Technical Sessions
Key to Session/Paper Numbers

A Coatings for Use at High Temperature

B Hard Coatings and Vapor Deposition Technology

C Fundamentals and Technology of Multifunctional Thin Films: Towards Optoelectronic Device Applications

D Biomedical Coatings

E Tribology and Mechanical Behavior of Coatings and Thin Films

F New Horizons in Coatings and Thin Films

G Applications, Manufacturing, and Equipment

TS1 Computational and Experimental Studies of Inorganic, Organic, and Hybrid Thin Films: An Atomestic View

TS2 Coatings and Materials for Fuel Cells and Batteries

TS3 Surface Engineering for Thermal Transport, Storage, and Harvesting

TS4 Characterization: Linking Synthesis, Microstructure, and Properties

TS5 Energetic Materials and Micro-Structures for Nanomanufacturing

TS6 Coatings for Microelectronics and Active Devices

Monday Morning, May 2, 2011

	Hard Coatings and Vapor Deposition Technology **Room: Royal Palm 1-3 - Session B2-1** **CVD Coatings and Technologies** **Moderators:** S. Ruppi, Seco Tools AB Fagersta, F. Maury, CIRIMAT CNRS-INPT-UPS ENSIACET	**Hard Coatings and Vapor Deposition Technology** **Room: Golden West - Session B4-1** **Properties and Characterization of Hard Coatings and Surfaces** **Moderators:** G. Abadias, University of Poitiers, M. Fenker, FEM Research Institute, B. Zhao, Exxon Mobil
10:00 am	**B2-1-1 Invited** Mild Chemistry as a Strategy for the Preparation of Metal-Containing Films, **N. BAHLAWANE**, Bielefeld University, Germany	**B4-1-1** Comparative ab Initio and Experimental Study of Ti-Al-N, Zr-Al-N and Hf-Al-N, **P. MAYRHOFER**, D. HOLEC, R. RACHBAUER, Montanuniversität Leoben, Austria
10:20 am	Invited talk continued.	**B4-1-2** Influence of Al Content in the Targets on the Composition and Structure of TiAlN Coatings Deposited by Filtered Cathodic Vacuum Arc, **Y.H. CHENG**, B. HECKERMANN, American Eagle Instruments, Inc.
10:40 am	**B2-1-3** Deposition of Cobalt Oxide Thin Films by PECVD for Catalysis Application, **C. GUYON**, Chimie ParisTech, France, A. BARKALLAH, UPMC, France, F. ROUSSEAU, Chimie ParisTech, France, K. GIFFARD, UPMC, France, D. MORVAN, M. TATOULIAN, Chimie ParisTech, France	**B4-1-3** The Effect of Elastic Anisotropy on the Spinodal Decomposition in TiAlN: a Phase Field Study, **J.M. ULLBRAND**, Linköping University, Sweden, B. JANSSON, Seco Tools AB, Fagersta & Linköping University, Sweden, F. TASNÁDI, L. HULTMAN, M. ODÉN, Linköping University, Sweden
11:00 am	**B2-1-4** Polymeric Barrier Coatings via Initiated Chemical Vapor Deposition, **T. PARKER**, J.D. DEMAREE, D. BAECHLE, U.S. Army Research Laboratory	**B4-1-4** Effect of Internal Stress on Cutting Performance of Coated Carbide Tools, **S. IMAMURA**, A. SHIBATA, H. FUKUI, K. TANAKA, Sumitomo Electric Hardmetal Corp., Japan
11:20 am	**B2-1-5** Hot Filament CVD Grown Diamond Films at Various Total Mass Flow Rates under Constant Residence Time, **M.A. ALI**, M. URGEN, Istanbul Technical University, Turkey	**B4-1-5** In-Situ Measurement of Residual Stresses Developed During Triode Magnetron Sputtering Film Depositions with Step-Variation of Substrate Bias, **C.F. FERNANDES LAGATTA**, University of Sao Paulo, Brazil, A.A.C. RECCO, University of Santa Catarina, Brazil, A.P. TSCHIPTSCHIN, R.M. SOUZA, University of Sao Paulo, Brazil
11:40 am	**B2-1-6** Chemistry and MOCVD Applications of Volatile Dimethylgold(III) Compounds with (O,N,S)-Donor Ligands, **N.B. MOROZOVA**, G.I. ZHARKOVA, I.K. IGUMENOV, Nikolaev Institute of Inorganic Chemistry SB RAS, Russia	**B4-1-6** Low-Temperature Plasma Nitriding of Ti-6Al-4V: Microstructural Characterization and Mechanical Properties, **K. FAROKHZADEH**, A. EDRISY, University of Windsor, Canada
12:00 pm		
	CETR FTS **Golden West Room - 12:15 – 1:15 pm**	**CETR FTS** **Golden West Room - 12:15 – 1:15 pm**

Monday Morning, May 2, 2011

	Fundamentals and Technology of Multifunctional Thin Films: Towards Optoelectronic Device Applications **Room: Sunset - Session C1** **Recent Advances in Optical Thin Films** **Moderators:** K. Khajurivala, Janos Technology, Inc., R. Sczupak, Reynard Corporation	**Biomedical Coatings** **Room: Royal Palm 4-6 - Session D1-1** **Bioactive and Biocompatible Coatings and Surface Functionalization of Biomaterials** **Moderators:** E. Saiz, Imperial College, S. Kumar, University of South Australia
10:00 am	**C1-1** Investigations of Diffusion Behaviour in Dielectric Coatings, **J. KULCZYK-MALECKA**, P. KELLY, G.T. WEST, Manchester Metropolitan University, UK, GCB. CLARKE, Pilkington Technology Management, UK, I. IORDANOVA, University of Sofia, Bulgaria, V. VISHNYAKOV, Manchester Metroplitan University, UK	**D1-1-1 Invited** Nanoscale Engineering of Biointerfaces via Parylene Coatings, **M. DEMIREL**, Pennsylvania State University
10:20 am	**C1-2** Electrochromic Performance of Hybrid Tungsten Oxide Films with Multiwalled-CNTs Additions, **C.-K. LIN**, S.-C. TSENG, C.-H. CHENG, C.-Y. CHEN, Feng Chia University, Taiwan, C.-C. CHEN, National United University, Taiwan	Invited talk continued.
10:40 am	**C1-3 Invited** Opto-Electronic Properties of Graphene Oxide Thin Films, **M. CHHOWALLA**, Rutgers University	**D1-1-3** Enhance Surface Reactivity of High Strength Biomedical Ceramics, **J.R. PIASCIK**, RTI International, S.D. WOLTER, Duke University, B.R. STONER, RTI International
11:00 am	Invited talk continued.	**D1-1-4** SiNWs-Stimulated Human Adipose Derived Stem Cell (hADSC) Growth Behavior, **H.-I. LIN**, National Tsing- Hua University, Taiwan, S.-W. KUO, K.-S. LEE, National Yang-Ming University, Taiwan, T.-J. YEN, National Tsing- Hua University, Taiwan
11:20 am	**C1-5** Influence of Oxygen: Argon Gas Ratio on Optical Properties of Al_2O_3-TiO_2 Heterostructure, P. LAHA, A.B. PANDA, P.K. BARHAI, I. BANERJEE, **S.K. MAHAPATRA**, Birla Institute of Technology, India	**D1-1-5** Vertically Aligned Carbon Nanotube Arrays and Their Application as Biological Scaffolds for Stem Cell Growth, **G. KUCUKAYAN**, V. BITIRIM, C. AKCALI, D. TUNCEL, E. BENGU, Bilkent University, Turkey
11:40 am	**C1-6** Effect of Crystallinity and Oxygen Vacancy on Photocatalytic Properties of TiO_2 Thin Films, **J.-H. HUANG**, M.-S. WONG, National Dong Hwa University, Taiwan	**D1-1-6** Controlling the Bioavailability of Silver Ions with a Nanocomposite Gradient Coating Produced in a Continuous Low-Pressure Plasma Process, **E. KÖRNER**, D. HEGEMANN, Empa, Switzerland
12:00 pm	**C1-7** Structural and In-Depth Characterization of Variable Refractive Index Chromium-Silicon Mixed Oxides Produced by Reactive Ion Beam Mixing of the Cr/Si Interface, **R. ESCOBAR GALINDO**, L. VERGARA, O. SÁNCHEZ, Instituto de Ciencia de Materiales de Madrid, Spain, G. FUENTES, Asociación Industria Navarra (AIN), Spain, D. DUDAY, Centre de Recherche Public Gabriel Lippmann, Spain, N. BENITO, Universidad Autónoma de Madrid, Spain, N. VALLE, Centre de Recherche Public Gabriel Lippmann, Spain, V. JOCO, C. PALACIO, Universidad Autónoma de Madrid, Spain, J.R. RUBIO-ZUAZO, SpLine, European Synchrotron Radiation Facility, France	**D1-1-7** Bactericidal Efficiency of Al_2O_3 Doped TiO_2 Thin Films Deposited by Reactive Magnetron Co-Sputtering, A.B. PANDA, P. LAHA, B. SARKAR, D. SASMAL, P.K. BARHAI, Birla Institute of Technology, India, A.K. DAS, Bhabha Atomic Research Center, India, S.K. MAHAPATRA, **I. BANERJEE**, Birla Institute of Technology, India
	CETR FTS **Golden West Room - 12:15 – 1:15 pm**	**CETR FTS** **Golden West Room - 12:15 – 1:15 pm**

