KAKROUDI, Dept. of Material Science and Engineering, University of Tabriz, Tabriz, Iran

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, ESIOIE, National Polytechnic Institute, Mexico city, Mexico; Faculty of Metallurgy, UASLP, San Luis Potosí, 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 LEITE¹, F. MARON VICHI¹, E. JOAQUIM DE SOUZA VICHI^{2,3}, ¹Chemistry Institute, University of Sao Paulo, Sao Paulo, Brazil; ²Chemistry Institute, State University of Campinas, Campinas, Brazil; ³in memoriam

CB:P24 Lithium Disilicate Glass-ceramic Obtained by the Silica Extracted from Rice Husk

F. ANTUNES SANTOS¹, C. DOS SANTOS¹, D. RODRIGUES JR¹, D. RIBEIRO RICCI LAZAR², DAYANE FAVIERO DE CASTRO¹, DALTRO GARCIA PINATTI¹, ROSA ANA CONTE¹, ¹EEL - USP (Escola de Engenharia de Lorena da Univ. de Sao Paulo), Sao Paulo, Brazil; ²IPEN (Instituto de Pesquisas Energéticas e Nucleares), Brazil

CB:P25 Intragrain Compositional Gradient Barium Strontium Titanate Ceramics Fabricated by a Sol-assisted Sintering Technology

TINGTING WANG, DENGREN JIN, JINRONG CHENG, JUAN LI, School of Materials Science and Engineering, Shanghai University, Shanghai, China

CB:P26 Microwave Synthesis of Silicon Carbide; Rapid Processing and Nanowire Formation

L. CARASSITI¹, I. MacLAREN², P. DOBSON^{3,4}, P. HARRISON⁴, D.H. GREGORY¹, ¹WestCHEM, Dept. of Chemistry; ²Dept. of Physics; ³Dept. of Electrical Engineering; ⁴Dept. of Mechanical Engineering, University of Glasgow, Glasgow, UK

Focused Session CB-11

**SELF-PROPAGATING
HIGH-TEMPERATURE SYNTHESIS
OF CERAMICS**

Endorsed by SHS-AS - International Association on Self-propagating High-temperature Synthesis (WAC Member)

Oral Presentations

Session CB-11.1

New Methods for Investigation of SHS

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

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

CB-11.1:IL03 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

CB-11.1:IL04 Emission Phenomena in Waves of SHS

Yu.M. MAKSIMOV, A.I. KIRDYASHKIN, V.F. TARASENKO, V.G. SALAMATOV, E.A. SOSNIN, R.M. GABBASOV, Dept. for Structural Macrokinetics TSC SB RAS, Institute of High Current Electronics SB RAS, Tomsk, Russia

Session CB-11.2

Fundamentals of SHS

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

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 Microkinetics and Materials Science, Chernogolovka, Moscow region, Russia

CB-11.2:IL03 Thermite-based High-energy-density LCA-coupled Structural Energetic Materials

A. FREDENBURG, T. McCOY, A. JAKUS, J. COCHRAN, N. THADHANI, School of Matls Sci. and Eng., Georgia Inst. of Technology, Atlanta, GA, USA

CB-11.2:IL04 Simulation of Gasless Combustion of Mechanically Activated Solid Powder Mixtures

S. RASHKOVSKIY, Inst. for Problems in Mechanics of RAS, Moscow, Russia

CB-11.2:IL05 Gasless Combustion: Physical Modelling of the Process

A.S. ROGACHEV, Institute of Structural Microkinetics and Materials Science, RAS, Chernogolovka, Moscow region, Russia

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

CB-11.2:IL07 Reaction Kinetics and Phase Formation Laws in Mo/Si Macro/nanoscale Diffusion Couple

M.A. AGHAYAN, Yerevan State University & A.B. Nalbandyan Institute of Chemical Physics NAS RA, Yerevan, Armenia; H.A. CHATILYAN, A.B. NALBANDYAN, Institute of Chemical Physics NAS RA, Yerevan, Armenia; S.L. KHARATYAN, Yerevan State University & A.B. Nalbandyan Institute of Chemical Physics NAS RA, Yerevan, Armenia

CB-11.2:IL08 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

Session CB-11.3 SHS of Ceramic Powders

CB-11.3:IL01 Composites Produced by SHS Method - Current Development and Future Trends

J. LIS, AGH University of Science and Technology, Faculty of Materials Science and Ceramics, Cracow, Poland

CB-11.3:IL02 Carbon Combustion Synthesis of Ceramic Oxide Nanopowders

K. MARTIROSYAN, Dept. of Chemical and Biomolecular Engineering, University of Houston, Houston, TX, USA

CB-11.3:IL03 Combustion Synthesis of Nanosized Tungsten Carbide Powders

H.I. WON, H.H. NERSISYAN, C.W. WON, Rapidly Solidified Materials Research Center (RASOM), Chungnam National University, Daejeon, South Korea

CB-11.3:IL04 Double SHS of W2B5 Powder from CaWO4 and B2O3

S. YAZICI, B. DERIN, Metallurgical and Materials Engineering Dept., Istanbul Technical University, Maslak, Istanbul, Turkey

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

CB-11.3:IL06 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

CB-11.3:IL07 Combustion Synthesis of Tungsten Containing Ceramic Materials

Kh.V. MANUKYAN^{1,2}, S.L. KHARATYAN^{1,2}, R.A. MNATSAKANYAN², A. ZURNACHYAN², A. VOSKANYAN¹, V. DANGHYAN¹, ¹Yerevan State University, Yerevan, Armenia; ²A.B. Nalbandyan Institute of Chemical Physics NAS, Yerevan, Armenia

CB-11.3:IL08 LED Phosphors: Combustion Synthesis and Characterization

H.H. NERSISYAN, C.W. WON, RASOM, Chungnam National University, Daejeon, South Korea

CB-11.3:IL09 Catalyst-induced Vapor-solid Growth Route for Synthesis of B₄C 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 CB-11.4 Direct Production of SHS Products and their Characterization

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

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

CB-11.4:IL03 Combustion Synthesis of SiAlON Ceramics

K.L. SMIRNOV, Institute of Structural Macrokinetics and Materials Science, RAS, Chernogolovka, Moscow Region, Russia

CB-11.4:IL04 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

CB-11.4:IL05 About Influence of Green Mixture Morphology on the Macrostructure of Porous SHS Products

A.S. MAZNOY, A.I. KIRDYASHKIN, YU.M. MAKSIMOV, Dept. of Structural Macrokinetics of Tomsk Science Centre of the Siberian Branch RAS, Tomsk, Russia

CB-11.4:IL06 Catalytic Properties of SHS Products

G.G. XANTHOPOULOU, Institute of Materials Science, "Demokritos" National Center for Scientific Research, Athens, Greece

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 CB-11.5 Industrialization and Application of SHS Ceramics

CB-11.5:IL01 Mass-forced SHS Technology of Ceramic Materials

O. ODAWARA, Tokyo Institute of Technology, Yokohama, Japan

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

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

CB-11.5:IL04 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

CB-11.5:IL05 Development of Science Intensive Production Based on Important Scientific Discoveries

A.G. MERZHANOV, ISMAN, Chernogolovka, Moscow region, Russia

CB-11.5:IL06 Past and Current Accomplishments in Production of Ceramic Powders and Structures by Self-Propagating High-Temperature Synthesis Method

J.A. PUSZYNSKI¹, A. DEGRAW², ¹South Dakota School of Mines and Technology, Rapid City, SD, USA; ²Advanced Material Technologies, Inc., Morristown, TN, USA

Poster Presentations

CB-11:P01 LiFePO4 Nanoparticles Synthesis by Impregnated Layer Combustion Method

S.J. KIM, H.H. NERSISYAN, C.W. WON, RASOM, Chungnam National University, Yuseong, Daejeon, Korea

CB-11:P02 Utilization of NbC Nanoparticles Obtained by Reactive Milling in 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, Brazil; R. TOMASI, UFSCAR-DEMa Sao Carlos, SP, Brazil

CB-11:P03 Synthesis and Luminescent Properties of Submicrometer Size Green Phosphor Powder for PDP Application

H.H. YOO, H.H. NERSISYAN, C.W. WON, RASOM, Chungnam National University, Yuseong, Daejeon, Korea

CB-11:P04 Combustion Process of Tantalum Powders for Electrolytic Condenser

H.S. WON, H.I. WON, H.H. NERSISYAN, C.W. WON, RASOM, Chungnam National University, Yuseong, Daejeon, Korea

CB-11:P05 Synthesis of Gradient Materials in Ti-Al System Containing Nanostructure Layer

G. ONIASHVILI, G. ZAKHAROV, Z. ASLAMAZASHVILI, I. JANELIDZE, F. TAVADZE, Institute of Metallurgy and Materials Science, Tbilisi, Georgia

Focused Session CB-12 LAYERED AND FUNCTIONALLY GRADED MATERIALS

Endorsed by LGM-AS - International Association for Layered and Graded Materials (WAC Member)

Oral Presentations

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

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

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

CB-12.1:IL04 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

CB-12.1:IL05 Mechanical Evaluation of Functionally Graded Powder Metallurgy Components

O. CARVALHO, D. SOARES, F.S. SILVA, Dept. of Mechanical Engineering, University of Minho, Azurém, Guimarães, Portugal

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

CB-12.1:IL07 Effects of Strain-graded Plastic Deformation on Mechanical Properties of Metals

K. MATSUURA, M. OHNO, Division of Mats Science and Engrg, Hokkaido University, Sapporo, Hokkaido, Japan

CB-12.1:IL08 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

CB-12.1:IL09 High Reliability Alumina-silicon Carbide Laminated Composites

F. DE GENUA, V.M. SGLAVO, DIMTI, University of Trento, Trento, Italy

CB-12.1:IL10 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

Session CB-12.2

Layered and Graded Thin and Thick Coatings

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

CB-12.2:IL02 Fabrication of Porous Intermetallic Thick Films by Metallic Powder-liquid Reaction

T. OHMI, M. IGUCHI, Hokkaido University, Sapporo, Hokkaido, Japan

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

CB-12.2:IL04 Development of Functionally Graded Coating Based Plasma Facing Materials for Fusion Reactor

CHANG-CHUN GE^{1,2}, SHUANG-QUAN GUO², YUN-BIAO FENG², ZHANG-JIAN ZHOU¹, WEI-LIANG LIU^{2,3}, ¹Inst. Nuclear Materials, Univ. of Science and Technology Beijing (USTB), Beijing; ²School of Materials Science & Eng., Southwest Jiaotong Univ., Chengdu; ³Jingdezhen Ceramic Inst., Jingdezhen, P.R. China

CB-12.2:IL05 Electrodeposition of Functional Molecules for Biomaterials

T. HANAWA, K. OYA, K. KURASHIMA, Y. TSUTSUMI, H. DOI, N. NOMURA, Institute of Biomaterials and Bioengineering, Tokyo Medical and Dental University, Tokyo, Japan

CB-12.2:IL06 Multifunctional Ti Oxide-based Films for Biomedical Applications

A.C. ALVES¹, P. PONTTHIAUX², **L.A. ROCHA**^{1,3}, ¹CT2M, Univ. of Minho, Portugal; ²LGPM - Ecole Centrale Paris, France; ³DEM - Univ. of Minho, Portugal

Session CB-12.3

Modeling of Materials and Processes

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

CB-12.3:IL02 Numerical Analysis on Fabrication Process of FGM Cermet Based on SHS Reaction

M. OHNO, K. MATSUURA, Graduate School of Engineering, Hokkaido University, Sapporo, Japan

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

CB-12.3:IL04 Magnetolectric 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

CB-12.3:IL05 Computation of Mixed-mode Stress Intensity Factors

A. SHAGHAGHI MOGHADDAM, R. GHAJAR, Mechanical Engineering Dept., University of KNTU, Tehran, Iran; M. ALFANO, Mechanical Engineering Dept., University of Calabria, Rende (CS), Italy

Poster Presentations

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, Toyohashi University of Technology, Toyohashi, 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

Oral Presentations

Session CC-1

Corrosion

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

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

CC-1:IL04 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

CC-1:IL05 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

CC-1:IL06 Electrochemical Corrosion of Silicon Carbide Ceramics in Aqueous Solutions
M. HERRMANN*, U. SYDOW**, K. SEMPFF*, 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

CC-1:IL07 In Situ HTXRD Studies of Oxidation of ZrB₂ and ZrB₂-SiC Composites
P. SARIN, P. DRIEMEYER, R.P. HAGGERTY, D.-K. KIM, J.L. BELL, W.M. KRIVEN, Dept. of Materials Science and Engineering, University of Illinois at Urbana-Champaign, Urbana, IL, USA

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

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

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

CC-1:L12 Study of Corrosion Behavior of Conventional and Nanostructured WC-Co HVOF Sprayed Coats

SH. KHAMENEH ASL¹, M.R. SAGHI BEYRAGH², M.G. KAKROUDI¹, ¹Dept. of Mats Eng., Faculty of Mechanical Engineering, University of Tabriz, Tabriz, Iran; ²Faculty of Mats Eng., Sahand University of Technology, Tabriz, Iran

Session CC-2
Friction and Wear

CC-2:IL01 Wear Mechanisms of Nanocrystalline Ceramic/Metal Composites

F. GAERTNER, H. KREYE, T. KLASSEN, Helmut Schmidt University, Hamburg, Germany

CC-2:IL02 Simulation of Atomic-scale Wear of Graphene

N. SASAKI, Dept. of Mats and Life Science, Seikei University, Tokyo, Japan

CC-2:IL03 Wear in Nanofriction

R. BENNEWITZ, P. EGBERTS, INM - Leibniz Institute for New Materials, Saarbrücken, Germany

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

CC-2:L05 In Situ Studies of Coatings Tribology

C. MURATORE, A.A. VOEVODIN, Air Force Research Laboratory, Thermal Sciences and Materials Branch, Wright-Patterson AFB, OH, USA

CC-2:L06 Surface Finish Assessment of Polishing Process of Tool Steels by Abrasion, using Diamond and Alumina Particles

A.M. ZANATTA, J.O. GOMES, Centro de Competencia em Manufatura, Divisao de Eng. Mecanica-Aeronautica -ITA, Sao Jose dos Campos, S.P., Brazil; **J.D. BRESSAN**, Dept. of Mechanical Eng., UDESC Joinville, SC, Brazil

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

CC-2:IL08 Nano-adhesion and Nanopeeling of Nanotube on Graphite

K. MIURA, M. ISHIKAWA, Dept. of Physics, Aichi Univ. of Education, Kariya, Japan; **N. SASAKI**, Dept. of Mats and Life Sci., Seikei Univ., Tokyo, Japan

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

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

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 Prefectural R&D Center; **Y. YAMAGUCHI**, Mitsui Mining & Smelting Co., Ltd.; **S. KISHII**, Fujitsu Lab. Ltd., Japan

CC-2:L12 Wear Behaviour of Diamond Coated Silicon Nitride Ceramics

M. HERRMANN, S. SEMPFF, A. BALES, **M. HOEFER**, L. SCHAEFER, B. BLUG, T. HOLLSTEIN, J. KOENIG, Fraunhofer Allianz DIACER, Braunschweig, Germany

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

Poster Presentations

CC:P01 Corrosion Resistance of Sulfur Polymer Concrete in Acidic Solution

V. VIDOJKOVIC, **S. MARTINOVIC**, T. BOLJANAC, Institute for Technology of Nuclear and Other Mineral Raw Materials, Belgrade, Serbia; **R. JANCIC HEINEMANN**, T. VOLKOV-HUSOVIC, University of Belgrade, Faculty of Technology and Metallurgy, Belgrade, Serbia

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**, ^aSchool of Design, Eng. and Computing, Bournemouth University, Poole, UK; ^bMaterials Science and Technology Division, Oak Ridge National Laboratory, Oak Ridge, TN, USA

SYMPOSIUM CD
CERAMIC JOINING

Oral Presentations

Session CD-1

Thermochemistry of Interface Formation and
Mechanisms of Wetting and Adhesion

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

CD-1:IL02 Metal Ceramic Reactivity: Thermodynamics and Kinetics

F. HODAJ, SIMAP-UMR CNRS 5266, Grenoble INP-UJF, Saint Martin d'Heres Cedex, France

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**, ^aDept. of Material Engineering, Ben-Gurion University, Beer-Sheva, Israel; ^bNRC-Negev, Beer-Sheva, Israel

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

CD-1:IL05 From Reactive Wetting to Reactive Brazing

N. EUSTATHOPOULOS, SIMaP, Grenoble-INP, Saint Martin d'Heres, France

CD-1:IL06 Dynamic Wetting Problem in Thermal Spray Process

M. FUKUMOTO, Toyohashi University of Technology, Toyohashi, Japan

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

CD-1:L08 Characterization and Performance of Glass-ceramic Sealants for SOECs

H. KHEDIM¹, **A.J. CONNELLY¹**, **E. VERNET¹**, **H. NONNET¹**, **D. COILLOT²**, **L. BRUGUIÈRE¹**, ¹CEA, DEN, Marcoule, Bagnols-sur-Cèze Cedex, France; ²UCCS - 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