Monday Morning, May 2, 2011

	Tribology & Mechanical Behavior of Coatings & Thin Films **Room: California - Session E3-1** **Tribology of Nanostructured and Amorphous Films** **Moderators:** V. Fridrici, Ecole Centrale de Lyon - LTDS, O.L. Eryilmaz, Argonne National Laboratory	**New Horizons in Coatings and Thin Films** **Room: Sunrise - Session F6** **Coatings for Compliant Substrates** **Moderators:** B. Beake, Micro Materials Ltd, R.M. Souza, University of Sao Paulo
10:00 am	**E3-1-1** Influence of Nanocrystalline Diamond Concentration on DLC Tribomechanical Characterizations, **V.J. TRAVA-AIROLDI**, F.R. MARCIANO, P.A. RADI, D.A. LIMA-OLIVEIRA, E.J. CORAT, Instituto Nacional de Pesquisas Espaciais - INPE, Brazil	**F6-1 Invited** Comparisons of the Mechanical and Tribological Properties of Ceramic Coatings on Glass and Polymeric Substrates, **P. KELLY**, Manchester Metropolitan University, UK, B. BEAKE, Micro Materials Ltd, UK, N. RENEVIER, University of Central Lancashire, UK
10:20 am	**E3-1-2** Effect of Diamond Nanoparticles Addition and Test Conditions on Tribological DLC Films Properties for Space Applications, **P.A. RADI**, F.R. MARCIANO, D.A. LIMA-OLIVEIRA, E.J. CORAT, V.J. TRAVA-AIROLDI, Instituto Nacional de Pesquisas Espaciais - INPE, Brazil, L.V. SANTOS, Technological Institute of Aeronautics, Brazil	Invited talk continued.
10:40 am	**E3-1-3** The Influence of Bilayer Period and Thickness Ratio on the Mechanical and Tribological Properties of CrSiN/TiAlN Multilayer Coatings, **M.-K. WU**, Tungnan University, Taiwan, J.-W. LEE, Mingchi University of Technology, Taiwan, J.-C. HUANG, Tungnan University, Taiwan, H.-W. CHEN, Y.-C. CHAN, J.-G. DUH, National Tsing Hua University, Taiwan	**F6-3** X-Ray Mechanical Properties of Metallic Thin Films Supported by Polyimide Substrates Studied under Controlled Biaxial Loading, **P.-O. RENAULT**, S. DJAZIRI, E. LE BOURHIS, P. GOUDEAU, University of Poitiers, France, D. THIAUDIÈRE, Synchrotron Soleil, France, D. FAURIE, CNRS, Lpmtm Upr9001, France, F. HILD, LMT Cachan, France
11:00 am	**E3-1-4** Microstructure, Scratch and Wear Behavior in Thick Ti-Si-C-N and Ti-Al-V-Si-C-N Nanocomposites, **Y.-C. CHAN**, H.-W. CHEN, National Tsing Hua University, Taiwan, R. WEI, Southwest Research Institute, J.-G. DUH, National Tsing Hua University, Taiwan, J.-W. LEE, Mingchi University of Technology, Taiwan	**F6-4** Film Compliance and Constrained Yielding Effects on Interfacial Failure in Polymer-Metal Thin Film Structures, **N.R. MOODY**, Sandia National Laboratories, M.D. ONG, Whitworth College, M.S. KENNEDY, Clemson University, E.D. REEDY, JR., E. CORONA, D.P. ADAMS, Sandia National Laboratories, D.F. BAHR, Washington State University
11:20 am	**E3-1-5 Invited** Design and Deposition of Amorphous Carbon Nanocomposite Coatings for Tribological Application, **T. TAKENO**, Tohoku University, Japan, J. FONTAINE, Ecole Centrale de Lyon - LTDS, France, M. GOTO, Ube National College of Technology, Japan, K. ITO, Nihon University, Japan, H. MIKI, K. ADACHI, Tohoku University, Japan, M. BELIN, Ecole Centrale de Lyon - LTDS, France, T. TAKAGI, Tohoku University, Japan	**F6-5** *In situ* Synchrotron X-Ray Strains Measurement in Film/Compliant Substrate Composites During Continuous Mechanical Tests, **D. FAURIE**, Université Paris, France, G. GEANDIER, P.-O. RENAULT, E. LE BOURHIS, P. GOUDEAU, University of Poitiers, France
11:40 am	Invited talk continued.	**F6-6** Paraffin Wax Passivation Layer Improvements in Electrical Characteristics of Bottom Gate Amorphous Indium-Gallium-Zinc Oxide Thin-Film Transistors, **G.-W. CHANG**, National Chiao Tung University, Taiwan
12:00 pm	**E3-1-7** Improvement in the Resistance to Corrosion and Tribo-Corrosion of 301 Stainless Steel and Ti-6Al-4V Substrates Induced by Silicon-Based Multilayer Coatings, **D. LI**, S. GURUVENKET, S. HASSANI, M. AZZI, Ecole Polytechnique de Montreal, Canada, J. SZPUNAR, McGill University, Canada, J. KLEMBERG-SAPIEHA, L. MARTINU, Ecole Polytechnique de Montreal, Canada	
	CETR FTS **Golden West Room - 12:15 – 1:15 pm**	**CETR FTS** **Golden West Room - 12:15 – 1:15 pm**

Characterization: Linking Synthesis, Microstructure, and Properties
Room: Tiki Pavilion - Session TS4-1
Moderators: C. Scheu, University of Munich,
P. Schaaf, TU Ilmenau, Institut für Werkstofftechnik,
F. Giuliani, Imperial College London

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10:00 am	**TS4-1-1 Invited** Strain Mapping in Nanostructures and Thin Films by Dark-Field Electron Holography, **M. HÝTCH**, N. CHERKASHIN, S. REBOH, E. JAVON, F. HOUDELLIER, E. SNOECK, CEMES-CNRS, Université de Toulouse, France
10:20 am	Invited talk continued.
10:40 am	**TS4-1-3** Electronic Structure Investigation of Amorphous CrC_x Films, **M. MAGNUSON**, Linköping University, Sweden, M. HANSON, Uppsala University, Sweden, J. LU, L. HULTMAN, Linköping University, Sweden, U. JANSSON, Uppsala University, Sweden
11:00 am	**TS4-1-4** Electrical and Structural Properties of Ultrathin Polycrystalline and Epitaxial TiN Films Grown by Reactive Magnetron Sputtering, F. MAGNUS, A.S. INGASON, S. OLAFSSON, University of Iceland, **JT. GUDMUNDSSON**, Shanghai Jiao Tong University, China
11:20 am	**TS4-1-5** On X-Ray Diffraction Study of Stresses and Preferred Grain Orientations in Thin Films - Specific Non-Routine Cases, **R.K. KUŽEL**, Charles University in Prague, Faculty of Mathematics and Physics, Czech Republic, Z. MATĚJ, L. NICHTOVÁ, Charles University in Prague, Faculty of Mathematics and Physics, J. BURŠÍK, Institute of Inorganic Chemistry of Academy of Sciences of the Czech Republic, D. ŠIMEK, Technical University Bergakademie Freiberg, Germany, J. MUSIL, University of West Bohemia, Czech Republic
11:40 am	**TS4-1-6** Information Depth of Mono-Atomic and Poly-Atomic Primary Ions in Secondary Ion Mass Spectrometry (SIMS): Fundamentals and Applications, F. KOLLMER, ION-TOF GmbH, Germany, D. BREITENSTEIN, Tascon GmbH, Germany, **N. HAVERCROFT**, ION-TOF USA, Inc., P. BRUENER, ION-TOF GmbH, Germany, M. FARTMANN, B. HAGENHOFF, Tascon GmbH, Germany, E. NIEHUIS, ION-TOF GmbH, Germany
12:00 pm	**TS4-1-7** XPS on Ar Atoms to Determine Local Structures of Thin Films Prepared by Magnetron Sputtering and PECVD, A. RASTGOO LAHROOD, **T. DE LOS ARCOS**, M. PRENZEL, J. WINTER, Ruhr-Universität Bochum, Germany
	CETR FTS **Golden West Room - 12:15 – 1:15 pm**