CD-1:L09 In-situ HRTEM Observations of Spreading Reactive Molten Alloy on Ceramic Substrates

C. IWAMOTO, Dept. of Mechanical Engineering, Kumamoto University, Kumamoto, Japan; **S.-I. TANAKA**, Institute of Multidisciplinary Research for Advanced Materials, Tohoku University, Sendai, Japan

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

CD-2:IL01 Modeling the Effects of Surface Segregation on the Equilibrium Shape of FCC Alloy Crystals

D. CHATAIN, CINA-M-CNRS, Aix Marseille University, Marseille, France; **P. WYNBLATT**, Dept. of Materials Science, Carnegie Mellon University, Pittsburgh PA, USA

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

CD-2:IL03 First-principles Theory and Atomistic Simulation of the Formation, Structure, and Stability of Incoherent Metal/ceramic Interfaces

A. HASHIBON¹, C. ELSAESSER¹, P. GUMBSCH^{1,2}, ¹Fraunhofer IWM, Freiburg, Germany; ²IZBS, University of Karlsruhe, Karlsruhe, Germany

CD-2:IL04 First-principles DFT Modelling of Interface Adhesion in Metal/Ceramic Systems

C. ELSAESSER, Fraunhofer IWM, Freiburg, Germany

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

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

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

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

CD-3:IL04 Perovskite Brazing on Metals for Steam Electrolysis Under Pressure

J. LORICOURT, SCT, Société des Céramiques Techniques, Bazet, France; CNRS, IEM, UMR 5635, Montpellier, France; AREVA detached at IEM, Montpellier, France

CD-3:IL05 Brazing of C/SiC to Niobium Alloy C103 Using Cu-based Brazing Fillers

X.Y. ZHANG, S.M. DONG, Z. WANG, L. GAO, Y.S. DING, P. HE, Shanghai Institute of Ceramics, Chinese Academy of Sciences, Shanghai, P.R. China

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

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

Session CD-4

Residual Stresses, Joint Modeling Design, Characterization and Analysis

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

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

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

CD-4:IL04 Residual Stress Measurement around the Interface of Copper Bi-crystal Developed by Uniaxial Extension

T. HANABUSA¹, A. SHIRO², T. OKADA¹, ¹Institute of Technology and Science, The University of Tokushima, Tokushima, Japan; ²Graduate School of Advanced Technology and Science, The University of Tokushima, Tokushima, Japan

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

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

CD-4:IL07 Design and Characterization of Metal-ceramic Joints for High Temperature Applications

N. SOBCZAK¹, R. ASTHANA², M. SINGH³, ¹Centre for High Temperature Studies, Foundry Research Institute, Cracow, Poland; ²Dept. of Engineering & Technology, University of Wisconsin-Stout, Menomonie, WI, USA; ³Ohio Aerospace Institute, NASA Glenn Research Center, Cleveland, OH, USA

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, Stuttgart, Germany

CD-4:IL09 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

Poster Presentations

CD:P01 Finite Element Modeling of Thermal Stress in ITER Prototype Optical Windows and its Influencing Parameters

M. JACOBS^{1,2}, G. VAN OOST¹, J. DEGRIECK¹, I. DEBAERE¹, A. GOUSSAROV², V. MASSAUT², ¹Ghent University, Ghent, Belgium; ²SCK-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

Oral Presentations

Session CE-1

Ultra High Temperature Ceramics

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

CE-1:IL02 Ceramics for Aeropropulsion Applications

E.J. WUCHINA, M.M. OPEKA, Naval Surface Warfare Center, West Bethesda, MD, USA

CE-1:IL03 Oxidation Mechanism of ZrB₂-SiC in a Solar Furnace Above 2200 °C

A.-S. ANDREANI¹, A. POULON-QUINTIN², F. REBILLAT¹, ¹Laboratoire des Composites Thermostructuraux, UMR 5801 CNRS-Snecma-CEA-UB1, Pessac, France; ²Institut de Chimie de la Matière Condensée de Bordeaux, CNRS UPR 9048, Pessac, France

Session CE-2

Nitride, Carbide and Boride Ceramics

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

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

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

CE-1:IL07 Transparent Alumina for MWIR Windows and Domes

M.R. PASCUCCI, M.V. PARISH, CeraNova Corporation, Marlborough, MA, USA

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., Nanomechanical and Nanotribological Lab., Dept. of Mechanical and Materials Engineering, Florida International University, Miami, FL, USA

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

CE-1:L10 Study of the Spark Plasma Sintering Behaviour of Microsized and Nanosized Zirconium Oxycarbide (ZrC_xO_y) Powders

J. DAVID, M. GENDRE, A. MAÏTRE, G. TROLLIARD, B. SOULESTIN, Lab. Sciences des Procédés Céramiques et Traitements de Surface, UMR CNRS 6638, UFR Sciences et Techniques, Limoges Cedex, France

CE-1:L10b Ablation Behavior of Pressure-less Sintered ZrB₂-SiC Ultra High Temperature Ceramic Composites

M. MALLIK, R. MITRA, K.K. RAY, Dept. of Metallurgical and Materials Engineering, Indian Institute of Technology, Kharagpur, India

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

CE-1:IL12 Synthesis of Mesoporous Carbide Ceramics

YI-BING CHENG, Dept. of Mtls Engrg, Monash University, Clayton, Australia

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

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

CE-1:L15 Oxidation Behaviour of HfB₂ Based Ceramics at Intermediate (~1600 °C) and Ultra High (~3000 °C) Temperatures

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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

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

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

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

CE-2:IL02 Phase Equilibria in B₄C-based Ceramics

H.J. SEIFERT, Technical University of Freiburg, Institute of Materials Science, Freiburg, Germany

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

CE-2:IL04 Silicon Nitride Ceramics - Microstructural Tailoring and Mechanical Properties

M.J. HOFFMANN, S. FÜNFSCILLING, TH. FETT, Karlsruhe Institute of Technology, Inst. for Ceramics in Mechanical Engineering, Karlsruhe, Germany

CE-2:L05 Microstructure and Mechanical Properties of Rare-earth Doped Si₃N₄ and Si₃N₄/SiC Ceramics

P. TATARKO¹, S. LOJANOVÁ², Z. CHLUP³, J. DUSZA¹, P. SAJGALÍK², ¹Institute of Materials Research, SAS, Kosice, Slovak Republic; ²Institute of Inorganic Chemistry, SAS, Bratislava, Slovak Republic; ³Institute of Physics of Materiále, Academy of Sciences of the Czech Republic, Brno, Czech Republic

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

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

CE-2:IL08 Development of Scanning Microwave Technology for Ceramics in Extreme Environments

J.R. LITTLE, Jr., Evisive, Inc., Baton Rouge, LA, USA

CE-2:IL09 Development Strategies for SiAlON Ceramics

H. MANDAL, Anadolu University, Dept. of Materials Science and Engineering, Eskisehir, Turkey, and MDA Advanced Ceramics Ltd., Eskisehir Technological Development Region, Turkey

CE-2:L10 Ceramic Tool Materials for High Speed Cutting Process

G. GORNY, R. PAMPUCH, L. SOBIERSKI, M. RACZKA, Faculty of Mtls Science and Ceramics, University of Science and Technology, Cracow, Poland

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

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

CE-2:IL13 Microstructural Design of Si₃N₄ Ceramics via Pre-ceramic Polymer Additives

G. MOTZ, University of Bayreuth, Bayreuth, Germany

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

CE-2:L15 SiC Nanostructured Ceramics from Laser Grown Nanopowders 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

CE-2:L16 The Effects of C and SiC for Sintering Si₃N₄/SiC Composites

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CE-2:IL17 Hot Rolling Steels and Super Alloys with Silicon Nitride Tools

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CE-2:IL18 Silicon Nitride Ceramics for Product and Process Innovation

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CE-2:L19 Electrical Discharge Machining of B4C-TiB2 Composites

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CE-2:L20 Wettability of Molten Na3AlF6 on Si3N4-SiC Composites

O. PREZIOSA, **A. DENOIRJEAN**, P. DENOIRJEAN, G. MONTAVON, G. DI VITA, S. FOUCAUD, A. MAÏTRE, SPCTS - UMR 6638, University of Limoges, Limoges, France; T. CHARTIER, SPCTS - UMR CNRS 6638, ENSCI, Limoges, France; C. BARTHÉLEMY, V. LAURENT, ALCAN CRV, URA Electrolyse et Matériaux Réfractaires, Voreppe, France; D. LOMBARD, RIO TINTO ALCAN, LRF, Saint Jean de Maurienne, France

Session CE-3

Precursor Derived Ceramics

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

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

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

CE-3:L04 High-temperature Behavior of Novel SiOC/HfO2 Ceramic Nano-composites at T >> 1000 °C

B. PAPENDORF, E. IONESCU, R. RIEDEL, Institut für Materialwissenschaft, Technische Universität Darmstadt, Darmstadt, Germany; H.J. KLEEBE, K. NONNENMACHER, Institut für Geowissenschaft, Technische Universität Darmstadt, Darmstadt, Germany

Session CE-4

Ternary Compounds

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

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

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

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

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

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

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

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

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

Session CE-5

Composites for Extreme Environments

CE-5:IL01 Near-net-shape Thermoplastic Forming of Alumina-silicon Carbide Nanocomposites

F. KERN, R. GADOW, IFKB - Universität Stuttgart, Stuttgart, Germany

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

CE-5:L04 Prediction of Lifetime in Static Fatigue, at High Temperatures for Ceramic Matrix Composites, Based on a Probabilistic Fracture Mechanics Model

O. DE MELO-LOSEILLE, J. LAMON, Université de Bordeaux/CNRS Laboratoire des Composites Thermostructuraux 3, Pessac, France

CE-5:L05 Thermal Residual Stresses Generated during Processing of Cr-Al2O3 Composites and their Influence on Macroscopic Elastic Properties

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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

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

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

CE-5:L09 Corrosion Resistance Under Wet Atmosphere of Coated and Uncoated SiC-based Composites

G. DI VITA¹, S. FOUCAUD¹, A. MAÏTRE¹, T. CHARTIER¹, A. DENOIRJEAN¹, O. PREZIOSA¹, G. MONTAVON², C. BARTHÉLEMY³, V. LAURENT³, D. LOMBARD⁴, ¹Lab. Science des Procédés Céramiques et de Traitements de Surface, UMR CNRS 6638, Université de Limoges, Limoges Cedex, France; ²LERMPS - UTBM, site de Sévenans, Belfort Cedex, France; ³Alcan CRV - URA Electrolyse et Matériaux Réfractaires, Voreppe Cedex, France; ⁴Alcan LRF, Saint-Jean-de-Maurienne, France

Poster Presentations

CE:P01 Processing and Characterization of Zr-, Hf- and Ta- based Ultra High Temperature Ceramics

R. LICHERI, **R. ORRU**¹, 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:P02 Short and Long Range Structural Study of Mullite Zirconia Zircon Composite Materials

N.M. RENDTORFF, E.F. AGLIETTI, Centro de Tecnología de Recursos Minerales y Cerámica (CETMIC: CONICET-CIC); M.B. GONNET, Buenos Aires, Argentina and CONICET; S. CONCONI, Centro de tecnología de Recursos Minerales y Cerámica (CETMIC: CONICET-CIC); M.B. GONNET, Buenos Aires, Argentina and CICPBA; P.C. RIVAS, IFLP, Facultad de Ciencias Agrarias y Forestales, Universidad Nacional de La Plata, La Plata, Argentina and CONICET; **J.A. MARTÍNEZ**, M.C. CARACOCHE, A.F. PASQUEVICH, C.Y. CHAIN, Depto de Física, IFLP, Facultad de Ciencias Exactas, Universidad Nacional de La Plata, La Plata, Argentina and CICPBA

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:P06 Properties of ZrB₂-CNT Composites Prepared by Spark Plasma Sintering

I. AKIN, **N. SOLAK**, **F. SAHIN**, **O. YUCEL**, **M. URGEN**, **G. GOLLER**, Istanbul Technical University, Metallurgical and Mats Eng. Dept., Maslak, Istanbul, Turkey

CE:P07 Effect of CNT Addition on the Properties of ZrB₂-SiC Composites

I. AKIN, **F. SAHIN**, **O. YUCEL**, **G. GOLLER**, Istanbul Technical University, Metallurgical and Mats Eng. Dept., Maslak, Istanbul, Turkey

CE:P08 Structure Evolution in Al₂O₃ - ZrO₂ (Y₂O₃) Ceramic Composites during Sintering

Ya. DYATLOVA, **A. 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**, **A. 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**, **A. OSMAKOV**, VIRIAL Ltd., Saint-Petersburg, Russia; **V. FISCHER**, 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. KALIŃSKI**, 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 TiC_{1-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

SYMPOSIUM CF

CERAMICS FOR CHEMICAL, ELECTROCHEMICAL AND ENVIRONMENTAL APPLICATIONS

Oral Presentations

Session CF-1

Ceramics in Chemical and Biochemical Sensors

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

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

CF-1:IL03 Plasmonic Based Harsh Environment Compatible Chemical Sensor

M.A. CARPENTER, College of Nanoscale Science and Engineering, University at Albany, NY, USA

CF-1:L04 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-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

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

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

CF-1:L08 The Application of Electrospun TiO₂ Nanofibers on Glucose Sensor

FENG YAN, Dept. of Applied Physics, The Hong Kong Polytechnic University, Hong Kong

Session CF-2

Ceramic Membranes and Filters

CF-2:IL01 Ceramic Hollow Fiber Gas Separation Membranes for Sustainable Energy Production

F.M.M. SNIJKERS, **C. BUYASSE**, **A. KAVALEUSKI**, **J.J. LUYTEN**, **A. BUEKENHOUDT**, Flemish Institute for Technological Research (VITO), Mol, Belgium

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

CF-2:IL03 Dense Ceramic Membranes for Oxygen Separation

H.J.M. BOUWMEESTER, Inorganic Membranes, University of Twente, Enschede, The Netherlands

CF-2:L04 Ceramic Foams with Hierarchical Porosity from Pre-ceramic Polymers

C. VAKIFAHMETOGLU, **P. COLOMBO**, Dipartimento di Ingegneria Meccanica-Settore Materiali, Università di Padova, Padova, Italy; **J. WOLTERS DORF**, **E. PIPPEL**, Max-Planck-Institut für Mikrostrukturphysik, Halle, Germany

CF-2:L05 Development of Acicular Mullite Filters Designed for Filtration of Diesel Particles and Reduction of NO_x

A.J. PYZIK, **R. ZIEBARTH**, **CHAN HAN**, The Dow Chemical Company, Midland, MI, USA

CF-2:IL06 Hydrogen-permeable Amorphous Silica-based Membranes

Y. IWAMOTO, Dept. of Frontier Materials, Nagoya Institute of Technology, Nagoya, Japan

CF-2:IL07 Elaboration and Modification of Ceramic Membranes for Filtration Processes

S.A. CERNEAUX, A.B. LARBOT, IEM, UMR 5635, site CNRS, Montpellier Cedex, France

CF-2:L08 Influence of Oxygen Surface Exchanges on Oxygen Semi-permeation Performances of La_{1-x}Sr_xFe_{1-y}Ga_yO_{3-d} Membranes

A. VIVET, P.M. GEFFROY, V. COUDERT, T. CHARTIER, CNRS-ENSCI-SPCTS, UMR 6638, Limoges, France; P. DEL GALLO, N. RICHEL, Air Liquide, Centre de Recherche Claude-Delorme, Jouy-en-Josas cedex, France

CF-2:L09 Ceramic Nanowire Membranes for Biological Separation

XUE BIN KE, HUAI YONG ZHU, School of Physical and Chemical Sciences, Queensland University of Technology, Brisbane, Australia

Session CF-3

Catalysis and Catalysts Supports

*CF-3.1 Ceramic Catalysts***CF-3.1:IL01 Aerogel Catalysts**

A.C. PIERRE, Université Lyon 1, CNRS, UMR 5256, IRCÉLYON, Villeurbanne, France

CF-3.1:IL02 Highly Efficient Visible Light Photocatalysts on the basis of Interfacial Charge Transfer and Multi-electron Oxygen Reduction Catalyst

K. HASHIMOTO, Dep. App. Chem. Univ. Tokyo, Tokyo, Japan

CF-3.1:IL03 Catalysts Supports for Energy Conversion Processes

J.L.G. FIERRO, Inst. de Catalisis y Petroleoquímica, CSIC, Madrid, Spain

CF-3.1:L04 Effects of Surface CeO₂ Particle Size on Diesel Particulate Oxidation of Pr₂O₃ Based Oxide

T. ISHIHARA, S. HAMAMOTO, Dept. of Applied Chemistry, Faculty of Engineering, Kyushu University, Fukuoka, Japan

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

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. DEMIRCI¹, D. CORNU³, Y. ZAATAR², A. KHOURY², P. MIELE¹, ¹Université Lyon 1, CNRS, UMR 5615, Lab. des Multimatériaux et Interfaces, Villeurbanne, France; ²Université Libanaise, Fac. des Sciences II, Lab. de physique appliquée, Jdeidet El Metn, Liban; ³Université Montpellier 2, CNRS-ENSCM, UMR 5635, Inst. Européen des Membranes, Montpellier, France

CF-3.1:L07 BaYMn₂O_{5+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

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

*CF-3.2 Catalysts Supports***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

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

CF-3.2:IL03 VOCs Oxidation on CeO₂-based Catalysts

T. MASUI, M. IMANAKA, Dept. of Applied Chemistry, Osaka University, Suita, Osaka, Japan

CF-3.2:IL04 TiO₂ Photocatalysis - Fundamental and Recent Situation

A. FUJISHIMA, Kanagawa Academy of Science and Technology, Kawasaki, Kanagawa Pref., Japan

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 CF-4

Materials for Electrochemistry and Electrochemical Energy Conversion and Storage

*CF-4.1 Ionic, Mixed and Electronic Conductors***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

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

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

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. RICHEL, Air Liquide CRCD, Jouy en Josas, France

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

CF-4.1:IL06 Three-dimensional Measurements of SOFC Electrode Microstructure and Correlation with Electrochemical Performance

S. BARNETT, J. WILSON, S. CRONIN, J. NICHOLAS, Malls Science Dept., Northwestern University, Evanston, IL, USA

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. MARTIN², ¹Dept. of Materials Science and Engineering, Nagoya Institute of Technology, Nagoya, Aichi, Japan, ²Institute of Physical Chemistry, RWTH Aachen University, Aachen, Germany

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

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

*CF-4.2 Energy Conversion and Storage***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

CF-4.2:IL02 Nanostructured Materials for Direct Methanol Fuel Cell and Lithium-ion Battery

LI-JUN WAN, Institute of Chemistry, Chinese Academy of Sciences, Beijing, China

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

CF-4.2:L04 Reactions in Ceramics Studied with Transmission Electron Microscopy

J.P. WINTERSTEIN, Graz University of Technology, Graz, Austria and University of Connecticut; S. BHOWMICK, J. BASU, J.L. RIESTERER, C.B. CARTER, CMBE Dept., University of Connecticut, Storrs, CT, USA

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

CF-4.2:IL06 Mathematical Modeling of Electrochemical Systems. Application to Li-ion Batteries Aging

M. SAFARI^{1,2}, M. MORCRETTE¹, A. TEYSSOT², C. DELACOURT¹, ¹Laboratoire de Réactivité et Chimie des Solides, Université de Picardie Jules Verne, Amiens, France; ²Renault Research Dept., Guyancourt, France

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

CF-4.2:L08 YSZ Self-supported Ultrathin Membranes for μ SOFCs

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, ^aCIN2, Research Center for Nanoscience and Nanotechnology, CSIC-ICN, Bellaterra, Barcelona, Spain; ^bCNM-IMB (CSIC), National Institute of Microelectronics, CSIC, Bellaterra, Barcelona, Spain; ^cGFMI, Dept. of Physics, Autonomous University of Barcelona, Bellaterra, Barcelona, Spain

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

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

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

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

CF-4.2:IL13 Opportunities for Aerogel Materials for Energy Conversion and Storage

A. RIGACCI, MINES ParisTech, Center for Energy and Processes, Sophia Antipolis, France

CF-4.3 Materials for Electrochemistry**CF-4.3:IL01 Semiconducting Oxide Electrodes for Photoelectrochemical Water Splitting**

A. ROTHSCCHILD, Dept. of Materials Engineering, Technion - Israel Institute of Technology, Haifa, Israel

CF-4.3:IL02 Photocatalytic Activity of Ceramic Foam Supported TiO₂, TiO₂/Ce and TiO₂/Zr Thick Films

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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

CF-4.3:L04 Effect of Reusing and Sunlight Irradiation on Photocatalytic Activity of TiO₂ and ZnO

V.F. SILVA, G.H. CARNEIRO ALBUQUERQUE, V. LINS E SILVA, I.T. WEBER, Depto de Química Fundamental, Universidade Federal de Pernambuco, Recife, Pernambuco, Brazil

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

CF-4.3:L06 Photocatalytic Efficiency of ZnO/TiO₂ Composite Plates in Degradation of RR180 Dye Solutions

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CF-4.3:L07 Chemical Etching of Advanced Ceramics

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Poster Presentations**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 LARA¹, L. PELÁLEZ¹, D. TOLEDO¹, F.J. CASADO², J. HIERREZUELO², J.M. LÓPEZ-ROMERO², J. BENAVENTE¹, ¹Grupo de Caracterización Electrocinética en Membranas e Interfases. Depto Física Aplicada I, Universidad de Málaga, Málaga, Spain; ²Depto 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. STOBIEFSKI, 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 LaxSr_{1-x}Ti_{1-y}FeyO_{3- 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 The Development of Open-cell Ceramic Filters from Waste Materials for Application in Water Treatment

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CF:P08 Mesoporous Composites of Calcium Silicate Hydrate with Submicro Fe₂O₃ Particles for Catalyst

D. HIRABAYASHI, A. TERAMOTO, K. SUZUKI, EcoTopia Science Institute, Nagoya University, Nagoya, Japan

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 Física de la Materia Condensada, Universidad de Sevilla, Sevilla, Spain

CF:P12 The Effect of Nano NiO Powder Made by Pulsed Wire Evaporation (PWE) on SOFC Anode Functional Layer

HAE-WON KIM, DONG-JU KIM, SEOK-JOO PARK, TAK-HYOUNG LIM, SEUNGBOK LEE, RAK-HYUN SONG, DONG-RYUL SHIN, Fuel cell Research Center, Korea Institute of Energy Research, Daejeon, South Korea

CF:P13 Synthesis and Characterization of LiMnP_{1-x}VxO_{4-delta} Solid Solutions

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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:P15 Effect of Microwave Irradiation on the Advanced Oxidation Process for Degradation of the 2,4-D Herbicide

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Eng., Suncheon National University, Jeonnam, Korea; **Dept. Nano Science and Technology, Sejong University, Seoul, Korea; ***Dept. Agricultural Education, Suncheon National University, Jeonnam, Korea

CF:P16 Advanced Oxidation Process of VOCs Using Microwave Powered Electrodeless Discharge Lamp

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CF:P17 Production of Nano Size TiO₂ Sol and Highly Efficient Photocatalytic TiO₂ Powder by Mechanical Ball Milling

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CF:P18 Visible Light Photocatalytic Application of Tin Doped Titanium Dioxide Fibers Mats

A.K. ALVES, C.P. BERGMANN, UFRGS, Porto Alegre, RS, Brazil; F.A. BERUTTI, UNIPAMPA, Bage, RS, Brazil

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

SYMPOSIUM CG

CERAMIC THIN FILMS AND COATINGS FOR PROTECTIVE, TRIBOLOGICAL AND MULTIFUNCTIONAL APPLICATIONS

Oral Presentations

Session CG-1

Advances in Deposition, Surface Modification and Characterisation

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

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

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

CG-1:IL04 A Sol-gel Process to Prepare Dip Coated Thick Films with Various Microstructures

P. BOY, E. COURTIN, L. BIANCHI, P. BELLEVILLE, CEA/Le Ripault, Monts, France; N. POIROT, LEMA UMR 6157 Université F. Rabelais, Tour, France; C. LABERTY-ROBERT, LCMCP, UMR7574 Collège de France, Paris, France

CG-1:IL05 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

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

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

CG-1:IL08 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

CG-1:IL09 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 Research Centre, Brindisi, Italy; A.P. CARICATO, G. LEGGIERI, Dipartimento di Fisica, Università del Salento, Lecce, Italy

CG-1:IL10 Mechanical Properties of Composite Films Consisting of Silicon Nanopillars Embedded in a Nanostructured SiC Matrix

A.R. BEABER¹, W.W. GERBERICH¹, S.L. GIRSHICK², ¹Dept. of Chemical Eng. and Matls Science, University of Minnesota, Minneapolis, MN, USA; ²Dept. of Mechanical Eng., University of Minnesota, Minneapolis, MN, USA

CG-1:IL11 Mechanisms of Atomic Friction and Wear

E. MEYER, E. GNECCO, P. STEINER, R. ROTH, G. FESSLER, S. KAWAI, S. KOCH, M. KISIEL, U. GYSIN, T. GLATZEL, A. BARATOFF, Dept. of Physics, University of Basel, Basel, Switzerland

CG-1:IL12 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

CG-1:IL13 Characterization of Thin Films in Silicate Surfaces

L. FRÖBERG, M. PIISPANEN, L. HUPA, Process Chemistry Centre, Åbo Akademi University, Tuku, Finland

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

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

CG-1:IL16 Characteristics of BaTiO₃/LaNiO₃ and Ba_{0.48}Sr_{0.52}TiO₃/LaNiO₃ Artificial Superlattices Films Prepared by RF Magnetron Sputtering
HSIN-YI LEE, National Synchrotron Radiation Research Center, Hsinchu, Taiwan

CG-1:IL17 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

CG-1:IL18 Ti-Si-C Films Formed by Dual Beam Ion Assisted Deposition

A. TWARDOWSKA¹, B. RAJCHEL², L. JAWORSKA^{1,3}, ¹Institute of Technology, Pedagogical University, Krakow, Poland; ²Institute of Nuclear Physics, Polish Academy of Sciences, Krakow, Poland; ³Institute of Advanced Manufacturing Technology, Krakow, Poland

Session CG-2

High Performance Protective Coatings in Oxidizing and Harsh Environments

CG-2:IL01 Design of Super- (>40 GPa) and Ultrahard (>80 GPa) Nanocomposite Coatings: Theoretical Background, Experiments, and Industrial Applications

S. VEPREK, Dept. of Chemistry, TU Munich, Garching, Germany

CG-2:IL02 Environmental Barrier Coatings for Ceramic Matrix Composites

KANG N. LEE, Rolls Royce Corporation, Indianapolis, IN, USA

CG-2:IL03 Heat Resistant Cermet Coatings on Thermostat Plastics Components Deposited via Cold Gas Dynamic Spraying

S.M. ANG, C.C. BERNDT, Industrial Research Institute Swinburne, Swinburne University of Technology, Melbourne, Australia; K. LOKE, ST Kinetics Ltd, Singapore; P. CHEANG, School of Science & Technology, SIM University, Singapore; K.A. KHOR, School of Mechanical and Aerospace Engineering, Nanyang Technological University, Singapore

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

CG-2:L05 Precursor-derived, Ultra-thin Aluminophosphate Protective Coatings

B. MANGRICH, S. SAMBASIVAN, Applied Thin Films, Inc., Evanston, IL, USA

CG-2:L06 Particle-filled Polysilazane-based Coatings on Steel

M. GÜNTNER, 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

CG-2:L07 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

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

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

CG-2:L10 Water Corrosion of Mullite-based EBC Multilayer Coatings

E. GARCIA, J. MESQUITA-GUIMARAES, P. MIRANZO, M.I. OSENDI, Instituto de Cerámica y Vidrio (CSIC), Madrid, Spain; **C.V. COJOCARU**, Y. WANG, C. MOREAU, R.S. LIMA, National Research Council of Canada, Boucherville, QC, Canada

CG-2:L11 Chemical Vapor Deposition and Microelectronics. Transition Metal Diborides as Potential Diffusion Barriers, and New Approaches to Superconformal Filling

G.S. GIROLAMI, J.R. ABELSON, Dept. of Chemistry and Dept. of Matls Sci. and Eng., University of Illinois at Urbana-Champaign, Urbana, IL, USA

CG-2:L12 New Generation Nanscale Multilayer Coatings to Serve High Temperature, Corrosion and Tribological Applications Deposited by HIPIMS

PEH. HOVSEPIAN, A.P. EHIASARIAN, Nanotechnology Centre for PVD Research, Sheffield Hallam University, Sheffield, UK; **R. BRAUN**, German Aerospace Centre, Cologne, Germany

CG-2:L13 Development of Advanced Coatings for ITER and Future Fusion Devices

J. MATEJICEK, P. CHRASKA, Institute of Plasma Physics ASCR, Praha, Czech Republic

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

CG-2:L15 Flame-sprayed Glaze Layers as Diffusion Barriers on Refractory Materials

O. PREZIOSA, A. DENOIRJEAN, P. DENOIRJEAN, G. MONTAVON, T. CHARTIER, C. BARTHÉLEMY, V. LAURENT, D. LOMBARD, SPCTS, Limoges, France

Session CG-3

Thermal Barrier Coatings

CG-3:L01 Advanced Thermal Barrier Coatings

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CG-3:L02 Technical and Economical Aspects of Current Thermal Barrier Coating Systems for Gas Turbine Engines

A. BOLCAVAGE, Rolls Royce Corporation, Indianapolis, IN, USA

CG-3:L03 Thermal Barrier Coatings as an Interacting Multilayer System: Performances and Degradation Mechanisms

O. LAVIGNE, ONERA-DMSM, Châtillon, France

CG-3:L04 Thermal Conductivity and Sintering Resistance of Plasma Sprayed Dysprosia-Yttria-Zirconia Thermal Barrier Coatings

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CG-3:L05 Oxidation Behaviour of Conventional and Nanocrystalline CoNiCrAlY Bond Coats Manufactured by Cold Spray

P. RICHER, **B. JODOIN**, A. CHAREST, M. YANDOUZI, University of Ottawa, Ottawa, Canada; **M. BROCHU**, McGill University, Montreal, Canada; **A. ZUNIGA**, University of Chile, Chile

Session CG-4

Thin Films and Coatings for Tribological and Multifunctional Applications

CG-4:L01 Advanced Ceramic Tribological Layers by Thermal Spray Routes

R. GADOW, University of Stuttgart, Stuttgart, Germany

CG-4:L02 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

CG-4:L03 Low Friction and Wear Resistant Carbon-, MoS₂- or Transition Metal Oxide-based Nanocomposite Coatings

B.G. WENDLER, M. MAKÓWKA, K. WŁODARCZYK, M. NOLBRZAK, W.PAWLAK, A. RYLSKI, Lodz University of Technology, Institute of Materials Science and Engineering, Lodz, Poland

CG-4:L04 Tribological Properties of Nanostructured Yttria-stabilized Zirconia Plasma Spray Coatings

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CG-4:L05 Adhesion of Nanostructured YSZ Plasma-sprayed Coating on Thin Substrates

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CG-4:L06 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

CG-4:L07 Hard Protective Thin Films: Mechanical and Tribological Behavior

M. FENKER, H. KAPPL, FEM Research Institute Precious Metals & Metals Chemistry, Schwäbisch Gmünd, Germany

CG-4:L08 Hard Nanocomposite Coatings: Mechanical and Tribological Properties, Thermal Stability and Protection Against Oxidation Above 1000 °C

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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 Multimateriaux 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

CG-4:L10 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

CG-4:L11 Plasma Assisted Vapor Deposition on Nanostructured Hard Coatings

P. MAYRHOFER, Physical Metallurgy and Materials Testing, Montanuniversität Leoben, Leoben, Austria

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

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

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

CG-4:L15 Multi-nanolayering Effect on Carbon Films Mechanical Properties and Internal Stress

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CG-4:L16 Hydrogen Effect on Structure and Mechanical Properties of ZnO Films Deposited by Sputtering in Ar-H₂ Plasma

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CG-4:L17 Mechanical Reliability of ZnO Thin Films Used in Glass Stacking Applications

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CG-4:IL18 Nanostructured Thin Coating Architectures for Environmental Technology Applications

V. TEIXEIRA, J. CARNEIRO, P. CARVALHO, University of Minho, Physics Dept., GRF-Functional Coatings Group, Guimarães, Portugal

CG-4:IL19 Computational and Experimental Investigation to Understand the Adaptation Mechanisms of Chameleon Coatings

S.M. AOUDI, 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

CG-4:L20 Development of Antifouling Coatings by Thermal Spray Methods for Marine Infrastructures

S.M. ANG, C.C. BERNDT, Industrial Research Institute Swinburne, Swinburne University of Technology, Melbourne, Australia; P. CHEANG, School of Science & Technology, SIM University, Singapore; K.A. KHOR, School of Mechanical and Aerospace Engineering, Nanyang Technological University, Singapore

CG-4:L21 Sm_{0.65}Ca_{0.35}MnO₃-poly(styrene-co-acrylonitrile) Composite Coating: Thermochromic Behaviour

M.R. AMMAR, C. NAPIERALA, P. LAFFEZ, J.-N. ROUZAUD, Ecole Normale Supérieure, UMR 8538 CNRS, Paris, France

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

CG-4:IL23 Damping Properties of Hard Coatings for Engine Applications

P.J. TORVIK, Prof. Em., Air Force Institute of Technology, Xenia, OH, USA

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

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

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

CG-4:L27 Comparison of Photoinduced Properties of TiO₂ Thin Films Prepared by Magnetron Sputtering, Atmospheric Pressure Chemical Vapour Deposition and Spray Pyrolysis Deposition