CETR FTS
Golden West Room - 12:15 – 1:15 pm

Monday Afternoon, May 2, 2011

	Hard Coatings and Vapor Deposition Technology **Room: Royal Palm 1-3 - Session B2-2** **CVD Coatings and Technologies** **Moderators:** S. Ruppi, Seco Tools AB Fagersta, F. Maury, CIRIMAT CNRS-INPT-UPS ENSIACET	**Hard Coatings and Vapor Deposition Technology** **Room: Golden West - Session B4-2** **Properties and Characterization of Hard Coatings & Surfaces** **Moderators:** G. Abadias, University of Poitiers, M. Fenker, FEM Research Institute, B. Zhao, Exxon Mobil
1:30 pm	**B2-2-1 Invited** High-Speed Coating of α-Al_2O_3 Film by Laser Chemical Vapor Deposition on Cutting Tools, **T. GOTO**, Tohoku University, Japan	**B4-2-1** Mechanical and Tribological Properties of MoSiN Coatings Synthesized by Closed Field Unbalanced Magnetron Sputtering, **Y.-S. KIM**, Korea Aerospace University, Korea
1:50 pm	Invited talk continued.	**B4-2-2** Al- and Cr-Doped TiSiCN Coatings with High Thermal Stability and Oxidation Resistance, **V. SHTANSKY**, A. KUPTSOV, V. KIRUYKHANTSEV-KORNEEV, N. SHEVEIKO, National University of Science and Technology "MISIS", Russia, F. FERNANDEZ, Instituto de Ciencia de Materiales de Sevilla, Spain
2:10 pm	**B2-2-3** Protective Aluminum Oxide Coatings on Titanium Alloys from Al Metal-Organic Chemical Vapor Deposition, Y. BALCAEN, N. RADUTOIU, Université de Toulouse, INPT/ENIT, LGP, France, D. SAMELOR, Université de Toulouse, CIRIMAT/INPT/CNRS, France, J. ALEXIS, L. LACROIX, J.D. BEGUIN, Université de Toulouse, INPT/ENIT, LGP, France, A. GLEIZES, **C. VALHAS**, Université de Toulouse, CIRIMAT/INPT/CNRS, France	**B4-2-3 Invited** Transition Metal Oxynitride Coatings: Enhancing Performance by Adding Oxygen, **L. CASTALDI**, Oerlikon Balzers AG, Liechtenstein
2:30 pm	**B2-2-4** Thermal Stability and Cutting Performance of Ti or Zr-Doped κ-Al_2O_3 Coatings by CVD, **M. OKUDE**, K. TOMITA, E. NAKAMURA, A. OSADA, Mitsubishi Materials Corporation, Japan	Invited talk continued.
2:50 pm	**B2-2-5** Microstructure and Wear Characteristics of Texture Controlled CVD a -Al_2O_3 and MT-CVD Ti(C,N) Layers during Steel Machining, R. M'SAOUBI, O. ALM, T. LARSSON, M. JOHANSSON, **S. RUPPI**, Seco Tools AB Fagersta, Sweden	**B4-2-5** Impact of Nb and Ta on the Phase Stability of Ti-Al-N Thin Films, **R. RACHBAUER**, D. HOLEC, P. MAYRHOFER, University of Leoben, Austria
3:10 pm	**B2-2-6** Effect of the N/Al Ratio in the Gas Phase at Constant Supersaturation on AlN Epitaxy on Sapphire by HTCVD, **N.E. BACCAR**, Grenoble-INP, France, R. BOICHOIT, E. BLANQUET, M. PONS, SIMAP, France	**B4-2-6** Improved Thermal Stability of TiAlN Through Cr Additions, **R. FORSÉN**, H. LIND, Linköping University, Sweden, M. JOHANSSON, Seco Tools AB Fagersta, Sweden, F. TASNÁDI, I. ABRIKOSOV, N. GHAFOOR, M. ODÉN, Linköping University, Sweden
3:30 pm	**B2-2-7** Doped CVD Coatings – Process, Properties and Machine Technology, **H. STRAKOV**, R. BONETTI, A. SCOTT, Ionbond AG, Switzerland	**B4-2-7** Quantification of the Hydrogen Content of a-C and a-C:H-Coatings Produced at Various Bias Voltages and their Tribological Behavior under Different Humid Conditions, W. TILLMANN, **F. HOFFMANN**, S. MOMENI, Technische Universität Dortmund, Germany, R. HELLER, Forschungszentrum Dresden-Rossendorf (FDZ) e.V., Germany
3:50 pm	**B2-2-8** CO Addition in Low-Pressure Chemical Vapor Deposition of Medium-Temperature TiCN Based Hard Coatings, **C. CZETTL**, Materials Center Leoben Forschung GmbH, Leoben, Austria, C. MITTERER, Montanuniversität Leoben, Austria, D. RAFAJA, U. MÜHLE, TU Bergakademie Freiberg, Germany, S. PUCHNER, TU Vienna, Austria, M. PENOY, C. MICHOTTE, CERATIZIT Luxembourg S. à. r. l. , Mamer, Luxembourg, M. KATHREIN, CERATIZIT Austria	**B4-2-8** Improved Adhesion and Tribological Properties of Hard Graphite-Like Hydrogenated Amorphous Carbon Films Grown by a Remote Plasma on Steel Substrates, **T. ZAHARIA**, Eindhoven University of Technology, Netherlands, R. GROENEN, N.V. Bekaert S.A., Belgium, R. VAN DE SANDEN, Eindhoven University of Technology, Netherlands
4:10 pm	**B2-2-9** Structural and Electrical Properties of ZnO:Ga Thin Films Growth by In-Situ Doping Atomic Layer Deposition Method, **C.-S. KU**, National Synchrotron Radiation Research Center, Taiwan, J.-M. HUANG, National Chiao Tung University, Taiwan, C.-M. LIN, National Hsinchu University of Education, Taiwan, H.-Y. LEE, National Synchrotron Radiation Research Center, Taiwan	**B4-2-9** Synthesis, Structure and Characterization of Ag-Doped Diamond Like Carbon Thin Films, **R. KHALIFEHZADEH**, E.I. MELETIS, University of Texas at Arlington
4:30 pm	**B2-2-10** Snthesis and Sensitivity by UV Light of SnO_2-ZnO Core-Shell Nanowires, **K.-Y. PAN**, H-C. SHIH, National Tsing Hua University, Taiwan, M.-H. CHAN, Instrument Technology Research Center, Taiwan	**B4-2-10** Bonding Structures and Mechanical Properties of Silicon Doped Carbon Nitride Films, **S.B. WEI**, T.M. SHAO, Tsinghua University, China **Student Award Finalist**
4:50 pm	**B2-2-11** Optical and NO Gas Sensing Properties of GaN/Ga_2O_3 Zigzag Nanowires, **L.-W. CHANG**, J.-W. YEH, H-C. SHIH, National Tsing Hua University, Taiwan	
5:10 pm	**B2-2-12** Equilibrium Segregation of Graphene on Polycrystalline Ni Surfaces by Chemical Vapor Deposition, **C.-J. HSU**, P.-K. NAYAK, National Cheng Kung University, Taiwan, J.-C. SUNG, KINIK Company, Taiwan, S.-C. WANG, Southern Taiwan University, Taiwan, J.-L. HUANG, National Cheng Kung University, Taiwan	**VAMAS 5:10-6:10 pm Golden West** **Welcome Reception- Atlas Foyer 6:00-7:30 pm**

Monday Afternoon, May 2, 2011

	Fundamentals & Technology of Multifunctional Thin Films: Towards Optoelectronic Device Applications **Room: Sunset - Session C2/F4-1** **Thin Films for Photovoltaics & Active Devices** **Moderators:** T. Miyata, Kanazawa Institute of Technology, A.P. Ehiasarian, Sheffield Hallam University	**Biomedical Coatings** **Room: Royal Palm 4-6 - Session D1-2** **Bioactive and Biocompatible Coatings and Surface Functionalization of Biomaterials** **Moderators:** E. Saiz, Imperial College, S. Kumar, University of South Australia
1:30 pm	**C2/F4-1-1 Invited** Plasma Processing for Photovoltaics: Fundamentals and Applications, **R. VAN DE SANDEN**, Eindhoven University of Technology, Netherlands	**D1-2-1** Fabrication of Superhydrophilic and Superhydrophobic Surfaces on Titanium Substrates, **R. FLEMING**, M. ZOU, University of Arkansas
1:50 pm	Invited talk continued.	**D1-2-2** Strontium as a Bioactive Agent in Magnetron-Sputtered Titanium Coatings, **M. SILLASSEN**, O.Z. ANDERSEN, Aarhus University, Denmark, K.P. ALMTOFT, K. RECHENDORFF, L.P. NIELSEN, Danish Technological Institute, Tribology Centre, Denmark, M. FOSS, J. BØTTIGER, Aarhus University, Denmark
2:10 pm	**C2/F4-1-3** Glancing Angle Deposited Sculptured Titania Films for Light Scattering Enhancement in Solar Cells, **K.-H. HUNG**, Industrial Technology Research Institute, Taiwan, G.-D. CHIOU, M.-S. WONG, National Dong Hwa University, Taiwan, Y.C. WANG, W.-T. KUO, I-.S. CHUNG, C.-M. YEH, Industrial Technology Research Institute, Taiwan	**D1-2-3** Bioactivity and Corrosion Resistance of Surface Treated F138 Stainless Steel, **V.H. BAGGIO-SCHEID**, Institute of Advanced Studies, Brazil, L. MARCHINI, R.F. DA ROCHA, C.P. DE DECO, State University of São Paulo - UNESP, Brazil
2:30 pm	**C2/F4-1-4** Optical and Mechanical Characterisation of Nanostructured Antireflectance Coatings for Solar Cells, **J. MOGHAL**, University of Oxford, UK, J. BEST, M. GARDENER, Oxford Advanced Surfaces Group plc, UK, A.A.R. WATT, Univeristy of Oxford, UK, G. WAKEFIELD, Oxford Advanced Surfaces Group plc, UK	**D1-2-4** Mechanical, Tribological and Corrosion Behavior of Multilayer Coating of Ti/TiN/nc-TiN/a-Si_3N_4 Deposited by Sputtering on Stainless Steel M340 and Ti6Al4V Substrates for Biomedical Applications, **J. GARCIA**, Universidad Panamericana, Mexico, M. FLORES, Universidad de Guadalajara, Mexico, L. PAZOS, Instituto Nacional de Tecnologia Industrial, Argentina, O. JIMENEZ, Universidad de Guadalajara, Mexico
2:50 pm	**C2/F4-1-5** Effects of Complexing Agents and Annealing Process on Chemical Bath Deposited ZnS Buffers for CIGS Solar Cells, **C.-H. HUANG**, C.-Y. WANG, National Dong Hwa University, Taiwan	**D1-2-5 Invited** Title to be Announced
3:10 pm	**C2/F4-1-6** Effects of Additive in Cu Solution for Electrodeposition of $CuInSe_2$ Film, **T.-W. CHANG**, W.-H. LEE, Y.-H. SU, F.-I. CHIH, National Cheng Kung University, Taiwan	Invited talk continued.
3:30 pm	**C2/F4-1-7 Invited** Polymeric Materials and Self-Assembled Interlayers for Printed Photovoltaic Cells, **A. FACCHETTI**, Polyera Corporation and Northwestern University	**D1-2-7** Development of Nanostructured Ternary Shape Memory Alloy Thin Films for Biomedical Applications, **N. KAUR**, N. CHOUDHARY, D. KAUR, Indian Institute of Technology Roorkee, India
3:50 pm	Invited talk continued.	
4:10 pm	**C2/F4-1-9** Fabrication of Large Area TiO_2 NT Dye-Sensitized Solar Cell on Stainless-Steel by Thermal Spraying and Anodizing Methods, **C.-C. CHEN**, National United University, Taiwan, C-.K. LIN, C.-J. CHANG, Feng Chia University, Taiwan, C.-H. HSU, Tatung University, Taiwan, W.-D. JHENG, National Chin-Yi University of Technology, Taiwan	
4:30 pm	**C2/F4-1-10** Effect of (poly)Phosphate Anion Structure on Characteristics of Pulsed DC PEO Coatings on Ti, for Dye Sensitised Solar Sell Applications, **P.-J. CHU**, A. YEROKHIN, University of Sheffield, UK, J.-L. HE, Feng Chai University, Taiwan, A. MATTHEWS, University of Sheffield, UK	
4:50 pm	**C2/F4-1-11** Single-Phase, High-Purity Cu_2ZnSnS_4 Particles for use in Solar Cells, **S.-J. LIN**, J.-M. TING, National Cheng Kung University, Taiwan	
	VAMAS 5:10-6:10 pm Golden West **Welcome Reception- Atlas Foyer 6:00-7:30 pm**	**VAMAS 5:10-6:10 pm Golden West** **Welcome Reception- Atlas Foyer 6:00-7:30 pm**

Monday Afternoon, May 2, 2011

	Tribology & Mechanical Behavior of Coatings & Thin Films Room: California - Session E3-2 **Tribology of Nanostructured and Amorphous Films** **Moderators:** V. Fridrici, Ecole Centrale de Lyon - LTDS, O.L. Eryilmaz, Argonne National Laboratory	**Characterization: Linking Synthesis, Microstructure, and Properties - Room: Tiki Pavilion - Session TS4-2** **Characterization: Linking Synthesis, Microstructure, and Properties** **Moderators:** C. Scheu, University of Munich, P. Schaaf, TU Ilmenau, Institut für Werkstofftechnik, F. Giuliani, Imperial College London
1:30 pm	**E3-2-1** Prediction of the Friction Behavior of Lubricated Tribological Systems Containing Amorphous Carbon Coatings using an Artificial Neural Network, **E. SCHULZ**, S. ROEHNER, S. TREMMEL, Friedrich-Alexander-University Erlangen-Nuremberg, Germany, Y. MUSAYEV, T. HOSENFELDT, Schaeffler Technologies GmbH & Co. KG, Germany, H. MEERKAMM, S. WARTZACK, Friedrich-Alexander-University Erlangen-Nuremberg, Germany	**TS4-2-1 Invited** 3D FIB/SEM Imaging and Analysis, **M. RITTER**, S. KORTE, W.J. CLEGG, P.A. MIDGLEY, University of Cambridge, UK
1:50 pm	**E3-2-2** Fatigue Properties of a 21MnCr5 Steel Coated with an Amorphous Carbon Coating, **S. TREMMEL**, Friedrich-Alexander-University Erlangen-Nuremberg, Germany, B. VON GROßMANN, Georg Simon Ohm University of Applied Sciences Nuremberg, Germany, S. WARTZACK, Friedrich-Alexander-University Erlangen-Nuremberg, Germany	Invited talk continued.
2:10 pm	**E3-2-3** The Effect of Coating Properties on the Fracture Characteristics and Tribological Performance of a-C:H and ta-C Films, **H.A. RONKAINEN**, K. HOLMBERG, A. LAUKKANEN, T. ANDERSSON, VTT Technical Research Centre of Finland, M. KUMAGAI, M. KANO, T. HORIUCHI, Kanagawa Industrial Technology Center, Japan, T. SUZUKI, Keio University, Japan, M. TAKI, Onward Ceramic Coating Co, Ltd., Japan	**TS4-2-3** Application of LEIS Static and Sputter Depth Profiling as a Novel Approach for Ultra-Thin Film Analysis, P. BRUENER, **T. GREHL**, R. MOELLERS, ION-TOF GmbH, Germany, N. HAVERCROFT, ION-TOF USA, Inc., H.H. BRONGERSMA, E. NIEHUIS, ION-TOF GmbH, Germany
2:30 pm	**E3-2-4** Stress Reduction in Hard a-C:N DLC Coatings, **S. LOURING**, N.D. MADSEN, A.N. BERTHELSEN, Aarhus University, Denmark, B.H. CHRISTENSEN, K.P. ALMTOFT, L.P. NIELSEN, Danish Technological Institute, Tribology Centre, Denmark, J. BØTTIGER, Aarhus University, Denmark	**TS4-2-4** Microstructure of Hot Dip Coated Fe-Si Steels, **I. INFANTE DANZO**, K. VERBEKEN, Y. HOUBAERT, Gent University, Belgium
2:50 pm	**E3-2-5** 2.5 nm Thick TiSiN Protection Layer for HDD Magnetic Media, **F. ROSE**, D. POCKER, Q.-F. XIAO, B. MARCHON, Hitachi Global Storage Technologies Inc.	**TS4-2-5** High Supercapacitive Stability of ZnO-Added Manganese Oxide Coatings, **C.-Y. CHEN**, H.-W. CHANG, Feng Chia University, Taiwan, S.-J. SHIH, National Taiwan University of Science and Technology, Taiwan, R.-B. YANG, C-.K. LIN, Feng Chia University, Taiwan
3:10 pm	**E3-2-6** Tribology Behavior of Nanocrystallite Carbon Film Prepared by ECR Sputtering Method, **W. CHAO**, D. FENG, Xian Jiaotong University, China	**TS4-2-6 Invited** Spectroscopic Ellipsometry for Thin Film Characterization, **H. ARWIN**, Linköping University, Sweden
3:30 pm	**E3-2-7** Tribological Behaviour of Aluminum Against Tungsten Doped DLC at Elevated Temperatures, **A. ABOU GHARAM**, University of Windsor, Canada, M.J. LUKITSCH, General Motors Research and Development Center, A.T. ALPAS, University of Windsor, Canada	Invited talk continued.
3:50 pm	**E3-2-8** Identification of the Wear Mechanism on WC/C Nanostructured Coatings, S. EL MRABET, M.D. ABAD, **J.C. SANCHEZ-LOPEZ**, Instituto de Ciencia de Materiales de Sevilla, Spain	**TS4-2-8** *In Situ*, Elevated Temperature Micro-Compression of Silicon, **J.M. WHEELER**, R. GHISLENI, J. MICHLER, Empa, Switzerland
4:10 pm	**E3-2-9 Invited** Advanced Applied Technology of DLC Coatings, **M. KANO**, Kanagawa Industrial Technology Center, Japan	**TS4-2-9** Synthesis and Characterization of Complex Alloy Thin Films, **A.M. PAGON**, E.D. DOYLE, D.G. MCCULLOCH, K. LATHAM, Royal Melbourne Institute of Technology University, Australia, J.E. BRADBY, Australian National University
4:30 pm	Invited talk continued.	**TS4-2-10** Characterizations of (CuAg)InZnS Thin Film Photocatalyst Prepared using Electrophoresis Deposition Method, W.-Y. WU, **Y.-Y. TSOU**, Mingdao University, Taiwan, C.-C. WU, Industrial Technology Research Institute, Taiwan
4:50 pm	**E3-2-11** Superlow Friction of SiO_x-Doped DLC Coatings under Oxygen and Hydrogen Ambients, **J. FONTAINE**, Ecole Centrale de Lyon - LTDS, France, R.W. CARPICK, University of Pennsylvania, S.V. PRASAD, Sandia National Laboratories, T. LE MOGNE, S. BEC, Ecole Centrale de Lyon - LTDS, France	**TS4-2-11** Atomic-Scale Understanding of the Thermal Stability of 6H-SiC(0001): An *In Situ Scanning Tunneling Microscopy Study*, **Y. MURATA**, University of California at Los Angels, V. PETROVA, I. PETROV, University of Illinois at Urbana-Champaign, S. KODAMBAKA, University of California at Los Angels
5:10 pm	**E3-2-12** Mechanical and Tribological Properties of a-C:H Thin Films Prepared by an Unbalanced Magnetron Sputtering System, **B. FENG**, S.C. TAYLOR, L.V. DAVIES, Caterpillar Inc	**TS4-2-12** Swift Heavy Ion Induced Modifications of Nanostructured Ni-Mn-Sn Ferromagnetic Shape Memory Alloy Thin Films, **R. VISHNOI**, R. SINGHAL, D. KAUR, Indian Institute of Technology Roorkee, India

Monday Afternoon, May 2, 2011

Energetic Materials and Micro-Structures for Nanomanufacturing
Room: Sunrise - Session TS5
Moderators: C. Rebholz, University of Cyprus,
C.C. Doumanidis, University of Massachusetts Lowell,
T. Ando, Northeastern University