H. TOMASZEWSKI, K. JACH, Institute of Electronic Materials Technology, Warsaw, Poland

Poster Presentations

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 Mats 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 PBI and RF-CVD Methods

N. MOOLSRADEO, 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. SITEK¹, J. KAMINSKI¹, M. PISAREK², H. MATYSIAK³, K.J. KURZYDŁOWSKI¹, ¹Faculty of Materials Science and Engineering, Warsaw University of Technology, Warsaw, Poland; ²Institute of Physical Chemistry, Polish Academy of Sciences, Warsaw, Poland; ³Research Centre for Functional Materials, Warsaw University of Technology, Warsaw, Poland

CG:P05 Effect of Silica Content on the Acid Resistance of Enamels

H.B.G. GHAZAL, High Institute of Engineering, Shorouk Academy, Cairo; S.A. EL SHERBINY, M.F. ABADIR, The Chemical Eng. Dept., Cairo University, Giza, Cairo, Egypt; S.M. KAMAL, The Military technical College, Cairo

CG:P06 Protective Coatings for SiC-AlN Composites Obtained by Pack Cementation

G. MAGNANI, ENEA-Bologna Research Center, Bologna, Italy; L. BEAULARDI, A. BRENTARI, ENEA-Faenza Research Center, Faenza, Italy

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. PEDZICH¹, K. HABERKO¹, D.M. BIELINSKI^{2,3}, J. DUL², ¹AGH University of Science & Technology, Dept. of Advanced Ceramics, Cracow, Poland; ²Div. of Elastomers & Rubber Technology, Inst. for Polymers & Dyes Tech., Piastow, Poland; ³Inst. 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. MOURA¹, L. CUNHA¹, J.-M. CHAPPÉ², F. VAZ², M.C. MARCO DE LUCAS³, L. IMHOFF³, O. HEINTZ³, ¹Physics Dept., University of Minho, Braga, Portugal; ²Physics Dept., University of Minho, Guimarães, Portugal; ³Institut 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:P16 Deposition and Characterisation of Graded (TiAlCrNbY)CN Films Obtained by Reactive Magnetron Sputtering

V. BRAIC, M. BALACEANU, C.N. ZOITA, A. VLADESCU, M. BRAIC, National Institute for Optoelectronics, Magurele-Bucharest, Romania

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

CG:P19 Development, Accelerated Ageing and Osteoconduction Study of Ceria Stabilized Zirconia in Simulated Body Fluid

A.K. PANDEY, K. BISWAS, Dept. of Metallurgical and Materials Engineering, Indian Institute of Technology, Kharagpur, India

CG:P20 Thin Film of Phase Pure Cubic Boron Nitride by Electrodeposition

M. JAMILA, V. RAVICHANDRAN, Materials Science Center, Dept. of Nuclear Physics, University of Madras, Chennai, India

CG:P21 Structural and Chemical Investigation of RF Magnetron-sputtered Ti-B-N and B-N Hard Coatings

S. ILDAY, Graduate Program of Materials Science and Nanotechnology, Bilkent University, Ankara, Turkey; **E. BENGU**, Dept. of Chemistry, Bilkent University, Ankara, Turkey

SYMPOSIUM CH

ADVANCES IN ELECTRICAL, MAGNETIC AND OPTICAL CERAMICS

Oral Presentations

Session CH-1

Dielectric and Microwave Materials

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

CH-1:IL02 Carbon Nanotube Cathodes as Electron Sources for Microwave Amplifiers

P. LEGAGNEUX, Nanocarb, Thales-Ecole Polytechnique, Palaiseau, France

CH-1:IL03 Modification of Microstructure and Microwave Dielectric Characteristics of SrLnAlO₄ Ceramics (Ln=La, Nd, and Sm)

X.M. CHEN, M.M. MAO, Dept. of Materials Science and Engineering, Zhejiang University, Hangzhou, China

CH-1:IL04 Miniature Ceramic Antennas for Wireless Applications

Z.D. MILOSAVLJEVIC, Pulse Finland Oy, Kempele, Finland

CH-1:IL05 Local Structure in Perovskite-like Dielectrics

I. LEVIN, Ceramic Division, NIST, Gaithersburg, MD, USA

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

CH-1:IL07 Reducing the Dielectric Losses in Heterostructured Ferroelectric Materials

C. ELISSALDE¹, C. ESTOURNES², D. BERNARD¹, U.C. CHUNG¹, S. MORNET¹, R. COSTES³, M. MAGLIONE¹, ¹CMCB-CNRS, Université Bordeaux, Pessac, France; ²CIRIMAT et Plateforme Nationale CNRS de Frittage Flash, PNF2 MHT, Université Paul Sabatier, Toulouse, France; ³Thales Research and Technology, Palaiseau Cedex, France

CH-1:IL08 Thermoplastic Ceramic-polymer Composites 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

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

CH-1:IL10 High Throughput Search of Dielectric Thin Films for Wafer Level Packaging

JI-WON CHOI, KEUN JUNG, SEOK-JIN YOON, WAN-KEUN BANG, Thin Film Materials Research Center, KIST, Seoul, Korea; Samwon Vacuum Co., Ltd., Korea

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

CH-1:IL12 Electric Field Breakdown of Polymer Based Nano-composite at Room and Cryogenic Temperatures

H. RODRIGO¹, G.H. HELLER¹, A. INGROLE², Z (RICHARD) LIANG², D.G. CROOK¹, S.L. RANNER¹, ¹Center for Advanced Power Systems, Florida

State University, Tallahassee, FL, USA; ²Dept. of Industrial and Manufacturing Engineering, FAMU-FSU College of Engineering, Tallahassee, FL, USA

CH-1:IL13 High-performance Varactors

A. TESTINO, Innovative Task Corporate Material R&D, EPCOS OHG, Deutschlandsberg, Austria

CH-1:IL14 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

CH-1:IL15 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

CH-2:IL01 Advances in Pb-free Piezoelectric Materials

A. SAFARI, The Glen Howatt Electroceramic Lab., Dept. of Mtls Science and Eng., Rutgers University, Piscataway, NJ, USA

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

CH-2:IL03 Piezoelectric Materials in Thin Form for MEMS and NEMS Applications

D. REMIENS, C. SOYER, IEMN-CNRS, Villeneuve d'Ascq, France

CH-2:IL04 Fractal Geometry and Properties of Doped BaTiO₃ Ceramics

V. MITIC^{1,2}, V.B. PAVLOVIC³, L.J. KOCIC¹, V. PAUNOVIC¹, L.J. ZIVKOVIC¹, ¹University of Nis, Faculty of Electronic Engineering, Nis, Serbia; ²Institute of Technical Sciences of SASA, Belgrade, Serbia; ³University of Belgrade, Faculty of Agriculture, Belgrade, Serbia

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-Phonics Lab., Graduate School of Science and Eng., Tokyo Institute of Technology, Ookayama, Meguro, Tokyo, Japan

CH-2:IL06 Integrated ZnO Surface Acoustic Wave Microfluidics and Biosensors

J.K. LUO, Centre for Material Research & Innovation, University of Bolton, UK; **Y.Q. FU**, School of Eng. and Physical Sciences, Heriot Watt University, UK; **W.I. MILNE**, Dept. of Engineering, University of Cambridge, UK

CH-2:IL07 MEMS Piezoelectric Energy Harvester with Shear Mode

SEOK-JIN YOON, HYUN-CHEOL SONG, CHONG-YUN KANG, Thin Film Materials Research Center, Korea Inst. of Science & Technology, Seoul, Korea

CH-2:IL08 Hydrothermal Synthesis of Lead-free Piezoelectric Powders and Epitaxial Films

G.K.L. GOH, Institute of Materials Research and Engineering, Singapore

CH-2:IL09 Linear Characterization at Shear Resonance of Lossy Piezoceramics Using a Non-standard, Thickness Poled, Shear Plate

L. PARDÓ, ICMM-CSIC, Cantoblanco, Madrid, Spain; **F. MONTERO DE ESPINOSA**, Instituto de Acústica, CETEF, CSIC, Madrid, Spain; **A. GARCÍA, ICMM-CSIC**, Cantoblanco, Madrid, Spain; **K. BREBOEL**, Limiel ApS, Langebaek, Denmark

CH-2:IL10 Large Remanent Polarization in BiFeO₃ Based Single Crystals

Y. NOGUCHI, H. MATSUO, Y. KITANAKA, M. MIYAYAMA, Research Center for Advanced Science and Technology, The University of Tokyo, Tokyo, Japan

CH-2:IL11 Piezo-ferroelectric Thin Films: From Nucleation to Functionality

P. MURALT, Ceramics Laboratory, Swiss Federal Institute of Technology EPFL, Lausanne, Switzerland

CH-2:IL12 Correlation Between Powder Properties and Processing Conditions of Mechanically Activated Nanocrystalline BaTiO₃

V.B. PAVLOVIC, Fac. of Mech. Eng., Univ. of Belgrade, Serbia; **V.P. PAVLOVIC**, Joint Lab. for Adv. Mtls 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. BLANUSA**, Vinca Institute of Nuclear Sciences, Belgrade, Serbia; **D. POPOVIC**, Faculty of Physics, University of Belgrade, Serbia

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

CH-2:L14 Bulk Crystallisation of (00l) Oriented Fresnoite Sr₂TiSi₂O₈ in Glass-Ceramics of the Sr-Ti-Si-K-B-O System

N. MAURY, M. GONON, Université de Mons, Faculté Polytechnique de Mons, Material Science, Mons, Belgium; F. CAMBIER, Belgian Ceramic Research Centre, Mons, Belgium

CH-2:L15 Electromechanical Properties of BaTiO₃ Ceramics Prepared by Spark Plasma Sintering

H. MAIWA, N. MATSUMOTO, Shonan Institute of Technology, Fujisawa, Japan

CH-2:L16 Sm-Ti Co-substituted BiFeO₃ Thin Films Prepared by Sol-gel Technique

DONG HONG, SHENGWEN YU, JINRONG CHEN, School of Material Science and Engineering, Shanghai University, Shanghai, China

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 Electromechanics, Korea

CH-2:L18 Stress Induced Effect on Electrical Properties of CSD-derived Ferroelectric Thin Films

H. SUZUKI¹, T. OHNO², N. SAKAMOTO¹, N. WAKIYA¹, T. MATSUDA², T. HAYASHI³, ¹Shizuoka University, Hamamatsu, Shizuoka, Japan; ²Kitami Institute of Technology, Japan; ³Shonan Institute of Technology, Japan

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

CH-2:L20 Interfacial and Electrical Properties of Thin-film Structures Based on Ferroelectric Titanate/III-V Semiconductor

J.H. HAO, W. HUANG, Dept. of Applied Physics and Materials Research Center, The Hong Kong Polytechnic University, Hong Kong, P.R. China

CH-2:L21 Preparation and Properties of Lead Free Alkali Niobates Doped with Bi and Cu

C. MICLEA, C. TANASOIU, C.F. MICLEA, L. AMARANDE, L. TRUPINA, M. CIOANGHER, National Institute for Materials Physics, Magurele-Bucharest, Romania; C. PLAVITU, C.T. MICLEA, M. SUSU, Hyperion University, Bucharest, Romania

Session CH-3 Magnetic Ceramics

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

CH-3:IL02 Magnetic Oxide Thin Films Grown by Pulsed Laser Deposition for Applications in Spintronics

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CH-3:L03 Sintering and Properties of Microwave Ferrite Ceramics

G.M. BASAN, M. TIMUCIN, Metallurgical and Materials Eng. Dept., Middle East Technical University, Ankara, Turkey

CH-3:L04 Oriented Barium Hexaferrite Thick Films Prepared by Electrophoretic Deposition in a Magnetic Field

S. OVTAR, Ljubljana, Slovenia; D. LISJAK, M. DROFENIK, Jozef Stefan Institute, Ljubljana, Slovenia

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

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

CH-3:L07 Magnetolectric 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

CH-3:L08 Interactions Between Barium Ferrite Particles in Polar Solvents

D. LISJAK, S. OVTAR, M. DROFENIK, Jozef Stefan Inst., Ljubljana, Slovenia

CH-3:L09 Characteristics and Properties of Magnetic Nanocomposites Obtained Using Nanomagnetic Fluids

N. CRAINIC¹, D. BICA², A. TORRES MARQUES³, N.C. POPA², P.J. NOVOA⁴, O. MARINICA¹, F. DAVIN⁵, L. VEKAS², "Politehnica" University of Timisoara, National Center for Engineering of Systems with Complex Fluids (NCESCF); ²Romanian Academy - Timisoara Branch, Center for Advanced and Fundamental Technical Research (CAFTR); ³Universidade do Porto, Fac. de Engenharia da Universidade do Porto (FEUP); ⁴Inst. de Engenharia Mecanica e Gestao Industrial (INEGI), Unidade de Materiais Compositos (CEMACOM), Porto, Portugal; ⁵CSM Instruments, Peseux, Switzerland

CH-3:IL10 Novel Materials for all Oxide-based Spintronics

L. ALFF, Institute for Materials Science, TU Darmstadt, Darmstadt, Germany

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

CH-3:IL12 Application of Permanent Magnets for Microwave Absorbers in GHz Range

S. SUGIMOTO, Dept. of Material Science, Tohoku University, Sendai, Japan

Session CH-4 Varistors and Thermistors

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

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

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

CH-4:IL04 Defect Structure of Zinc Oxide and Related Properties

H. HANEDA¹, I. SAKAGUCHI¹, N. OHASHI¹, H. RYOKEN^{1,2}, S. HISHITA¹, ¹National Institute for Materials Science, Tsukuba, Ibaraki, Japan; ²Dept. of Appl. Sci. for Electronics & Mats, Kyushu University, Kasuga, Fukuoka, Japan

CH-4:IL05 Local Measurements of Functional Properties in Electroceramics

C. LEACH, School of Materials, University of Manchester, Manchester, UK

CH-4:IL06 Advances in Varistor Ceramics

F. GREUTER, ABB Corporate Research, Baden-Daettwil, Switzerland

CH-4:IL07 Origin of Stoichiometry Influence in High Performance NaxCo₂O_{4-y}

SEAN LI, School of Materials Science and Eng., The University of New South Wales, Sydney, Australia

CH-4:IL08 NTC Thermistors: Past, Present and Future

A. FETEIRA, School of Chemistry, University of Birmingham & Dept. of Physics, University of Warwick, UK

CH-4:L09 Defect Chemistry of Ba-excess Donor-doped BaTiO₃ Thermistor Ceramics

H. KATSUMI, C. PITHAN, R. WASER, Forschungszentrum Jülich, Jülich, Germany

CH-4:L10 Structure, Microstructure and Electrical Properties of Mn_{3-x}Co_xO₄ (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

Session CH-5

Optical, Electro-optical and Magneto-optical
Ceramics and Devices

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

CH-5:IL02 Ultra-compact Gbps PLZT Electro-optic Modulators on Si Substrate

M. NAKADA^{1, 2}, T. SHIMIZU¹, H. MIYAZAKI¹, K. OHASHI¹, ¹MIRAI-Selete, Tsukuba, Ibaraki, Japan; ²NEC Corporation, Tsukuba, Ibaraki, Japan; H. TSUDA, J. AKEDO, AIST, Tsukuba, Ibaraki, Japan

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

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

CH-5:L05 R_xM₂(PO₄)₃-based Phosphates (M = Zr, Hf). Synthesis, Luminescence and Ionic Conductivity

D.M. BYKOV, Nizhny Novgorod State University, Nizhny Novgorod, Russia; P. DORENBOS, Delft University of Technology, Delft, The Netherlands; G.Sh. SHEKHTMAN, Inst. of High-Temperature Electrochemistry, Ekaterinburg, Russia; Ph. RAISON, R.J.M. KONINGS, European Commission, JRC, Inst. for Transuranium Elements, Karlsruhe, Germany; A.I. ORLOVA, Nizhny Novgorod State University, Nizhny Novgorod, Russia

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

CH-5:IL07 Advanced Ceramics for Optical Applications

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CH-5:IL08 Integration of Ceramic Thin Films with Optical Fiber Devices for Chemical and Biological Sensing

HAI XIAO, Dept. of Electrical and Computer Engineering, Missouri University of Science and Technology, Rolla, MO, USA

CH-5:IL09 Charge Transfer Transitions in 3d Transition Metals Oxides

R.V. PISAREV, Ioffe Physical-Technical Institute, St. Petersburg, Russia

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

CH-5:L11 Magnetic and Magneto-Optical Characterization of Diluted Magnetic Colloidal Suspensions

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Poster Presentations

CH:P01 Microwave Lossy Composite with AlN Matrix

I.P. FESENKO, S.M. DUB, V.I. CHASNYK, T.B. SERBENYUK, I.I. FESENKO, Bakul Institute for Superhard Materials, Kyiv, Ukraine

CH:P02 Preparation and Characterization of Dielectric Behavior of A₂/3Cu₃Ti₄O₁₂ (A= Nd, Sm, Gd, Dy) Ceramics