NOTES

1:30 pm	**TS5-1** Self-Propagating High Temperature Synthesis of B2-RuAl Thin Films, **K. WOLL**, F. MÜCKLICH, Saarland University, Germany
1:50 pm	**TS5-2** Effects of Environment on the Self-Propagating Synthesis of Reactive Multilayers Fabricated by Sputter Deposition, **D.P. ADAMS**, J.P. MCDONALD, E.D. JONES, JR., M.A. RODRIGUEZ, Sandia National Laboratories
2:10 pm	**TS5-3 Invited** Rapid Formation Reactions in Nanolayered Foils and Particles: Scientific Studies and Commercial Applications, **T.P. WEIHS**, Johns Hopkins University
2:30 pm	Invited talk continued.
2:50 pm	**TS5-5** The Effect of Interface Quality on Self Propagating Exothermic Reactions (SPER) in Ni-Al Multilayer Foils, **K. FADENBERGER**, I.E. GUNDUZ, University of Cyprus, F. NAHIF, RWTH Aachen University, K.P. GIANNAKOPOULOS, National Center for Scientific Research "Demokritos", Greece, B. SCHMITT, Paul Scherrer Institut, Germany, J.M. SCHNEIDER, RWTH Aachen University, Germany, P. MAYRHOFER, University of Leoben, Austria, C.C. DOUMANIDIS, C. REBHOLZ, University of Cyprus **Student Award Finalist**
3:10 pm	**TS5-6** Streak Spectrograph Temperature Analysis from Electrically Forced Multilayered Ni/Al Formation Reactions, **C.J. MORRIS**, U.S. Army Research Laboratory, P. WILKINS, C. MAY, Lawrence Livermore National Laboratory, E. ZAKAR, U.S. Army Research Laboratory, T.P. WEIHS, Johns Hopkins University
3:30 pm	**TS5-7** Large-Scale Simulations of Nanoscale Ni/Al Multilayer Foils, **I.E. GUNDUZ**, K. FADENBERGER, M. KOKONOU, C. REBHOLZ, C.C. DOUMANIDIS, University of Cyprus
3:50 pm	**TS5-8 Invited** *Fully-Dense Reactive Nanocomposite Powders and their Reaction Mechanisms*, **E.L. DREIZIN**, New Jersey Institute of Technology
4:10 pm	Invited talk continued.
4:30 pm	**TS5-10** Ignitable Al/Ni Compacts Produced by Mechanical Alloying: Structural, Chemical and Thermal Characterization, **A. HADJIAFXENTI**, I.E. GUNDUZ, University of Cyprus, S.M. AOUADI, Southern Illinois University, Carbondale, T. KYRATSI, C.C. DOUMANIDIS, C. REBHOLZ, University of Cyprus
4:50 pm	**TS5-11** Synthesis of Antibacterial Metallic NanoFoams, E.M. HUNT, West Texas A&M University, **M.L. PANTOYA**, Texas Tech University
	VAMAS 5:10-6:10 pm Golden West **Welcome Reception- Atlas Foyer 6:00-7:30 pm**

VAMAS 5:10-6:10 pm Golden West
Welcome Reception- Atlas Foyer 6:00-7:30 pm

Exhibitors Keynote Session

Tiki Pavilion - 9:40 am

Keynote Speaker: Dr. William D. Sproul

The organizers of ICMCTF-2011 are pleased to announce the creation of a new Exhibitors Keynote Session on Tuesday Morning prior to the opening of the Exhibition. Our distinguished Keynote speaker for this year's session is Dr. William D. Sproul who will be discussing about the past, present, and future of reactive sputtering (please refer to Dr. Sproul's extended abstract for details). The special session aims to bring experts in thin film, vacuum technologies, industrial coating applicators, end-users, and their suppliers together. Please make sure to attend this special event followed by the opening of the ICMCTF Exhibit showcasing some of the latest developments in industrial coatings, characterization, and associated fields.

ABSTRACT

Reactive Sputtering: Evolution, Development, and Latest Trends

William D. Sproul[1,2], Jianliang Lin[2], and John J.Moore[2]

[1]Reactive Sputtering, Inc., San Marcos, CA and [2]Colorado School of Mines, Golden, CO

There are many reports of reactive sputtering using high power pulse magnetron sputtering (HPPMS). Films such as aluminum oxide, titanium dioxide, and chromium nitride have been successfully deposited. Depending on the deposition condition, hysteresis effects have been observed whereas in other cases they have not been observed. Helmersson and co-workers at Linköping University have shown that they can reactively deposit aluminum oxide using the HPPMS process without any hysteresis effects, whereas Audronis and co-workers at Gencoa Ltd. have observed hysteresis effect during the reactive HPPMS deposition of titanium dioxide films. Modulated pulse power (MPP), which is an alternative form of HPPMS, has also been used for the reactive deposition of aluminum oxide, aluminum nitride, and chromium nitride (both CrN and Cr₂N) coatings. In all of the work reported to date for MPP reactively deposited coatings, only flow control of the reactive gas has been used, and there have been no reports about hysteresis effects. In the current study, the reactive deposition of different coatings using MPP power has been performed, and the reactive plasmas have been characterized to determine ion mass and ion energy distributions. These characterizations show that there is a high degree of ionization of the reactive gas along with the sputtered species. The structure and selected properties of the deposited coatings have been characterized, and a correlation between the plasma properties and the structure and properties of the coatings will be presented.

Tuesday Morning, May 3, 2011

	Hard Coatings and Vapor Deposition Technology **Room: Royal Palm 1-3 - Session B1-1** **PVD Coatings and Technologies** **Moderators:** P. Eklund, Linköping University, J. Vetter, Sulzer Metaplas GmbH, J.-H. Huang, National Tsing Hua University	**Hard Coatings and Vapor Deposition Technology** **Room: Golden West - Session B4-3** **Properties and Characterization of Hard Coatings and Surfaces** **Moderators:** G. Abadias, University of Poitiers, M. Fenker, FEM Research Institute, B. Zhao, Exxon Mobil
8:00 am	**B1-1-1 Invited** Magnetron Sputtering, Past, Present and Future., **V. BELLIDO-GONZALEZ**, D. MONAGHAN, M. AUDRONIS, Gencoa Ltd, UK	**B4-3-1** Mechanism of Low Temperature Oxidation of Ultrathin Titanium Diboride Coatings, **F. HUANG**, CAS Ningbo Institute of Materials Technology and Engineering, China, F. SULLIVAN, M.L. WEAVER, University of Alabama
8:20 am	Invited talk continued.	**B4-3-2** Layer Structure and Interface Effects on Corrosion Behavior of Multilayer CrN/NiP Composite Coatings, **Y.-Y. LI**, F.-B. WU, National United University, Taiwan
8:40 am	**B1-1-3** Capability of Gas Flow Sputtering to Coat Non Line of Sight Areas, **S. TANG**, U. SCHULZ, German Aerospace Center, Germany	**B4-3-3 Invited** In Situ Structural Characterization of TM-Si-N and TM-B-N Coatings During Air Oxidation, **J.-F. PIERSON**, A. MÈGE-REVIL, D.M. PILLOUD, Institut Jean Lamour (UMR CNRS 7198), France
9:00 am	**B1-1-4** Influence of Inert Gas Species on Plasma Characteristics and Film Growth in a Magnetron Discharge, **G.T. WEST**, P. KELLY, Manchester Metropolitan University, UK	Invited talk continued.
9:20 am	**B1-1-5 Invited** Large Area EB-PVD and Plasma Activated EB Evaporation - Status and Prospects, **E. REINHOLD**, J. FABER, VON ARDENNE Anlagentechnik GmbH, Germany	**B4-3-5** Monitoring of Pitting Formation and Growth in TiN Film Deposited by Arc PVD Method as a Function of Time with Polarization Resistance and EIS, **I.K. KÜÇÜK**, Cumhuriyet University, Turkey, C.S. SARIOGLU, Marmara University, Turkey
9:40 am	Invited talk continued.	**B4-3-6** Microstructure and Mechanical Properties Evaluation of Pulsed DC Magnetron Sputtered Cr-B and Cr-B-N Films, **C.-H. CHENG**, Tungnan University, Taiwan, J.-W. LEE, Mingchi University of Technology, Taiwan, J.-C. HUANG, Tungnan University, Taiwan, H.-W. CHEN, Y.-C. CHAN, J.-G. DUH, National Tsing Hua University, Taiwan
10:00 am	**B1-1-7** High Power Discharge-Based EB Sources for PVD and Vacuum Metallurgy – PIC Simulation and Experimental Results, **P. FEINAEUGLE**, G. MATTAUSCH, F.-H. ROEGNER, Fraunhofer-Institut fur Elektronenstrahl- und Plasmatechnik (FEP), Germany	**B4-3-7** Cost-Effective Synthesis of AlMgB Ultra-Hard Films by Magnetron Sputtering, **A.M. WU**, W.C. QU, Y.Z. BAI, H.Q. QU, Dalian University of Technology, China, X. JIANG, University of Sigen, Germany
10:20 am	**B1-1-8** Characterization of Magnetron Sputtering Deposition Process with Improved Ionization, **V. GOROKHOVSKY**, Southwest Research Institute, San Antonio Texas	**B4-3-8** Atomic and Electronic Structural Studies of Metal Nitrides (VN, CrN)/ MgO Interface by C_S-Corrected TEM, **Z. ZHANG**, B. RASHKOVA, Austrian Academy of Sciences, Austria, G. DEHM, Montanuniversität Leoben, Austria, P. LAZAR, J. REDINGER, Vienna University of Technology, Austria, R. PODLOUCKY, University of Vienna, Austria
10:40 am	**B1-1-9** Microstructure and Mechanical Properties of Hard Ceramic Coatings Deposited by Arc Plasma Acceleration Process, **V.N. KHOMINICH**, D.C. BELL, Phygen Coatings Inc, N. SCHWARZER, Saxonian Institute of Surface Mechanics, Germany, G. FAVARO, CSM Instruments, Switzerland	**B4-3-9** Investigation of Fundamental Deformation Parameters of Magnetron Sputtered TiAlN Films using High Temperature Nanoindentation from 300 K to 623 K, **M. WERCHOTA**, Montanuniversität Leoben, Austria, P. MAYRHOFER, University of Leoben, Austria
11:00 am	**B1-1-10** Modification of PVD TiN Coatings by Interrupting Film Growth, **T. SINKOVITS**, Y. ZHAO, D. SAINI, University of Wollongong, Australia, S.J. DOWEY, Surface Technology Coatings Pty, Australia	**B4-3-10** Microstructure and Nanohardness Properties of $(TiVCr)_xAl_{1-x}N$ Coatings, **D.-C. TSAI**, M.-J. DENG, F.-S. SHIEU, National Chung Hsing University, Taiwan
11:20 am	**B1-1-11** Thick Nanocrystalline AlCr(Si)N/TiN Hardcoatings Deposited by DC Arc Evaporation, **F. KAULFUSS**, Fraunhofer IWS, Germany, C. ENDTER, P. BOGUTZKI, W. SIEBERT, Dresden University of Technology, Germany, O. ZIMMER, Fraunhofer-Institut für Werkstoff- und Strahltechnik IWS Dresden, Germany	**B4-3-11** The Mechanical Properties of Ti-Si-N Nanocomposite Films Deposited by Magnetron Sputtering, W.-R. CHEN, G.-P. YU, **J.-H. HUANG**, National Tsing Hua University, Taiwan
11:40 am	**B1-1-12** Study of CrN and NbC Interlayers for HFCVD Diamond Deposition onto WC-Co Substrates, **M. FENKER**, K. PETRIKOWSKI, FEM Research Institute, Germany, J. GÄBLER, S. PLEGER, L. SCHÄFER, Fraunhofer IST, Braunschweig, Germany	**B4-3-12** Mechanical Properties of TaN-Cu Nanocomposite Thin Films After Multiple Annealing, J.-H. HSIEH, **Y.-J. LIN**, Ming Chi University of Technology, Taiwan, S.I. CHANG, National Chung Hsing University, Taiwan
	Exhibition Open Today **11:00 am – 7:00 pm** **Town and Country/San Diego Room**	**Exhibition Open Today** **11:00 am – 7:00 pm** **Town and Country/San Diego Room**