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CH:P03 Addition of Cu and Co in the Microwave Absorption of Ba₂Zn₂Fe₁₂O₂₂

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CH:P04 Microwave Dielectric Properties of Doped Ba(Mg₁/3Ta₂/3)O₃ Ceramics

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CH:P05 Structural and Dielectric Studies on PbZr_{0.5}Ti_{0.5}O₃ Solid Solution Synthesized by Adopting low Calcination Synthesis Route

G. SRIVASTAVA, A. GOSWAMI, A.M. UMARJI, Materials Research Centre, Indian Institute of Science, Bangalore, India

CH:P06 Fabrication and Characterization of Ti Modified BiFeO₃-PbTiO₃ High Temperature Piezoelectric Ceramics

LONG ZHAO, JIANGUO CHEN, GUIYANG SHI, JINRONG CHENG, SHENGWEN YU, School of Materials Science and Engineering, Shanghai University, Shanghai, P.R. China

CH:P07 Preparation and Characterization of Nanofibers Barium Strontium Titanate Using the Electrospinning Route

B.S. FARACO, A.K. ALVES, C.P. BERGMAN, Federal University of Rio Grande do Sul, Porto Alegre, Brazil

CH:P08 Fabrication of MFIS-FETs Using PVDF-TrFE Films and ZrO₂ Buffer Layers

GWANG-GEUN LEE, BYUNG-EUN PARK, Dept. of Electrical and Computer Engineering, University of Seoul, Seoul, Korea

CH:P09 Low Fired X8R Dielectric Buried into LTCC Substrate

H. NAGHIBZADEH, T. RABE, Federal Institute for Material Research and Testing, Berlin, Germany

CH:P10 Polydomain Structure in PbTiO₃/PbZr_{0.2}Ti_{0.8}O₃ Superlattices

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CH:P11 Compositionally Graded BST Ceramics Prepared by Tape Casting

V.N. SHUT, S.R. SYRISOV, V.L. TRUBLOVSKY, Institute of Technical Acoustics, National Academy of Sciences, Vitebsk, Belarus

CH:P12 Dielectric and Ferroelectric Studies on SrBi_{1.5}La_{0.5}Nb₂O₉ Ceramics

M. VERMA, K. SREENIVAS, V. GUPTA, Dept. of Physics and Astrophysics, University of Delhi, Delhi, India

CH:P13 Development of Piezoelectric and Relaxor Ceramics for Sensor Materials

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CH:P14 Fabrication and Magnetorheological Characteristics of Hollow Fe₃O₄ Nanoparticles

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CH:P15 Magnetic Properties and High Frequency Response of Single-Phase Z-type Strontium Cobalt Hexaferrite Prepared by Polymerizable Complex Method

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CH:P16 Effects of the Co-presence of Conflicting Magnetic Anisotropies in Ba Ferrite Particles

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CH:P17 In-situ Measurement of Phase Transition of Layered Perovskite BaLn₂Mn₂O₇

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CH:P18 Magnetic Characterization of Iron Aluminosilicate Glass Microspheres

J.R. MARTINELLI, F.F. SENE, C.N. KAMIKAWACHI, Nuclear and Energy Research Institute, Sao Paulo, Brazil; C.S. DE M. PARTITI, D.R. CORNEJO, Physics Institute, University of Sao Paulo, Brazil

CH:P19 Simplified Measurement Method of Magnetic Permeability Temperature Profile for RF Device Applications

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CH:P20 Magnetic Behavior of Nanostructured Magnesioferrite Synthesized at Low Temperature

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CH:P21 Comparison of Strontium Hexaferrite Nanocrystalline Powder Processing by Dynamic H₂ and Co Heat Treatment and Re-calcination

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CH:P22 The Improvement of Electrical Properties and Lifetime of Zinc Oxide Disk Affected from Humidity in Surge Arrester
P. APIRATIKUL, B. PLANG-KLANG, P. NAKAVIWAT, Rajamangala University of Technology Thanyaburi, Pathumtani, Thailand

CH:P23 Study of Metal Oxide Varistor Model for Steep Front Wave
P. APIRATIKUL, B. PLANG-KLANG, P. NAKAVIWAT, Rajamangala University of Technology Thanyaburi, Pathumtani, Thailand

CH:P24 Investigation of PTC Effect and Percolation Phenomena in Metal-filled Polymer Blends
A. KANAPITSAS, H. ZOIS, C. TSONOS, Technological Educational Institute of Lamia, Lamia, Greece; Ye.P. MAMUNYA, National Academy of Sciences of Ukraine, Kiev, Ukraine

CH:P25 High Temperature Relaxation Mechanisms of ZnO Varistor
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CH:P26 Semiconducting Ceramics Produced from Nanocrystalline Barium Titanate Powder
V.N. SHUT, S.V. KOSTOMAROV, Institute of Technical Acoustics, National Academy of Sciences, Vitebsk, Belarus

CH:P27 Properties of ZnO-based Transparent Scintillation Ceramics
E.I. GOROKHOVA, G.V. ANAN'EVA, V.A. DEMIDENKO, S.B. ERON'KO, Scientific Research and Technological Institute of Optical Material Science, S.I. Vavilov State Optical Institute All-Russia Science Center, St. Petersburg, Russia; P.A. RODNYI, I.V. KHODYUK, St. Petersburg State Polytechnic University, St. Petersburg, Russia

Focused Session CH-6 MULTIFERROICS

Oral Presentations

Session CH-6.1

Theory and Modeling of Materials and Phenomena

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

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

CH-6.1:IL03 First Principles Study of the Magneto-electric Coupling and Phase Diagrams of Multiferroic RMn_2O_5
LIXIN HE, Key Lab. of Quantum Information, University of Science and Technology of China, Hefei, China

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

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

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

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

Session CH-6.2

Advances in Materials, Synthesis and Processing

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

CH-6.2:IL02 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. PEMBLEK, R.W. WHATMORE, Tyndall National Institute, "Lee Maltings", Cork, Ireland

CH-6.2:IL03 Multiferroics Properties and Piezoelectric Response of BiFeO_3 Thin Film Grown on LaNiO_3 Buffered Si (100) Substrate Via Pulsed Laser Deposition

YAN FENG, LU LI, LAI MAN ON, Dept. of Mechanical Engineering, National University of Singapore, Singapore; ZHU TIEJUN, Dept. of Materials Science and Engineering, Zhejiang University, Hangzhou, P. R. China

Session CH-6.3

Magnetoelectric Characterization

CH-6.3:IL01 Large Ferroelectric and Magnetic Hystereses coexisting in BiFeO_3 Thin Films

M. OKUYAMA, JUNG-MIN PARK, T. KANASHIMA, Osaka University, Graduate School of Eng. Science, Dept. of Systems Innovation, Toyonaka, Japan

CH-6.3:IL02 Magnetic and Electric Relaxor Behavior and Spin Lattice Coupling in Epitaxially Grown Multiferroic $0.8\text{Pb}(\text{Fe}_{1/2}\text{Nb}_{1/2})\text{O}_{3-0.2}\text{Pb}(\text{Mg}_{1/2}\text{W}_{1/2})\text{O}_3$ 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

CH-6.3:IL03 Influence of Interface, Functionally Graded Composition, Boundary Condition, and Geometric Size on Magnetoelectric Effects in Multiferroic Composites

E. PAN, R. WANG, Dept. of Civil Engineering and Dept. of Applied Mathematics, University of Akron, Akron, OH, USA

CH-6.3:IL04 Control Magnetization Electrically Using LSMO/BFO Heterostructures

LU YOU, JUNLING WANG, School of Materials Science & Engineering, Nanyang Technological University, Singapore

CH-6.3:IL05 Electric-field-induced Paths in Multiferroic BiFeO_3 from Atomistic Simulations

S. LISENKOV, University of South Florida, Tampa, USA; D. RAHMEDOV, L. BELLAICHE, University of Arkansas, Fayetteville, USA

Session CH-6.4

Dynamics of Multiferroics

CH-6.4:IL01 Microwave Multiferroic Heterostructures with Strong Magnetoelectric Coupling

M. LIU, J. LOU, X. XING, O. OBI, C. PETTIFORD, NIAN X. SUN, Electrical and Computer Engineering Dept., Northeastern University, Boston, MA, USA

CH-6.4:IL02 Electromagnons in Perovskite Manganites

A. PIMENOV, University of Wuerzburg, Wuerzburg, Germany

CH-6.4:IL03 Electric Modulation of Exchange Anisotropy in Multiferroic-ferromagnetic Heterostructures

M. GAJEK^{1,3}, J. HERON², C.-H. YANG¹, Y.H. CHU⁵, L.W. MARTIN⁴, R. RAMESH^{1,2}, ¹Dept. of Physics, University of California at Berkeley, Berkeley, CA, USA; ²Dept. of Materials Science, University of California at Berkeley, Berkeley, CA, USA; ³Dept. of Electrical Engineering and Computer Science, University of California at Berkeley, Berkeley, CA, USA; ⁴Dept. of Materials Science and Engineering, University of Illinois at Urbana-Champaign, Urbana, IL, USA; ⁵Dept. of Materials Science and Engineering, National Chiao Tung University, Hsin Chu, Taiwan, ROC

CH-6.4:IL04 Strain Induced Ferroelectricity in Antiferromagnetic EuTiO_3 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

CH-6.4:IL05 Soft X-ray Spectroscopic Investigations on Multiferroic Oxides

JAE-HOON PARK, POSTECH, Pohang, Korea

CH-6.4:IL06 Dynamic Effects in Multiferroic Manganites: Spin Excitations and Related Phenomena

A.A. MUKHIN, V.D. TRAVKIN, V.YU IVANOV, Prokhorov General Physics Institute of RAS, Moscow, Russia; A. PIMENOV, A.M. SHUVAEV, Experimentelle Physik 4, Universität Würzburg, Würzburg, Germany; A. LOIDL, Experimentalphysik V, EKM, Universität Augsburg, Augsburg, Germany

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

CH-6.4:IL08 Magnetic Excitations in Multiferroics: an Inelastic Neutron Scattering Study

M. BRADEN, II. Physikalisches Institut, University of Cologne, Cologne, Germany

Session CH-6.5

Structural Characterization and Spin Order of Multiferroics

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

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

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

CH-6.5:IL04 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 CH-6.6

New Effects

CH-6.6:IL01 Electromagnons in Multiferroics

D. DREW, CNAM, Physics Dept., University of Maryland, College Park, MD, USA

CH-6.6:IL02 Novel and Original Features on the Model Multiferroic BiFeO₃ Under Strain Effects

B. DKHIL, UMR-8580 Ecole Centrale Paris - CNRS, Châtenay-Malabry, France

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

CH-6.6:IL04 Magnetic Control of Electrical Polarization at Room Temperature

J.F. SCOTT, Physics Dept., Cambridge University, Cambridge, UK; **A. KUMAR**, R.S. KATYAR, Physics Dept., University of Puerto Rico; **R. PIRC**, R. BLINC, Jozef Stefan Institute, Ljubljana, Slovenia

CH-6.6:IL05 Magneto-electric 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

CH-6.6:IL06 Flexomagneto-electric Interaction and New Effects in Multiferroics

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CH-6.6:IL07 Local Polarization-dependent Electron Transport through Uni- and Multiaxial Ferroelectric Oxides

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CH-6.6:IL08 Nonlinear Optics Applied to Magneto-electric Multiferroics

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CH-6.6:IL09 Photoconductivity in Ferroelectric BiFeO₃-PbTiO₃ Thin Films

XIAOWEN ZHOU, SHENGWEN YU, BINGRONG YUAN, JINRONG CHENG, School of Material Science and Engineering, Shanghai, China

Session CH-6.7

Devices and Applications

CH-6.7:IL01 Microwave Magneto-electric 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

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

CH-6.7:IL03 Tunneling Across a Ferroelectric Barrier: A First-principles Study

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CH-6.7:IL04 Sub-THz Excitations in Ferrite-ferroelectric Heterostructures

G. SRINIVASAN, Physics Dept., Oakland University, Rochester, MI, USA

CH-6.7:IL05 Taking Advantage of Interface Effects to Design New Oxide Based Heterostructures for Spintronics

A. BARTHÉLÉMY¹, M. BIBES¹, Z. SEFRIOUJ³, V. GARCIA^{1,2}, O. COPIE¹, M. BASLETIC⁵, K. BOUZEHOUAN¹, S. FUSIL¹, E. JACQUET¹, D. IMHOFF⁴, L. BOCHER⁴, A. HAMZIC⁵, J. SANTAMARIA³, N. MATHUR², ¹Unité Mixte de Physique CNRS/Thales, Palaiseau, France; ²University of Cambridge, Cambridge, UK; ³GFMC, Dpto. Física Aplicada III, Universidad Complutense de Madrid, Spain; ⁴Lab. de Physique des Solides, CNRS, Université Paris-Sud, Orsay, France; ⁵Dept. of Physics, University of Zagreb, Zagreb, Croatia

CH-6.7:IL06 Ferroelectric Tunnel Barriers for Electronics and Spintronics

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Poster Presentations

CH-6:P01 Magneto-electric Gyrotator

A.V. FILIPPOV, M.I. BICHURIN, Yaroslav-the-Wise Novgorod State University, Veliky Novgorod, Russia

CH-6:P02 Microstructure, Magnetic and Dielectric Properties of CoFe₂O₄-Pb(Fe_{1/2}Ta_{1/2})O₃-PbTiO₃ Composites

J. KULAWIK, P. GUZDEK, D. SZWAGIERCZAK, Institute of Electron Technology, Cracow Division, Cracow, Poland

CH-6:P03 The Ferroelectric and Optical Properties of BiFeO₃-PbTiO₃/ZnO:Al Heterostructure

W.F. YANG, S.W. YU, J.R. CHENG, School of Materials Science and Engineering, Shanghai University, Shanghai, China

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 Eu_{0.5}Ba_{0.5}TiO₃ - A New Magneto-electric Multiferroic

V. GOIAN, S. KAMBA, P. VANEK, M. SAVINOV, D. NUZHNYI, 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

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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:P08 Effects of LSCO Buffer Layer on the Microstructure and Electric Properties of Pb(Zr_{0.53}Ti_{0.47})O₃-CoFe₂O₄ Composite Films

XUFANG YU, SHENGWEN YU, JINRONG CHENG, School of Materials Science and Engineering, Shanghai University, Shanghai, China

CH-6:P09 Magnetolectric Low-frequency Magnetic Field Sensor
M.I. BICHURIN, YU.J. PUKINSKII, S.N. IVANOV, Novgorod State University, Veliky Novgorod, Russia; E. LIVERTS, A. GROSZ, E. PAPERNO, Ben-Gurion University of the Negev, Beersheva, Israel

CH-6:P10 Magnetolectric Gytrators for the Wide-frequency Range
M.I. BICHURIN, A.V. FILIPPOV, R.V. PETROV, S.V. AVERKIN, G.A. SEMENOV, Novgorod State University, Veliky Novgorod, Russia

SYMPOSIUM CI

MAGNETIC AND TRANSPORT PROPERTIES OF OXIDES

Oral Presentations

Session CI-1 CMR Manganites

CI-1:IL01 Emergent Phenomena in Complex Oxides under Spatial Confinement

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CI-1:IL02 Bilayer Manganites: Neutron Scattering Studies

T. CHATTERJI, JCMS, FZ Juelich outstation at Institut Laue-Langevin, Grenoble, France

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

CI-1:IL04 Interface Magnetism in Complex Oxide Heterostructures and Nanostructures

H. SRIKANTH, Dept. of Physics, University of South Florida, Tampa, FL, USA

CI-1:IL05 Many Faces of Photoinduced Phases in CMR Manganites

K. MIYANO, RCAST, University of Tokyo, Tokyo, Japan

CI-1:IL06 Self-adaptative Composition Modulation in Strained Manganite Thin Films

J. FONTCUBERTA, I.C. INFANTE, F. SANCHEZ, Institut de Ciència 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. COLLIEUX, Lab. de Physique des Solides, (UMR CNRS 8502), Université Paris Sud, Orsay, France; M. WOJCIK, E. JEDRYKA, Inst. of Physics, Polish Academy of Sciences, Warszawa, Poland

CI-1:IL07 Synthesis and Magnetic Properties of Eu³⁺ Doped La_{0.67}Ca_{0.33}MnO₃ Nanoplates

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Session CI-2 Multiferroic Compounds

(Joint Session with Focused Session CH-6)

CI-2:IL01 Room-temperature Multiferroic Coupling of BiFeO₃

J.-G. PARK, Dept. of Physics & Dept. of Energy Science, Sungkyunkwan University, Suwon, Korea; Center for Strongly Correlated Materials Research, Seoul National University, Seoul, Korea

CI-2:IL02 Exotic Ferroelectricity Induced by Spin or Charge Order

S. PICOZZI, CNR-INFM, CASTI Regional Lab., L'Aquila, Italy

CI-2:IL03 Electronic Orbital Currents and Polarization in Mott Insulators

D. KHOMSKII, II. Physikalisches Institut, University of Köln, Köln, Germany

CI-2:IL04 Strain Engineered Magnetolectric Coupling and Ferroelectricity in Orthorhombic AMnO₃ Epitaxial Thin Films

J. FONTCUBERTA, X. MARTI, I. FINA, L. FABREGA, F. SANCHEZ, Institut de Ciència de Materials de Barcelona (ICMAB-CSIC), Bellaterra, Spain; V. SKUMRYEV, Universitat Autònoma de Barcelona (UAB), Dept. Física, Bellaterra, Spain and Institut Català de Recerca i Estudis Avançats, Barcelona, Spain; C. FERRATER, M. VARELA, Universitat de Barcelona, Dept. Física Aplicada i Òptica, Barcelona, Spain

CI-2:IL05 Uncovering Novel Giant Magnetolectric Materials from First Principles

C.J. FENNIE, Cornell University, School of AEP, Ithaca, NY, USA

Session CI-3

Magnetic Oxide Thin Films and Heterostructures

CI-3:IL01 Tuning the Electronic Properties of the LaAlO₃/SrTiO₃ Interface

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CI-3:IL02 Magnetotransport and Magnetic Properties of All Oxide Magnetic Multilayers

N. KELLER¹, B. BERINI¹, J. SCOLA¹, W. NOUN¹, A. FOUCHET¹, E. POPOVA¹, D. SCHMOOL², I. SHEIKIN³, A. DEMUIR³, P. LEJAY⁴, ¹GEMaC / CNRS - UVSQ, Versailles, France; ²IFIMUP, Universitat do Porto, Porto, Portugal; ³LNCMI, CNRS, Grenoble, France; ⁴Institut Néel, Grenoble, France

CI-3:IL03 Measurement of the Transport Spin Polarization of Ru Doped CrO₂ Using Point-contact Andreev Reflection

M.S. OSOFSKY, Naval Research Laboratory, Washington, DC, USA; K. WEST, S.A. WOLF, J. LU, University of Virginia, Charlottesville, VA, USA

CI-3:IL04 Effects of Substrate Electrostriction on Thin Films of La_{0.67}Ca_{0.33}MnO₃, a Manganite Prone to Phase Segregation

F.J. MOMPEAN, A. ALBERCA, R. VILLANUEVA, N. BISKUP, A. DE ANDRÉS, M. GARCÍA-HERNÁNDEZ, ICMN/CSIC, Madrid, Spain; N.M. NEMES, F. BRUNO, J. SANTAMARÍA, Universidad Complutense de Madrid, Spain

CI-3:IL05 Role of Defects and Interfaces in Ferromagnetism of SnO₂ Based Heterostructures

A. ESPINOSA¹, M. GARCÍA-HERNÁNDEZ¹, N. MENÉNDEZ², C. PRIETO¹, A. DE ANDRÉS¹, ¹Inst. de Ciencia de Materiales de Madrid, Consejo Superior de Investigaciones Científicas, Cantoblanco, Madrid, Spain; ²Dpto de Química-Física Aplicada, Univ. Autónoma de Madrid, Cantoblanco, Madrid, Spain

CI-3:IL06 Tunable Interfaces in Manganite Multilayers

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CI-3:IL07 Phase Transitions in Narrow Band Manganite Thin Films

U. SCOTTI DI UCCIO¹, 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, ¹CNR-INFM, Complesso Monte S. Angelo, Napoli, Italy

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. KRÉMER, H.-U. HABERMEIER, B. KEIMER, HO NYUNG LEE, Materials Science and Technology Division, Oak Ridge National Laboratory, Oak Ridge, TN, USA

Session CI-4

Coexistence of Superconductivity and Magnetism

CI-4:IL01 Antiferromagnetism and High-T_c Superconductivity in Cuprates

H. MUKUDA, Graduate School of Engineering Science, Osaka University, Osaka, Japan

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

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

CI-4:IL04 Investigations for the Growth of Large Underdoped Bi₂Sr₂CaCu₂O_{8+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

CI-4:IL05 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

Session CI-5

Novel Synthesis and Processing Techniques

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

CI-5:IL02 Single Crystals of LnFeAsO_{1-x}F_x (Ln=La, Pr, Nd, Sm, Gd) and AFe₂As₂ (A=Ba, Rb, Ca, Eu): Growth, Structure and Superconducting Properties
J. KARPINSKI, N.D. ZHIGADLO, S. KATRYCH, Z. BUKOWSKI, R. PUZNIAK, K. ROGACKI, P. MOLL, B. BATLOGG, Laboratory for Solid State Physics, ETH Zurich, Zurich, Switzerland; S. WEYENETH, H. KELLER, Physik-Institut der Universität Zürich, Zurich, Switzerland; M. TORTELLO, D. DAGHERO, R. GONNELLI, Dipartimento di Fisica, Politecnico di Torino, Torino, Italy

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

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. CECCI, E. CHIANCONE, C.N.R. Inst. of Molecular Biology and Pathology, Dept. of Biochemical Sciences, "Sapienza" Univ. of Rome, Rome, Italy

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 CI-6

Oxides with Diluted Magnetic Moments

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

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

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

CI-6:IL04 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

CI-6:IL05 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-ARÓSO**, 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

Session CI-7

Spectroscopy of Magnetic Oxides

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

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

CI-7:IL03 RE L₃ X-ray Absorption Study of REO_(1-x)F_xFeAs (RE = La, Pr, Nd, Sm) Oxypnictides
B. JOSEPH¹, A. IADECOLA¹, M. FRATINI², A. BIANCONI¹, A. MARCELLI³, N.L. SAINI¹, ¹Dipartimento di Fisica, University of Rome "La Sapienza", Roma,

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

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

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

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

CI-8:IL03 Room Temperature Ferromagnetism in Nanostructured Mn-doped Cuprous Oxide Fibres
A. AHMED, N.S. GAJBHIYE, Dept. of Chemistry, Indian Institute of Technology, Kanpur, India

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

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

CI-8:IL06 Quantum Critical Fluctuations in the Frustrated Kondo Lattice Pr₂Ir₂O₇
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

Poster Presentations

CI-P01 Current-induced Asymmetric Electroresistance in Nd_{0.7}Sr_{0.3}MnO₃ Epitaxial Thin Films
JIANFENG WANG, J. GAO, Dept. of Physics, The University of Hong Kong, Hong Kong

CI-P02 Effect of Electron Doping in Hole Doped La_{0.7}Ca_{0.3}MnO₃ on Electrical, Magnetic and Magneto-transport Properties
A. KHARE¹, R.J. CHOUDHARY², S. KUMAR³, S.P. SANYAL¹, ¹Dept. of Physics, Barkatullah University, Bhopal, India; ²UGC-DAE-Consortium for Scientific Research, Indore, India; ³SNME, Changwon National University, Changwon, Republic of Korea

CI-P03 Nonlinear Electrical Transport Through the Grain Boundary Tunneling in La-deficient Compound La_{0.9}Mn_{0.9}Co_{0.1}O₃
K. DE, A. ROY, C.J.R. SILVA, M.J.M. GOMES, Physics Centre and Centre of Chemistry, University of Minho, Braga, 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-P06 The Electroresistance Effect Obtained in a Pr_{0.5}Ca_{0.5}MnO₃ Magnetic Oxide Thin Film, by Ferroelectric Field in a Ferroelectric/Manganite Heterostructure
R. SOULIMANE, Lab. de Catalyse et Synthèse en Chimie Organique, Algérie; A.-M. HAGHIRI, Lab. de Photonique et de Nanostructures, LPN-CNRS, Marcoussis, France; W. PRELLIER, G. POUILLAIN, R. BOUREGBA, B. MERCEY, Lab. de Cristallographie et de Sciences des Matériaux, CRISMAT-ISMRA, CNRS UMR 6508, Caen, France

CI-P07 Effects of Field/Current on Epitaxial Thin Films of Tetravalent Hf-doped Manganites
J. GAO, L. WANG, Dept. of Physics, The University of Hong Kong, Hong Kong, China

CJ:P08 Characterization of Mn-doped ZnO/Al₂O₃ Multilayered Nanostructures Grown by Pulsed Laser Deposition

A. KHODOROV¹, S. LEVICHEV¹, O. KARZAZI², A. CHAHBOUN^{1,2}, **A.G. ROLO**¹, N.P. BARRADAS³, E. ALVES³, C.J. TAVARES¹, D. EYDI⁴, J.-P. RIVIÈRE⁴, M.F. BEAUFORT⁴, M.J.M. GOMES¹, ¹Physics Centre, University of Minho, Braga, Portugal; ²LPS, Physics Department, Faculty of Sciences, Fes, Morocco; ³ITN, Ion Beam Laboratory, Sacavém, Portugal; ⁴PhyMat, University of Poitiers, Futuroscope-Chasseneuil, France

CJ: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

CJ:P10 Phonon Scattering and Charge Excitation in La_{0.5}Sr_{0.5}CoO₃
D.K. MISHRA, A. ANJU, V.G. SATHE, UGC-DAE Consortium for Scientific Research, University Campus, Indore, India

SYMPOSIUM CJ

SCIENCE AND TECHNOLOGY FOR SILICATE CERAMICS

Oral Presentations

Session CJ-1

Science of Silicate Ceramics

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

CJ-1:IL02 Characterisation of Microstructure and Crystallographic Texture of Ceramics

D. CHATEIGNER, CRISMAT-ENSICAEN, IUT-Caen, Université de Caen Basse-Normandie, Caen, France

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

CJ-1:IL04 Glass Ceramic Systems Suitable for Conventional Ceramic Glazes

B. KARASU, Anadolu University, Dept. of Materials Science and Engineering, Eskisehir, Turkey

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

CJ-1:IL06 Use of Iron-rich Slag as Raw Material for Production of Glassy and Glass-ceramic Pyroxene Materials

E.I. CEDILLO GONZÁLEZ¹, J.J. RUIZ VALDÉS^{1,2}, A. ÁLVAREZ MÉNDEZ¹, ¹Facultad de Ciencias Químicas, Universidad Autónoma de Nuevo León, Monterrey, N.L., Mexico; ²Centro de Innovación, Investigación y Desarrollo en Ingeniería y Tecnología CIIDIT, Universidad Autónoma de Nuevo León, Apodaca, N.L., Mexico

CJ-1:IL07 Influence on the Compression Strength of a High-Porous Silica Material by Using Different Types of Layer Silicates as an Inorganic Binder in Extrusion Process

D. SCHARF, F. CLEMENS, Empa, Swiss Federal Labs for Materials Testing and Research, Dübendorf, Switzerland; D. HESSELBARTH, M. DANZINGER, Sika Technology AG, Zürich, Switzerland; Th. GRAULE, Empa, Swiss Federal Labs for Materials Testing and Research, Dübendorf, Switzerland

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

CJ-1:IL09 Clay Structural Transformations During Firing

P. BLANCHART, S. DENIEL, N. TESSIER-DOYEN, GEMH, ENSCI, Limoges, France

CJ-1:IL10 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, ^aTermal Seramik Sanayi

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CJ-1:IL11 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

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

CJ-1:IL13 Simple Rheological Tests and Protocols for SME Ceramic Producers

C. GALASSI, **D. GARDINI**, CNR-ISTEC, Faenza, Italy

Session CJ-2

Innovation in the Silicate Ceramics Industry

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

CJ-2:IL02 Mechanical Behaviour of Porcelain Stoneware Bodies: from Green to Fired

A. TUCCI, L. ESPOSITO, E. RASTELLI, Centro Ceramico Bologna, Bologna, Italy

CJ-2:IL03 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

CJ-2:IL04 Effect of Alkaline Earth Oxide on Firing Behaviour of Single Fired Wall Tile Bodies

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CJ-2:IL05 Innovative Use of Industrial Solid Waste in Silicate Ceramics

S.K. DAS, Central Glass & Ceramic Research Institute, Kolkata, India

CJ-2:IL06 Lightweight Aggregate Processed from Waste Materials

V. DUCMAN, ZAG Ljubljana, Ljubljana, Slovenia; B. MIRTIC, NTF, Ljubljana, Slovenia

CJ-2:IL07 Development of Photochromic Coatings on Ceramic Tiles

B. ATAY^{1,2}, M. GURBUZ¹, A. KUCUK², A. DOGAN^{1,3}, ¹Anadolu University, Dept. of Material Science and Eng., Eskisehir, Turkey; ²Kaleseramik Canakkale Kalebodur Seramik Sanayi A.S., Can-Canakkale, Turkey; ³Advanced Technologies Reseach Center (ITAB), Anadolu Univesity, Eskisehir, Turkey

CJ-2:IL08 Correction of Criteria for Clay Drying Sensitivity on the Basis of Bigot's Curve

Z. LALIC, **M. ARSENOVIC**, Z. RADOJEVIC, Institute for Testing of Materials, Belgrade, Serbia

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

CJ-2:IL10 Glassceramics from Vitreous and Ceramic Wastes

J.Ma. RINCON, IETcc, CSIC, Madrid, Spain

CJ-2:IL11 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

CJ-2:IL12 Use of TV Screen Hazardous Waste as a Silica Source in Glass-Ceramic Systems: SiO₂-Al₂O₃-[MgO or CaO]

H.I. CARDENAS-RAMIREZ, G.E. CAMARGO-NEGRETE, G.C. DÍAZ T., J. CHÁVEZ C., Fac. de Ciencias Químicas e Ingeniería, Universidad Autónoma de Baja California, Mesa de Otay, Tijuana, B.C., México; Inst. de Investigaciones en Materiales, UNAM, DF, México

Session CJ-3

Nanotechnology and Advanced Solutions in Silicate Ceramics

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

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

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

CJ-3:L04 Microwave-assisted Green Synthesis of Noble Metal Nanoparticles

M. BLOSI, M. DONDI, ISTE-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

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

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

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

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

Session CJ-4

Decoration, Colour and Design of Silicate Ceramics

CJ-4:IL01 Digital Decoration of Ceramic Tiles: Current Situation and Outlook

M. DONDI, CNR-ISTEC, Faenza, Italy

CJ-4:IL02 Innovations and New Trends in Ceramic Tile Decoration

A. MORENO BERTO, Instituto de Tecnologia Ceramica, AICE, Universitat Jaume I, Castellon, Spain

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 di Modena e Reggio Emilia, Modena, Italy; School of Chemical Engineering, Iran University of Science and Technology, Tehran, Iran

CJ-4:IL04 Development of New Ceramic Dyes

G. MONROS, Dpt. Quimica Inorganica i Organica, Universitat Jaume I, Castellon, Spain

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

CJ-4:IL06 Novel Ceramic Pigments Based on Industrial Wastes

W. HAJJAJI¹, G. COSTA², M.J. RIBEIRO², M.P. SEABRA¹, J.A. LABRINCHA¹, ¹Ceramics and Glass Eng. Dept., CICECO, University of Aveiro, Aveiro, Portugal; ²ESTG, Polytechnic Institute of Viana do Castelo, Viana do Castelo, Portugal

Poster Presentations

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:P04 New Development of Color Cement and Concrete with High Mechanical Strength

A. AMIRARJMAND, Y. MOHAMMADI, A.S. MOHAJER, S.H. MIRHOSSEINI, Academic Center for Education, Culture and Research - Yazd branch, Yazd, Iran

CJ:P05 Pozzolanic Activity of Glass Powder as Partial Replacement of Portland Cement

A. KHMIRI, B. SAMET, M. CHAABOUNI, Laboratoire de Chimie Industrielle, Ecole Nationale d'Ingénieurs de Sfax, Sfax, Tunisie

CJ:P06 Fast Firing of Glazed Tiles Containing Paper Mill Sludge and Glass Cullet

G. TONELLO, E. FURLANI, S. MASCHIO, D. MINICHELLI, S. BRUCKNER, Università di Udine, Dipartimento Scienze e Tecnologie Chimiche, Udine, Italy; E. LUCCHINI, Università di Trieste, Dipartimento di Ingegneria dei Materiali e delle Risorse Naturali, Trieste, Italy

CJ:P07 Translucent and Thin Porcelain Tile Body

U.E. ANIL, Kaleseramik A.S., Can, Turkey

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, Università di Trieste, Dipartimento di Ingegneria dei Materiali e delle Risorse Naturali, Trieste, Italy

CJ:P09 Thermal and Mechanical Performances of Porous Porcelain Stoneware Tiles

E. RAMBALDI, L. ESPOSITO, Centro Ceramico Bologna, Bologna, 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 Quantitative 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:P13 Structural Evolution and Mechanical Properties of Silicate Ceramics Sintered with BaF₂ and CaF₂ Nanoparticles

R. TORRES, H. VALLE, Mexichem Fluor; L. FLORES, Facultad de Quimica-UASLP; O. DOMINGUEZ, IM-UASLP, San Luis Potosi, Mexico

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 Engineering (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. STOBIEBSKA, M.M. BUCKO, J. LIS, K. KUZMINSKA, AGH-University of Science and Technology, Faculty 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:P19 M-doped Al₂TiO₅ (M=Cr, Mn, Co) Solid Solutions and their Use as Ceramic Pigments