Tuesday Morning, May 3, 2011

	Fundamentals and Technology of Multifunctional Thin Films: Towards Optoelectronic Device Applications **Room: Sunset - Session C2/F4-2** **Thin Films for Photovoltaics and Active Devices** **Moderators:** T. Miyata, Kanazawa Institute of Technology, A.P. Ehiasarian, Sheffield Hallam University	**Biomedical Coatings** **Room: Royal Palm 4-6 - Session D2** **Coatings for Biomedical Implants** **Moderators:** R. Hauert, Empa, J.R. Piascik, RTI International
8:00 am	**C2/F4-2-1** Influence of Sputtering Powers on the Characteristics of ZnO:B Thin Films, L.-H. WONG, **Y.-S. LAI**, National United University, Taiwan, D.-S. WUU, National Chung Hsing University, Taiwan, J.-L. WANG, Ming Chi University of Technology, Taiwan	**D2-1** Tribological Behavior of TiC/DLC Coated Ti Alloys for Orthopedic Joint Applications, **C.Z. ZHANG**, Y. TANG, H. NIAKAN, Y.-S. LI, Q. YANG, University of Saskatchewan, Canada
8:20 am	**C2/F4-2-2** High Mobility Transparent Conducting Oxides: A Modulation Doping Approach, **S.H.N. LIM**, R.J. MENDELSBERG, A. ANDERS, K.M. YU, Lawrence Berkeley National Laboratory	**D2-2** *In Situ* Fabrication of TiN layer on the Nanostructured Surface of Orthopedic NiTi Alloy, **T. HU**, S.L. WU, J. JIANG, City University of Hong Kong, Y. ZHAO, The University of Hong Kong, C.L. CHU, Southeast University, China, P.K. CHU, K.W.K. YEUNG, City University of Hong Kong
8:40 am	**C2/F4-2-3** Dominant Factors Determining Moisture Resistance of Highly Transparent Conductive Ga-Doped ZnO Films, **Y. SATO**, T. YAMADA, H. MAKINO, N. YAMAMOTO, T. YAMAMOTO, Kochi University of Technology, Japan	**D2-3 Invited** From DLC to Nanocrystalline Carbon Coating for Biomedical Applications, **S. MITURA**, K. MITURA, Koszalin University of Technology, Poland, P. NIEDZIELSKI, J. GRABARCZYK, Lodz University of Technology, Poland
9:00 am	**C2/F4-2-4** Posted Annealing Effect on the Structural and Optical Properties of ZnO Thin Films Grown on Si Substrate by Atomic Layer Deposition, **J.-M. HUANG**, National Chiao Tung Univ, Taiwan, Y.-C. CHEN, National Hsinchu Univ of Education, C.-S. KU, National Synchrotron Radiation Res Cntr, C.-M. LIN, National Hsinchu Univ of Education, H.-Y. LEE, National Synchrotron Radiation Res Cntr, S.-Y. CHEN, National Chiao Tung Univ.	Invited talk continued.
9:20 am	**C2/F4-2-5** Changes in Electrical and Optical Properties of Polycrystalline Ga-Doped ZnO Thin Films Due to Thermal Desorption of Zinc, **H. MAKINO**, Y. SATO, N. YAMAMOTO, T. YAMAMOTO, Kochi University of Technology, Japan	**D2-5** Characterization of Drug Distribution in Model Polymer Films using XPS Sputter Depth Profiling, **D. SURMAN**, Kratos Analytical Inc., S. HUTTON, Kratos Analytical Ltd., UK, M. ALEXANDER, A. RAFATI, University of Nottingham, UK
9:40 am	**C2/F4-2-6** Bending Properties of Transparent Conductive Ga-doped ZnO Films, **K. NAGAMOTO**, K. KATO, S. NAGANAWA, T. KONDO, LINTEC Corporation, Japan, Y. SATO, H. MAKINO, N. YAMAMOTO, T. YAMAMOTO, Kochi University of Technology, Japan	**D2-6** Strength and Fracture Behavior of Hydroxyapatite Coatings, **H.S.T. AHMED**, A.F. JANKOWSKI, Texas Tech University
10:00 am	**C2/F4-2-7** H-Bonded Effects and Properties of Novel Supramolecular Nanocomposites Containing Aryl-Imidazo-Phenanthroline -Based Metallo- Polymer H-Donors and Surface-Modified ZnO Nanoparticle H-Acceptors, **H.-P. FANG**, H.-C. LIN, National Chiao Tung University, Taiwan	**D2-7** Nanomechanical Characterization of Atomic Layer Deposition Coatings for Biomedical Applications, **N. BAUER**, Oregon State University, M. WANG, Oregon Health Sciences University, S. SMITH, Oregon State University, J. MITCHELL, Oregon Health Sciences University, J. CONLEY, JR., Oregon State University
10:20 am	**C2/F4-2-8** Non-vacuum Process of ZnO Thin Films Grown by Spray Pyrolysis Technique, **K. YOSHINO**, University of Miyazaki, Japan, Y. TAKEMOTO, M. SHINMIYA, M. OSHIMA, University fof Miyazaki, Japan, K. TOYODA, K. INABA, K. HAGA, K. TOKUDOME, Tosoh-finechem Co. Ltd., Japan	**D2-8** Ellipsometric Study of Protein Adsorption onto Biocompatible Coatings, **P. SILVA-BERMUDEZ**, S.E. RODIL, Universidad Nacional Autonoma de Mexico
10:40 am	**C2/F4-2-9** Electrical Conductivity Enhancement of Nb-Doped TiO_2 Sputtered Thin Films by a Post Hot-Wire Annealing in a H_2 Atmosphere, **C.J. TAVARES**, M.V. CASTRO, P. ALPUIM, E.S. MARINS, A.S. SAMANTILLEKE, S. FERDOV, M. BENELMEKKI, University of Minho, Portugal, E. XURIGUERA, Universitat de Barcelona, Spain	**D2-9** Large-Scale Synthesis of Hierarchical Titanate Spheres as Cell Interface on Titanium Alloys for Bone Tissue Regeneration, **S.L. WU**, City University of Hong Kong, X.M. LIU, Hubei Univ, China, K.W.K. YEUNG, City Univ of Hong Kong, Z.F. DI, Chinese Academy of Sciences (CAS), China, T. HU, City Univ of Hong Kong, Z.S. XU, Hubei University, China, J.C.Y. CHUNG, P.K. CHU, City Univ of Hong Kong
11:00 am	**C2/F4-2-10** Structural and Electrical Properties of Sol-Gel Derived Yttrium Oxide Dielectric Films, **C.-Y. TSAY**, C.-H. CHENG, Feng Chia University, Taiwan, Y.-W. WANG, National Changhua University of Education, Taiwan, C.-J. CHANG, C-.K. LIN, Feng Chia University, Taiwan	
11:20 am	**C2/F4-2-11** Preparation, Synthesis Techniques and Some Properties on CdMnS Diluted Magnetic Semiconductor Thin Films, **J. DARGAD**, Dayanand Science College, India	
11:40 am	**C2/F4-2-12** Structural, Electrical and Optical Properties of $AgInTe_2$ Films Grown by a Hot Wall Technique, **A. SINGH**, R.K. BEDI, Guru Nanak dev University, Amritsar, India	
	Exhibition Open Today **11:00 am – 7:00 pm** **Town and Country/San Diego Room**	**Exhibition Open Today** **11:00 am – 7:00 pm** **Town and Country/San Diego Room**