M. OCANA, Instituto de Ciencia de Materiales de Sevilla-CSIC/US, Sevilla, Spain; M. DONDI, ISTE-CNR, Faenza, Italy; T. STOYANOVA LYUBENOVA, J.B. CARDA, Universitat Jaume I, Castellon, Spain

CJ:P20 Synthesizes of Nano Yellow and Red Pigments from Recycling of Dust Arc Furnaces

M.R. BOLURFORUSH, A. AMIRARJMAND, Y. MOHAMMADI IRAVANI, S.H. MIRHOSSEINI, Academic Center for Education, Culture and Research-Yazd branch, Yazd, Iran

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

SYMPOSIUM CK

GEOPOLYMERS AND GEOCEMENTS: LOW ENVIRONMENTAL IMPACT CERAMIC MATERIALS

Oral Presentations

Keynote Lecture

CK:KL Status and Prospects of Research and Application of Alkali-activated Materials

P.V. KRIVENKO, Kiev, Ukraine

Session CK-1

Preparation

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

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

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

CK-1:IL04 The Suitability of Different Clay Resources in Respect to Form Geopolymeric Binders

A. BUCHWALD, ASCEM B.V., Beek, The Netherlands

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

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

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

CK-1:IL08 Preparation and Stability of Alkali Activated Materials from Slags and Fly-ashes

V. BILEK, ZPSV a.s., Brno, Czech Republic

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

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

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

CK-1:L12 Fly Ash Beneficiation and Geopolymer Properties

N.W. CHEN-TAN, A. VAN RIESSEN, Curtin University, Perth, Australia

CK-1:IL13 Geopolymer Binders in Composite Cements and Ceramic-like Materials

Ch. KAPS, M. HOHMANN, Bauhaus-University Weimar, Chair of Building Chemistry, Weimar, Germany

CK-1:L14 Dissolution-reorientation-polycondensation Processes of Metakaolin in Alkaline Solutions Related to Geopolymerization

YUNSHENG ZHANG, Jiangsu Key Laboratory for Construction Materials, Southeast University, Nanjing, P.R.China

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

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

CK-1:L17 Geopolymer Development by Powders of Metakaolin and Wastes in Thailand

C. TIPPAYASEM¹, **S. BUNSARI**², **L. PUNSUKUMTANA**³, **S. SAJJAVANICH**², **D. CHAYSUWAN**¹, ¹Dept. of Materials Engineering, Kasetsart University, Bangkok, Thailand; ²Dept. of Civil Engineering, Kasetsart University, Bangkok, Thailand; ³Dept. of Science Service, Ministry of Science and Technology, Bangkok, Thailand

CK-1:IL18 Mechanical Response of Discontinuous Filament Polymer Fiber Reinforced Geopolymers

B. VARELA, J.F. DEAN, Dept. of Mechanical Engineering, Rochester Institute of Technology, Rochester, NY, USA

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

CK-1:L20 Physical, Mechanical and Micro-structural Properties of Fly-Ash Based Geopolymeric Bricks Produced by Pressure Forming Process

O. ARIÖZ, Cimsa, Ready-Mixed Concrete Company, Eskisehir, Turkey; **K. KILINC**, M. TUNCAN, A. TUNCAN, O. ZEYBEK, Dept. of Civil Engineering, Anadolu University, Eskisehir, Turkey; **T. KAVAS**, Dept. of Materials Science & Engineering, Afyon Kocatepe University, Afyonkarahisar, Turkey

CK-1:L21 Lightweight Geopolymer Materials for Insulating Applications: Electric and Thermal Properties

E. KAMSEU¹, C. LEONELLI¹, A. LIBBRA², A. MUSCIO², ¹Dept. of Materials and Environmental Engineering, University of Modena and Reggio Emilia, Modena, Italy; ²Dept. of Mechanical and Civil Engineering, University of Modena and Reggio Emilia, Modena, Italy

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 CK-2

Characterization

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

CK-2:IL02 The Alkali-activation of Aluminosilicates - Some Chemical Perspectives

D.E. MACPHEE, Dept. of Chemistry, University of Aberdeen, Old Aberdeen, Scotland

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

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

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

CK-2:L06 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

CK-2:L07 In Situ Characterization of Fresh and Aged Geopolymer Materials

S. ROSSIGNOL, GEMH ENSCI, Limoges, France

CK-2:L08 Mechanical Properties of Geopolymers: Flexural Strength and Microstructure

L. ESPOSITO, Centro Ceramico Bologna, Bologna, Italy

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

CK-2:L10 Development of Alkali Activated Metakaolin/Slag/Fly Ash Binders

M.I. OLMOS-ALEJO, L.Y. GÓMEZ-ZAMORANO, Facultad de Ingeniería Mecánica y Eléctrica, Universidad Autónoma de Nuevo León, San Nicolás de los Garza, Nuevo León, México

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

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. LANCELOTI, Dipartimento di Ingegneria dei Materiali e dell'Ambiente, Università di Modena e Reggio Emilia, Modena, Italy

CK-2:L13 Phase and Strength Evolution of Fly Ash Geopolymers Exposed to Standard Fire Conditions

W.D.A. RICKARD, A. VAN RIESSEN, J. TEMUJIN, R.P. WILLIAMS, Centre for Materials Research, Curtin University of Technology, Perth, WA, Australia

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

Session CK-3

Industrialization & Application

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

CK-3:IL02 Geopolymers in Conservation of Stone Monuments and Buildings

A. TEIXEIRA-PINTO, Universidade de Trás-os-Montes e Alto Douro, Vila Real, Portugal

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

CK-3:L04 Mechanical Properties of Geopolymer Composites Affected by their Microstructure

M. STEINEROVA, Academy of Sciences of the Czech Republic, Institute of Rock Structure and Mechanics, v.v.i., Prague, Czech Republic

CK-3:L05 Development of Building Materials Through Alkaline Activation of Construction and Demolition Waste (CDW)

J.G. RAPAOTE, C. LAGINHAS, A. TEIXEIRA-PINTO, Universidade de Trás-os-Montes e Alto Douro, Dpto de Engenharias, Vila Real, Portugal

CK-3:IL06 Solidification and Stabilization of Radioactive metal Isotopes and Radioactive Wastes in Geopolymer Matrix

T. HANZLICEK, I. PERNA, Institute of Rock Structure and Mechanics of the Czech Academy of Sciences, Prague, Czech Republic

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

CK-3:L09 Bond Strength of Geopolymers Concrete with Reinforcing Steel

PK. SARKER, R. VASILE, Dept. of Civil Engineering, Curtin University of Technology, Perth, Australia

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. SOBALK, Z. TVARUZKOVA, J. DEDECEK, J. Heyrovsky Institute of Physical Chemistry, Academy of Sciences of the Czech Republic, Prague, Czech Republic

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

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

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

CK-3:L14 How to Assess the Environmental Sustainability of Geopolymers? A Live Cycle Perspective

M. WEIL, Karlsruhe Institut für 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

Poster Presentations

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, ISTE-CNR, Faenza, Italy; **Z. SOBALK**, 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:P03 Alkali Activated Biomass Fly Ash as Geopolymers

R. RAJAMMA, V.M. FERREIRA, Dpto de Eng. Civil/CICECO, Universidade de Aveiro, Aveiro, Portugal; **J.A. LABRINCHA**, Dpto de Eng. Cerâmica e do Vidro/CICECO, Universidade de Aveiro, Aveiro, Portugal

CK:P04 Study of the Adherence of the Steel-polysialate Concrete

D.P. DIAS, LECIV-UENF, Campos dos Goytacazes, Rio de Janeiro, Brazil

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. LANCELOTI**, 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

Oral Presentations

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

CL-1:IL01 Reactive Oxide Micropowders and Chemical Additives for Refractory Castables

C. PARR, G. ASSIS, CH. WÖHRMEYER, H. FRYDA, Kerneos S.A., Neuilly sur Seine, France

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

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

CL-1:IL04 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

CL-1:IL05 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

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

CL-1:IL07 Fabrication of Cellular Aluminium Metal by Lost Foam Technique

K.A. GULER, G. OZER, Z. TASLICUKUR, Metallurgical and Materials Eng., Yildiz Technical University, Istanbul, Turkey

CL-1:IL08 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

Session CL-2

Testing

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

CL-2:IL02 How to Enhance Strain to Rupture of Refractory Materials for Thermal Shock Applications?

M. HUGER¹, T. OTA², N. TESSIER-DOYEN¹, T. CHOTARD¹, P. MICHAUD¹, ¹Groupe d'Etude des Matériaux Hétérogènes (GEMH), ENSCI, Limoges, France; ²Nagoya Institute of Technology, Nagoya, Aichi, Japan

CL-2:IL03 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

CL-2:IL04 Fracture Resistance Investigations of Refractory Materials

G. GOGOTSI, Pisarenko Institute for Problems of Strength, Kiev, Ukraine

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

CL-2:IL06 Characterisation of the Fracture Path in "Flexible" Refractories

H. HARMUTH, Chair of Ceramics, University of Leoben, Leoben, Austria

CL-2:IL07 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

CL-2:IL08 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

CL-2:IL09 The Fracture Toughness of Refractories

R.C. BRADT, The University of Alabama, Tuscaloosa, AL, USA

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-CROME_P), Albi, France; **F. NAZARET AUROCK**, MDI, ZA Albitech, Albi, France

CL-2:IL11 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

Session CL-3

Manufacturing, Selection, Design and Use

CL-3:IL01 Carbon Containing Castables and More

C.G. ANEZIRIS, S. DUDCZIG, Institute of Ceramic, Glass and Construction Materials, TU Bergakademie Freiberg, Freiberg, Germany

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

CL-3:IL03 Application of Organic Thickening Agents to the Rheology Study of Ceramic Slurries Used in the Investment Casting Process

J. FERENC¹, H. MATYSIAK², J. MICHALSKI³, K.J. KURZYDLOWSKI¹, ¹Faculty of Materials Eng., Warsaw University of Technology, Warsaw, Poland; ²University Research Centre "Functional Materials", Warsaw University of Technology, Warsaw, Poland; ³Materials Engineers Group Sp. z o.o., Warsaw, Poland

CL-3:IL04 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

CL-3:IL05 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

CL-3:IL06 Analysis and Interpretation of Liquid Oxide Corrosion Microstructure

J. POIRIER, CEMHTI-CNRS, Orleans, France

CL-3:IL07 Aluminum Titanate Refractories for Molten Aluminum

Y. OHYA, Gifu University, Gifu, Japan

CL-3:IL08 Interactions Between Superalloys and Mould Materials for Investment Casting of Turbine Blades

F. VALENZA, IENI-CNR, Genova, Italy; **R. NOWAK**, N. SOBCZAK, Foundry Research Institute, 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

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

CL-3:L10 Interaction Between the Ceramic CaZrO₃ and the Melt of Titanium Alloys

CHONGHE LI, YONGHUI GAO, XIONGGANG LU, WEIZHONG DING, ZHONGMING REN, KANG DENG, Shanghai Key Laboratory of Modern Metallurgy & Materials Processing, Shanghai University, Shanghai, China

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

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

CL-3:IL13 Nanostructured Refractories: Current Situation and Future Prospects

SHAOWEI ZHANG, Dept. of Engineering Materials, The University of Sheffield, Sheffield, UK

CL-3:IL14 Novel Basic Carbon Slidegate Refractory for Ca-treated Steel Application

A. REZAEI, **M. SNYDER**, P. DESAI, R&D Dept., Vesuvius Research, Pittsburgh, PA, USA

Session CL-4

System Modeling, Simulation and Failure Analysis

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

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

CL-4:IL03 Modelling of Joint Effect in Refractory Structures

E. BLOND¹, **A. GASSER**¹, **M. LANDREAU**², **T.M.H. NGUYEN**¹, ¹Institut PRISME, Polytech'Orléans, Orléans, France; ²CPM, Parc d'Activités Forbach Ouest, Forbach, France

CL-4:L04 Nozzle Wear Mechanisms Developed by Contact with Slag and Steel During Casting Process

V. PEIRANI, **L. SANTINI**, **E. BENAVIDEZ**, **E. BRANDALEZE**, Dpto de Metalurgia, Facultad Regional San Nicolás, Universidad Tecnológica Nacional, San Nicolás, Argentina

CL-4:L05 Simulation of Moulding of Refractory Bricks

D. GRUBER, H. HARMUTH, Chair of Ceramics, University of Leoben, Leoben, Austria

CL-4:L06 Sizing of a Refractory Castable Gas-burner Using Thermo-mechanical Simulations

F. NAZARET¹, **T. CUTARD**², **O. BARRAU**¹, ¹AUROCK Pépinière Albia, Albi, France; ²Toulouse University, Mines Albi, Research Center on Tools Materials and Processes (ICA-CROME), Albi, France

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

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

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

CL-4:L10 Investigation of Refractory Corrosion of a Gas-stirred Steel Ladle by Simulation

S. VOLLMANN, H. HARMUTH, University of Leoben, Leoben, Austria

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

Poster Presentations

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. ÖZDEMİR**³, ¹Anadolu University, Graduate School of Sciences, Ceramic Engineering Program A.D, Eskisehir, Turkey; ²Anadolu University, Material Science and Engineering, Eskisehir, Turkey; ³Kütahya 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

CM - 2nd International Conference DISCLOSING MATERIALS AT NANOSCALE

Oral Presentations

Session CM-1

Nanomaterials and Systems at Nanoscale

CM-1:IL01 Chemistry of Functional Nanoporous Materials

A. VINU, International Center for Materials Nanoarchitectonics, World Premier International Research Center, NIMS, Tsukuba, Japan

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

CM-1:IL03 Nanogaps for Sensing

F. FAVIER, Institut Charles Gerhardt Montpellier, UMR 5253 CNRS, Université Montpellier 2, Montpellier, France

CM-1:IL04 Nanopatterns and Nanomaterials: Synthesis, Characterization and Applications

HUA ZHANG, School of Materials Science and Engineering, Nanyang Technological University, Singapore

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

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

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

CM-1:L08 Synthesis and Structure Resolution of the First Tri-continuous Mesoporous Material

YU HAN, King Abdullah University of Science and Technology, Thuwai, Saudi Arabia; **DALIANG ZHANG**, Structural Chemistry and Berzelli Center EXSELENT on Porous Materials, Stockholm University, Stockholm, Sweden

CM-1:IL09 Nanomaterials for Light Harvesting

D.L. OFFICER, Intelligent Polymer Research Institute, University of Wollongong, Wollongong, NSW, Australia

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 Nanoarchitectonics (MANA), National Institute for Materials Science (NIMS), Tsukuba, Ibaraki, Japan

CM-1:IL11 Nanocrystal Based Architectures for Optoelectronics and Photonics

N. GAPONIK, Physical Chemistry, TU Dresden, Germany

CM-1:IL12 Nano/Micro-protrusions 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

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

CM-1:IL14 Rare - Earth - Doped Silicate Glass - Ceramic Thin Films for Integrated Optical Devices

S. Berneschi¹, G. Alombert-Goget², C. Armellini^{2,3}, M. Brenci¹, I. Cacciari¹, A. Chiappini², A. Chiasera², M. Ferrari², S. Guddala^{2,4,5}, E. Moser^{4,2}, G. Nunzi Conti¹, S. Pelli¹, G. C. Righini¹, ¹IFAC - CNR, Nello Carrara Institute of Applied Physics, Sesto Fiorentino (FI), Italy; ²IFN-CNR, Institute of Photonics & Nanotechnology, CSMFO Lab., Povo (TN), Italy; ³FBK, Trento, Italy; ⁴Dipartimento di Fisica, University of Trento, Povo, Italy; ⁵School of Physics, University of Hyderabad, Hyderabad, India

CM-1:IL15 Hot Spot Phenomenon in Ceramic Rod and Its Application

M. TAKATA, T. OKAMOTO, Dept. of Electrical Engineering, Nagaoka University of Technology, Nagaoka, Niigata, Japan

CM-1:IL16 Er³⁺/Yb³⁺/Ce³⁺ Co-doped Fluoride Glass Ceramics Waveguides for Application in the 1.5 μ m Telecommunication Window

B.R. BOULARD, I. SAVELLI, 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

CM-1:IL17 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

CM-1:IL18 AC-to-DC Power Conversion by As-Grown Single-walled Carbon Nanotube Diodes

G. MALLICK¹, P.M. AJAYAN², S.P. KARNA¹, ¹Weapons and Materials Research Directorate, ATTN: RDRL-WM, US Army Research Laboratory, Aberdeen Proving Ground, MD, USA; ²Dept. of Chemical Engineering and Mechanical Science, MS-321, Rice University, Houston, TX, USA

CM-1:IL19 Structural and Optical Characterization of Eu³⁺ Doped TiO₂ Nanoparticles Synthesized Through Shape Transformation

J. KULJANIN-JAKOVljević, Z. SAPONJIC, M. RADOICIC, M. MITRICA, J. NEDELJKOVIC, Vinca Institute of Nuclear Sciences, Belgrade, Serbia