Tuesday Morning, May 3, 2011

	Tribology & Mechanical Behavior of Coatings & Thin Films Room: California - Session E1-1 - Friction and Wear of Coatings: Lubrication, Surface Effects, and Modeling **Moderators:** J.C. Sanchez-Lopez, Instituto de Ciencia de Materiales de Sevilla (CSIC-US), R.D. Evans, The Timken Company, S.M. Aouadi, Southern Illinois University, Carbondale	**Computational and Experimental Studies of Inorganic, Organic, and Hybrid Thin Films: An Atomistic View Room: Sunrise – Session TS1** **Moderators:** A. Amassian, KAUST, J. Rosén, Linköping University
8:00 am	**E1-1-1 Invited** Transition Metal Nitride Based Hard Coatings with Self-Lubricious Properties at Elevated Temperatures, **C. MITTERER**, Montanuniversität Leoben, Austria	**TS1-1 Invited** Semiconductor Nanostructures Direct-Write with an Atomic Force Microscope, **M. ROLANDI**, University of Washington
8:20 am	Invited talk continued.	Invited talk continued.
8:40 am	**E1-1-3** Next Generation Temperature Adaptive Nanocomposite Coatings, **D. STONE**, Southern Illinois University, Carbondale, T. SMITH, C. MURATORE, A.A. VOEVODIN, Air Force Research Laboratory, S.M. AOUADI, Southern Illinois University, Carbondale	**TS1-3 Invited** A Predictive Modeling Framework for Morphology Evolution in Thin Film Organic Photovoltaic Cells, **B. GANAPATHYSUBRAMANIAN**, Iowa State University
9:00 am	**E1-1-4** Effect of Temperature on the Tribological Behavior of a MoS_2 Based Solid Lubricant Coating, **M. BERNARD**, V. FRIDRICI, PH. KAPSA, Ecole Centrale de Lyon - LTDS, France	Invited talk continued.
9:20 am	**E1-1-5** A Study of Mechanical and Tribological Properties of Self-Lubricating TiAlVN Coatings at Elevated Temperatures, W. TILLMANN, **S. MOMENI**, F. HOFFMANN, Technische Universität Dortmund, Germany	**TS1-5 Invited** Real-Time Observation of Thin Film Growth, **F. SCHREIBER**, Universitaet Tuebingen, Germany
9:40 am	**E1-1-6** CrN-Ag and $Cr_{0.65}Al_{0.35}N$-Ag Nanocomposite Coatings for High-Temperature Adaptive Lubrication, **C.P. MULLIGAN**, Benet Laboratories, US Army ARDEC, R. DENG, T.A. BLANCHET, D. GALL, Rensselaer Polytechnic Institute	Invited talk continued.
10:00 am	**E1-1-7** Innovative High Temperature Nanotribology – to 800C, **B. BEAKE**, J.F. SMITH, Micro Materials Ltd, UK	**TS1-7** Simulation of Erosion Grooves and Vapor Distributions of Linear Magnetron Sputtering Cathodes, **S.M. ELLIOTT**, Thin Film Consulting, J. SIMKIN, Cobham Technical Services, Vector Fields Software, UK, E.K. WHITE, Thin Film Consulting
10:20 am	**E1-1-8 Invited** Tribology of Nanocrystalline Oxides and Adaptive Nanocomposite Coatings: Achieving Low Friction and Wear by Shear Accommodation, **T.W. SCHARF**, The University of North Texas	**TS1-8** Computational Study of Complex Oxide Thin Film Growth with Emphasis on Surface Diffusion During the Growth Process, **V. GEORGIEVA**, University of Antwerp, Belgium, M. SARAIVA, Ghent University, Belgium, N. JEHANATHAN, G. VAN TENDELOO, University of Antwerp, Belgium, D. DEPLA, Ghent University, Belgium, A. BOGAERTS, University of Antwerp, Belgium
10:40 am	Invited talk continued.	**TS1-9** Influence of Grain Boundary Chemistry in Mix-Mobility Thin Film Growth, B. FU, W. AN, C.H. TURNER, **G.B. THOMPSON**, University of Alabama
11:00 am	**E1-1-10** Simulations of Tribology in Nanocrystalline Metallic Films, **M. CHANDROSS**, S. CHENG, Sandia National Laboratories	
11:20 am	**E1-1-11** Methodology of Selection of Coatings for Tribological Applications: Database Approach, **V. FRIDRICI**, Ecole Centrale de Lyon - LTDS, France, D.B. LUO, Southwest Jiaotong University, China, PH. KAPSA, Ecole Centrale de Lyon - LTDS, France	
11:40 am	**E1-1-12** Analysis of Friction and Wear Mechanisms on Hard Coatings Deposited byReactive Magnetron Sputtering, **J.S. RESTREPO**, Universidad Nacional Autonoma de Mexico, M.F. CANO, F. SEQUEDA, J.M. GONZALEZ, A. RUDEN, Universidad del valle, Colombia, S.M. Saunders, Universidad Nacional Autonoma de Mexico	
	Exhibition Open Today **11:00 am – 7:00 pm** **Town and Country/San Diego Room**	**Exhibition Open Today** **11:00 am – 7:00 pm** **Town and Country/San Diego Room**