CM-1:IL20 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

Session CM-2

Nanomaterials Characterization and Techniques

CM-2:IL01 Raman Spectroscopy of Functionalized Carbon Nanostructures

J. MAULTZSCH, Institut f. Festkörperphysik, Technische Universität Berlin, Berlin, Germany

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

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

CM-2:IL04 Low-frequency Raman Scattering in Nanometric Structures

A. MERMET, E. DUVAL, LPCML, Université Lyon, Villeurbanne, France

CM-2:IL05 STEM Characterization of Atomic Structures and Segregated atoms at Ceramic Interface

Y. IKUHARA^{1,2,3}, Y. SATO^{1,2}, N. SHIBATA¹, T. MIZOGUCHI¹, T. YAMAMOTO^{1,2}, ¹Institute of Engineering Innovation, The University of Tokyo, Tokyo, Japan; ²Nanostructures Research Laboratory, Japan Fine Ceramic Center, Nagoya, Japan; ³WPI Advanced Institute for Materials Research, Tohoku University, Sendai, Japan

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

CM-2:IL07 MgO Nanocubes in Compressed Powders

A.K. STERNIG, D. KOLLER, N. SIEDL, M. MÜLLER, J. BERNARDI, O. DIWALD, Institute of Materials Chemistry, Vienna University of Technology, Vienna, Austria; Institute 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, London, UK; WPI-Advanced Institute for Materials Research, Tohoku University, Sendai, Japan

CM-2:IL08 Scanning Auger Electron Spectroscopy: a New and Universal Technique for Identifying Graphene

MINGSHENG XU, International Center for Young Scientists, NIMS, Tsukuba, Japan; D. FUJITA, International Center for Young Scientists, Advanced Nano Characterization Center, International Center for Materials Nanoarchitectonics, NIMS, Japan; N. HANAGATA, Nanotechnology Innovation Center, National Institute for Materials, Japan

CM-2:IL09 Synthesis of Carbon Nanotubes/Gold Nanoparticles Hybrids for Environmental Applications

L. MINATI¹, G. SPERANZA¹, S. TORRENTO^{1,2}, L. TONIUTTI², B. ROSSI², C. MIGLIARESI³, D. MANIGLIO³, A. CHIASERA⁴, M. FERRARI⁴, ¹FBK, Povo-Trento, Italy; ²Dept. Physics, University of Trento, Italy; ³Dept. Material Eng., University of Trento, Italy; ⁴CNR-IFN, CSMFO Lab., Povo-Trento, Italy

CM-2:IL10 New MoO₃-x Nanowire Based Materials for Polymer-fiber Composites

V. DOMENICI¹, M. CONRADI², M. REMSKAR³, A. MRZEL³, M. CHAMBERS⁴, B. ZALAR³, ¹Dipartimento di Chimica e Chimica Industriale, Università degli studi di Pisa, Pisa, Italy; ²Institute of Metals and Technology, Ljubljana, Slovenia; ³J. Stefan Institute, Ljubljana, Slovenia; ⁴Krsko Nuclear Power Plant, Krsko, Slovenia

CM-2:IL11 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

CM-2:IL12 Surface-enhanced Raman Scattering of Quercetin with Nanoparticles for Optical Probing in Cells

YANG ZHANG, J.H. HAO, Dept. of Applied Physics, The Hong Kong Polytechnic University, Hong Kong, P.R. China; H.H. LIANG, Dept. of Applied Biology and Chemical Technology, The Hong Kong Polytechnic University, Hong Kong, P.R. China

CM-2:IL13 XPS Study of In Situ One-Step Ammination of Nanocrystalline Diamond Films

S. TORRENTO^{1,2}, A. MIOTELLO¹, G. SPERANZA², L. MINATI², M. FERRARI³, A. CHIASERA³, M. DIPALO⁴, E. KOHN⁴, ¹Physics Dep. University of Trento, Povo, Trento, Italy; ²FBK-IRST, Povo, Trento, Italy; ³CNR-IFN, CSMFO Lab., Povo, Trento, Italy; ⁴Institute of Electron Devices & Circuits, Ulm University Ulm, Germany

CM-2:IL14 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. VELDHIJ, J.E. TEN ELSHOF, H.L. CASTRICUM, D.H.A. BLANK, University of Twente, Inorganic Materials Science group, Enschede, The Netherlands

Session CM-3

Nanomanufacturing

CM-3:IL01 Self Assembly of Nanosystems Assisted with Local External Fields

M. AONO, International Center for Materials Nanoarchitectonics (MANA), National Institute for Materials Science (NIMS), Tsukuba, Japan

CM-3:IL02 Opal-type Photonic Crystals: Fabrication and Application
A. CHIAPPINI¹, G. ALOMBERT-GOGET¹, C. ARMELLINI^{1,2}, S. BERNESCHI³, M. BRENCI³, I. CACCIARI³, C. DUVERGER-ARFUSO⁴, S. GUDDALA^{1,5,6}, M. FERRARI¹, E. MOSER^{1,5}, D.N. RAO⁶, G.C. RIGHINI³, ¹CNR-IFN, CSMFO Lab., Povo, Trento, Italy; ²FBK, Povo, Trento, Italy; ³CNR-IFAC, Nello Carrara Institute of Applied Physics, MDF-Lab, Sesto Fiorentino (FI), Italy; ⁴Lab. LdOF, UMR CNRS 6010, Université du Maine, Le Mans, France; ⁵Dipartimento di Fisica, Università di Trento, Povo, Italy; ⁶School of Physics, University of Hyderabad, Hyderabad, India

CM-3:IL03 Self-assembly and Soft Lithography for Nanostructure Fabrication

H. WOLF, C. KÜMIN, E. LÖRTSCHER, A. REY, IBM Research GmbH, Zurich Research Laboratory, Rüschlikon, Switzerland; **C. HÜCKSTÄDT**, N.D. SPENCER, Dept. of Materials, ETH Zürich, Zürich, Switzerland

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

CM-3:IL05 SPM-based Nanofabrication and Analysis of Atomic-scale Magnetic Systems

R. WIESENDANGER, Interdisciplinary Nanoscience Center Hamburg, University of Hamburg, Hamburg, Germany

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

CM-3:IL07 Luminescent Nanoparticles as Efficient Labels in DNA-Microarray

F. ENRICH, R. RICCO', A. MENEGHELLO, CIVEN and Nanofab, Marghera (Venezia), Italy

CM-3:IL08 Design of Size and Interconnection of Novel Complex Oxide Powder

S. WADA, University of Yamanashi, Kofu, Japan

Session CM-4

Theory, Modeling and Simulation

CM-4:IL01 Simulation of Complex Photonic Materials

A. QUANDT, A. LEYMANN, Institut für Physik, Universität Greifswald, Greifswald, Germany

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

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

CM-4:IL04 Lithography Simulation: Modeling and Applications

P. EVANSCHITZKY, A. ERDMANN, Fraunhofer IISB, Erlangen, Germany

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

CM-4:IL06 1D Nanostructures from Carbon and Other Elements

G. SEIFERT, Physikalische Chemie, Technische Universität Dresden, Dresden, Germany

CM-4:IL07 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

CM-4:IL08 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

CM-4:IL09 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

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

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 CM-5

R&D Advances in Devices and Applications

CM-5:IL01 Design of Biomolecule-nanoparticle Complexes for Highly Sensitive Biological Detection

CHUNHAI FAN, Shanghai Institute of Applied Physics, CAS, Shanghai, China

CM-5:IL02 Development of Carbon Nanotube 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

CM-5:IL03 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

CM-5:IL04 Design of Nanostructured Sol-Gel Coatings for Targeted Applications

E. SCOLAN, R. PUGIN, S. PASCHÉ, B. WENGER, G. VOIRIN, Centre Suisse d'Electronique et Microtechnique SA, Neuchâtel, Switzerland

CM-5:IL05 Microsensors and Microreactors Based on Multi-Walled Carbon Nanotubes Decorated with Metal and Metal Oxide Nanoparticles

R.V. GELAMO, C. VERISSIMO, A.R. VAZ, F.P. ROUXINOL, **S.A. MOSHKALEV**, CCS-UNICAMP, Campinas, SP, Brazil

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

CM-5:IL07 Plasmonic Light Concentrators

T.J. ANTOSIEWICZ, P. WROBEL, Faculty of Physics, University of Warsaw, Warsaw, Poland

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

CM-5:IL09 A ZnO Nanorod Homo Junction Light-Emitting Diode

X.W. SUN, School of Electrical and Electronic Engineering, Nanyang Technological University, Singapore

Poster Presentations

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:P02 Thermal Properties of Nanocomposite Films Consisting of PVA and TiO₂ Nanoparticles of Different Shapes

M. RADOICIC, Z. SAPONJIC, M. MARINOVIC-CINCOVIC, **J. NEDELJKOVIC**, Vinca Institute of Nuclear Sciences, Belgrade, Serbia

CM:P03 Preparation of PVA/Sm₂O₃ Composites Nanofibers by Electrospinning Technique

P. FRONTERA, C. BUSACCA, V. MODAFFERI, P.L. ANTONUCCI, Dip. Meccanica e Materiali, Università Mediterranea di Reggio Calabria; **M. LOFARO**, CNR-ITAE Institute, Messina

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

CN:P06 Irradiation of a Nanocomposite of Pseudoboehmite-nylon 6,12
A.H. MUNHOZ Jr.¹, R. MENEGHETTI PERES¹, L.H. SILVEIRA¹, L.G. ANDRADE
E SILVA², L.F. DE MIRANDA¹, ¹Universidade Presbiteriana Mackenzie, Sao
Paulo, SP, Brasil; ²Instituto de Pesquisas Energeticas e Nucleares - IPEN

CN: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

CN: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

CN - 6th International Conference ADVANCED INORGANIC FIBRE COMPOSITES FOR STRUCTURAL AND THERMAL MANAGEMENT APPLICATIONS

Oral Presentations

Session CN-1

Production and Properties of Reinforcements, Preforms, and Matrix Materials

CN-1:IL01 Advanced Ceramic Fibers

D. SPORN, Fraunhofer-Institute für Silicatiforschung, Wuerzburg, Germany

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

CN-1:IL03 Electrospinning of Ceramic Nanofibers

W. SIGMUND, University of Florida, Gainesville, FL, USA, and Hanyang
University

CN-1:IL04 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

CN-1:IL05 Syntheses of Carbon Nanotubes in the Forms of Array,
Fluff, and Cable

T.Y. TSAI, H.M. CHEN, N.H. TAI, Dept. of Materials Science and Engineering,
National Tsing-Hua University, Hsin-chu, Taiwan; T.W. CHOU, Dept. of
Mechanical Engineering, University of Delaware, Newark, DE, USA

CN-1:IL06 Ceramic Fibers - Manufacturing, Properties and Applications

B. CLAUB, ITCF Denckendorf, Denckendorf, Germany

CN-1:IL07 Continuous Non-oxide Nanofibers Produced with a Polymer-
derived Ceramic Approach

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des Multimateriaux et Interfaces UMR UCBL/CNRS 5615 - Université Lyon 1
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CN-1:IL08 Composites Reinforced by Flexible Basalt Fibers: State of
Art in Production, Processing and Application

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Poland; K. SZAMALEK, Z. STACHURA, S. TRACZYK, L. STOCH, Institute of
Glass, Ceramics, Refractory and Construction Materials, Warszawa, Poland

Session CN-2

Processing and Fabrication

CN-2:IL01 Fabrication, Microstructures, Mechanical Properties and
High Temperature Performance of Tungsten Matrix Composites
Reinforced by TiC and ZrC Particles

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Materials Science and Engineering, Harbin Institute of Technology, Harbin,
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CN-2:IL02 CVI-derived Ceramic Composites (CMC) for Aerospace
Application

K. HANDRICK, H. LANGE, S. WEILAND, A. STEINACHER, MT Aerospace AG,
Augsburg, Germany

CN-2:L03 Hierarchical SiC-based Ceramic Matrix Composites
Reinforced with SiC Nanowires Grafted Carbon Fibers

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Performance Ceramics and Superfine Microstructure, Shanghai Institute of
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Academy of Sciences, Beijing, P.R. China

CN-2:L04 Effect of Nanoreinforcements on Structure and Properties
of Carbon/Carbon Composites

L.M. MANOCHA, R.B. PANDE, VISHAL MANKADIA, S. MANOCHA, Dept.
of Materials Science, Sardar Patel University, Vallabh Vidyanagar, India

CN-2:IL05 Microstructures and Properties of Ultra-high-temperature
Ceramics (UHTCs) based Composites with Carbon Fibers as
Reinforcements

SHAOMING DONG, Shanghai Institute of Ceramics, Chinese Academy of
Sciences, Shanghai, China

CN-2:L06 Ablation and Thermal Properties of Carbon Fiber Reinforced
Polymeric Matrix Composites Prepared by Spray-up Process

M.M. DOKUR, B. ALKAN, N. SOLAK, M. URGEN, G. GOLLER, Istanbul
Technical University, Istanbul, Turkey

Session CN-3

Laminated Composite Structures

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

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

CN-3:IL03 Damage-tolerant Laminate-type Hybrid Ceramics

Y. KAGAWA, Research Center for Advanced Science and Technology (RCAT),
The University of Tokyo and National Institute for Materials Science (NIMS),
Tokyo, Japan

CN-3:L04 Optomechanical Borosilicate Glass Matrix Composites

BO PANG, D. MCPHAIL, A.R. BOCCACCINI, Dept. of Materials, Imperial
College London, London, UK

Session CN-4

Property, Modeling and Characterization

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

CN-4:IL02 Modeling Tools for CMC Materials

D. KOCH, Advanced Ceramics Group, University of Bremen, Bremen, Germany

CN-4:L03 Interfacial Properties of Tungsten Fiber/Tungsten Matrix
Composites

J. DU, T. HÖSCHEN, J.-H. YOU, Max-Planck-Institut für Plasmaphysik,
EURATOM Association, Garching, Germany; M. RASINSKI, Warsaw University
of Technology, Faculty of Materials Science and Engineering, Warsaw, Poland;
S. WURSTER, W. GROSINGER, Erich Schmid Institute of Materials Science of
the Austrian Academy of Sciences, Leoben, Austria

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

CN-4:IL05 Fracture Toughness of Carbon Fibre and Particle Reinforced
Biomorphic SiC

J. SCHMIDT, German Aerospace Center (DLR), Stuttgart, Germany; A.
NEUBRAND, Fraunhofer-Inst. für Werkstoffmechanik (IWM), Freiburg, Germany

CN-4:IL06 High Temperature Creep of Metal- and Ceramic-matrix
Composites

S.T. MILEIKO, Inst. of Solid State Physics of RAS, Chernogolovka, Russia

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-5

Composite for Thermal Management

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

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. CORDOBA**, M. ODÉN, IFM, Linköping University, Sweden; **J. TAMAYO-ARIZTANDO**, M.R. ELIZALDE, CEIT and Tecnun, San Sebastián, Spain; **E. NEUBAUER**, AIT-Austrian Inst. of Technology GmbH, Seibersdorf, Austria

CN-5:L03 Adhesive Bonded Lap and Over-lap Joints of C/C-SiC, C/C Composites and Titanium Specimens
SHRADDHA SINGH, **V.K. SRIVASTAVA**, Dept. of Mechanical Engineering, Institute of Technology, Banaras Hindu University, Varanasi, India

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

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

CN-5:IL06 Design Aspects and Requirements of Ceramic Matrix Composites (CMC's) for Space Engines
S. BEYER, S. SCHMIDT, Astrium Space Transportation, Munich, Germany; **C. WILHELM**, EADS Innovation Works, Munich, Germany; **M. BOUCHEZ**, MBDA, Bourges, France

CN-5:L07 Mechanical Properties of High Thermal Conductivity Silicon Nitride In-Situ Composite
Y. ZHOU, **K. HIRAO**, **T. OHJI**, National Institute of Advanced Science and Technology (AIST), Nagoya, Japan

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

Session CN-6

Applications

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

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

CN-6:IL03 SA-Tyranohex-based Composites for High Temperature Applications
T. ISHIKAWA, Ube Industries, Ltd., Ube, Japan

CN-6:IL04 Modeling and Characterization of SiC/SiC Composites for Aerospace Applications
J.A. DiCARLO, NASA Glenn Research Center, Cleveland, OH, USA

CN-6:IL05 Carbon/Carbon Brake Materials
P. FILIP, Center for Advanced Friction Studies, Southern Illinois University Carbondale, IL, USA

Poster Presentations

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. SILVEIRA¹, **L.G. ANDRADE E SILVA²**, **L.F. MIRANDA¹**, ¹Universidade Presbiteriana Mackenzie, São Paulo, SP, Brazil; ²Instituto 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:P05 Production of Ceramic Composites by CVI Technology: Validation of Process Codes
F. BURGIO, **M. LABANTI**, **S. SANGIORGI**, **M. SCAFE'**, ENEA Faenza Research Centre, Faenza, Italy; **L. PILLONI**, ENEA Casaccia Research Centre, S. Maria di Galeria, Roma, Italy

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