Tuesday Afternoon, May 3, 2011

	Hard Coatings and Vapor Deposition Technology **Room: Royal Palm 1-3 - Session B1-2** **PVD Coatings and Technologies** **Moderators:** P. Eklund, Linköping University, J. Vetter, Sulzer Metaplas GmbH, J.-H. Huang, National Tsing Hua University	**Hard Coatings and Vapor Deposition Technology** **Room: Golden West - Session B3** **Laser and Ion Beam Assisted Coatings and Technologies** **Moderators:** K. Sarakinos, Linköping University, S.B. Fairchild, Air Force Research Laboratory
1:30 pm	**B1-2-1** Growth Morphology and Corrosion Resistance of Magnetron Sputtered Cr Films, **K.-T. CHIANG**, R. WEI, Southwest Research Institute	**B3-1** Growth of $Bi_5Fe_{0.5}Co_{0.5}Ti_3O_{15}$ Thin Films by Pulsed Laser Deposition, **Y. LU**, U.S. Air Force Academy, G.J. BROWN, Air Force Research Laboratory, G. KOZLOWSKI, Air Force Research Laboratory/Wright State University, K. EYINK, Air Force Research Laboratory, L. GRAZULIS, Air Force Research Laboratory/UDRI, K. MAHALINGAM, Air Force Research Laboratory
1:50 pm	**B1-2-2** Fundamental Studies on the Deposition of Nanocrystalline Diamond (n-D) Films by Means of Pulsed Laser Deposition, **H. GRÜTTNER**, Hochschule Mittweida - University of Applied Sciences, Germany	**B3-2** TiC/DLC Nanocomposite Thin Films by Hybrid Technique of Ion Beam Deposition and Sputtering, **H. NIAKAN**, Q. YANG, University of Saskatchewan, Canada, J. SZPUNAR, McGill University
2:10 pm	**B1-2-3 Invited** Oxidation and Degradation of Nitride Thin Films at High Temperature under Controlled Atmosphere, **F.-H. LU**, National Chung Hsing University, Taiwan	**B3-3** Nanoparticle Fabrication by Through Thin Film Ablation, **P.T. MURRAY**, E. SHIN, L. PETRY, University of Dayton
2:30 pm	Invited talk continued.	**B3-4** Laser-Deposition and Characterization of Amorphous Thermoelectric Films, **G. WILKS**, Air Force Research Laboratory, P.T. MURRAY, University of Dayton, S.B. FAIRCHILD, N. GOTHARD, J.E. SPOWART, Air Force Research Laboratory
2:50 pm	**B1-2-5** Effects of Pulsed Laser Irradiation of As-Deposited c-BN-Films using Photons of 157 nm Wavelength, **R. BERTRAM**, Hochschule Mittweida - University of Applied Sciences, Germany	**B3-5 Invited** Multi-Beam, Multi-Target Pulsed Laser Deposition: Beyond Single Film Deposition, **R. EASON**, University of Southampton, UK
3:10 pm	**B1-2-6** High Power Impulse Magnetron Sputtering of Niobium in Non-Reactive and Reactive Gas Environments, **R.J. MENDELSBERG**, S.H.N. LIM, K.M. YU, A. ANDERS, Lawrence Berkeley National Laboratory	Invited talk continued.
3:30 pm	**B1-2-7** Barrier Capability of Reactively Sputtered $Ta_xZr_{1-x}N$ Films with Slight Ta Addition Against Copper Diffusion, **J.-L. RUAN**, J.-L. HUANG, National Cheng Kung University, Taiwan, H.-H. LU, National Chin-Yi University of Technology, Taiwan, J.-S. CHEN, National Cheng Kung University, Taiwan, D.-F. LII, Cheng Shiu University, Taiwan	**B3-7** Capacitive Properties of x $BaTiO_3$-(1-x) $BiScO_3$ Thin Films Fabricated by Pulsed Laser Deposition, **C.E. STUTZ**, Air Force Research Laboratory (AFRL), G. KOZLOWSKI, Wright State Univ, S. SMITH, AFRL/UDRI, A. BAKER, C. RANDALL, Penn State, S. TROLIER-MCKINSTRY, Pennsylvania State Univ, G. LANDIS, AFRL/UDRI, J.G. JONES, AFRL, T.C. BACK, AFRL/UTC
3:50 pm	**B1-2-8** The Influence of Substrate Biasing on the Crystal Orientation of γ-Al_2O_3 Films, **M. PRENZEL**, T. BALONIAK, A. KORTMANN, T. DE LOS ARCOS, A. VON KEUDELL, Ruhr-Universität Bochum, Germany	**B3-8** Attempt to Synthesize a Ti_3SiC_2 Coating by Pulsed Laser Deposition of a Ti-Si-C Multilayer Structure, M. HOPFELD, T. KUPS, E. REMDT, M. WILKE, **P. SCHAAF**, TU Ilmenau, Institut für Werkstofftechnik, Germany
4:10 pm	**B1-2-9** Target Erosion Effects in Reactive Pulsed DC Magnetron Sputtering of Amorphous and Crystalline Alumina, **N.D. MADSEN**, S. LOURING, A.N. BERTHELSEN, Aarhus University, Denmark, B.H. CHRISTENSEN, K.P. ALMTOFT, L.P. NIELSEN, Danish Technological Institute, Tribology Centre, Denmark, J. BØTTIGER, Aarhus University, Denmark	**B3-9** Pusled Laser Deposition of CsI, TiC, and HfC Coatings for Field Emission Cathodes, **T.C. BACK**, Air Force Research Laboratory/UTC, M. CAHAY, University of Cincinnati, P.T. MURRAY, University of Dayton, S.B. FAIRCHILD, J. BOECKL, Air Force Research Laboratory
4:30 pm	**B1-2-10** Thermal Stability of Magnetron Sputtered Alumina Coatings with Crystalline Metastable Structure, **P. ZEMAN**, S. PROKSOVA, J. BLAZEK, R. CERSTVY, J. MUSIL, University of West Bohemia, Czech Republic	**B3-10** Growth and Characterization of SBN60:Ce Thin Films, **H. BULLER**, D. EVANS, Air Force Research Laboratory, G. COOK, Air Force Research Laboratory/Azimuth, S. BASUN, Air Force Research Laboratory/UTC, G. KOZLOWSKI, Air Force Research Laboratory/Wright State University
4:50 pm	**B1-2-11** Effect of Seed Layer Composition on the Structure of Arc-Evaporated High Al_2O_3 Containing $(Al,Cr)_2O_3$ Hard Coatings, **M. POHLER**, R. FRANZ, Montanuniversität Leoben, Austria, J. RAMM, OC Oerlikon Balzers AG, Liechtenstein, C. POLZER, PLANSEE Composite Materials GmbH, Germany, C. MITTERER, Montanuniversität Leoben, Austria	**B3-11** Structural and Compositional Control of BCN Films in PLD-Based Deposition Processes, **M.A. LANGE**, AFRL/RXBT and UTC, A. REED, C. MURATORE, Air Force Research Laboratory, J. HU, Air Force Research Laboratory/UDRI, J.J. GENGLER, Air Force Research Laboratory/Spectral Energies, J.E. BULTMAN, Air Force Research Laboratory/UDRI, J.G. JONES, A.A. VOEVODIN, Air Force Research Laboratory
5:10 pm	**B1-2-12** Face-Centered Cubic $(Al_{1-x}Cr_x)_2O_3$ Thin Films: Deposition, Characterization, and Heat Treatment Studies, **A. KHATIBI**, J. PALISAITIS, P.O.Å. PERSSON, J. JENSEN, J. BIRCH, P. EKLUND, L. HULTMAN, Linköping University, Sweden	**B3-12** Bonding Structures, Mechanical Properties and Biological Behaviors of CN_x Films Prepared by Ion Beam Assisted Deposition and Laser Induced Arc Deposition, **T.M. SHAO**, S.B. WEI, L. YIN, The State Key Lab. of Tribology at Tsinghua University, China
5:30 pm	**B1-2-13** Synthesis of Free Standing Al-Cu Intermetallics by Cathodic Arc Plasma Treatment, **E.A. ARPAT**, M. URGEN, Istanbul Technical University, Turkey	**Exhibits Reception** **5:30-7:00 pm** **Exhibition Hall**

Tuesday Afternoon, May 3, 2011

	Fundamentals and Technology of Multifunctional Thin Films: Towards Optoelectronic Device Applications **Room: Sunset - Session C2/F4-3** **Thin Films for Photovoltaics and Active Devices** **Moderators:** T. Miyata, Kanazawa Institute of Technology, A.P. Ehiasarian, Sheffield Hallam University	**Biomedical Coatings** **Room: Royal Palm 4-6 - Session D3** **Coatings for Mitigating Bio-Corrosion, Tribo-Corrosion and Bio-Fouling** **Moderators:** M.M. Stack, University of Strathclyde, M.T. Mathew, Rush University Medical Center
1:30 pm	**C2/F4-3-1** Ultrathin Metals – a New Approach for Transparent Conductive Films, **O. ZIMMER**, M. SCHWACH, S. SCHAEDLICH, Fraunhofer-Institut für Werkstoff- und Strahltechnik IWS Dresden, Germany	**D3-1 Invited** Metal Oxide Coatings for Dental Implants: What is Important?, P.N. ROJAS, G. RAMIREZ, A. ALMAGUER, Universidad Nacional Autonoma de Mexico, R. OLIVARES-NAVARRETE, Georgia Institute of Technology, P. SILVA-BERMUDEZ, S. MUHL, **S.E. RODIL**, Universidad Nacional Autonoma de Mexico
1:50 pm	**C2/F4-3-2** Energy Band Lineup of Transparent Conducting Materials and High Efficient Electrodes for Organic Semiconductors, **H. YANAGI**, University of Yamanashi, Japan, T. KAMIYA, H. HOSONO, Tokyo Institute of Technology, Japan	Invited talk continued.
2:10 pm	**C2/F4-3-3** Quality Improvement of Organic Thin Films Deposited on Vibrating Substrates, Y. ANGULO, P.G. CALDAS, **M. CREMONA**, R. PRIOLI, PUC-Rio, Brazil	**D3-3** Synthesis, Characterization and Performance of Silver Nanoparticle Coatings on Bioimplants, **C.G. TAKOUDIS**, University of Illinois at Chicago
2:30 pm	**C2/F4-3-4** Negative Bias Temperature Instability Degradation in Low-Temperature Polycrystalline-Silicon Thin-Film Transistors under Mechanical Compressive Strain, **C.-S. LIN**, National Sun Yat-Sen University, Taiwan	**D3-4** The Tribocorrosion Behavior of Cp- Titanium Deposited by Micro Arc Oxidation at Different Frequencies, **E.E. DEMIRCI**, E. ARSLAN, Y. TOTIK, Atatürk University, Turkey, O. BARAN, Erzincan University, Turkey, I. EFEOGLU, Atatürk University, Turkey
2:50 pm	**C2/F4-3-5** Investigation of the Gate-Bias Induced Instability for InGaZnO TFTs Under Dark and Light Illumination, **T.-C. CHEN**, Y.-K. YANG, National Sun Yat-sen University, Taiwan	**D3-5** Tribo-Corrosion Mechanisms of Ti Based PVD Coatings on Y-TZP Dental Implants, **M.M. STACK**, University of Strathclyde, UK, W.-L. LI, National Cheng Kung University, Taiwan
3:10 pm	**C2/F4-3-6** Effect of N_2O Plasma Treatment on the Improvement of Instability Under Light Illumination for InGaZnO Thin-Film Transistors, **T.-Y. HSIEH**, National Sun Yat-Sen University, Taiwan	**D3-6** Effect of Fluoride Conversion Coating on the Fretting Corrosion Behaviour of Ti-6Al-4V Alloy in Artificial Saliva, **T.S.N. SANKARA NARAYANAN**, K. SATENDRA, B. SIVAKUMAR, National Metallurgical Laboratory, Madras Centre, India
3:30 pm	**C2/F4-3-7** Surface States Related the Bias Stability of Amorphous In-Ga-Zn-O Thin Film Transistors Under Different Ambient Gas, **W.-C. CHEN**, National Sun Yat-Sen University, Taiwan	**D3-7 Invited** Biotribolayer Formation in Metal-on-Metal Hip Prostheses- a Beneficial Coating Process?, **M.A. WIMMER**, M.T. MATHEW, M.P. LAURENT, Rush University Medical Center, A. FISCHER, University of Duisburg-Essen, J. JACOBS, Rush University Medical Center
3:50 pm	**C2/F4-3-8** Hot Carrier Effect on Gate-Induced Drain Leakage Current in n-MOSFETs with HfO2/Ti_xN_{1-x} Gate Stacks, **C.-H. DAI**, National Sun Yat-Sen University, Taiwan	Invited talk continued.
4:10 pm	**C2/F4-3-9** Chemiresistive Chlorine Gas Sensor Based on Spin Coated Copper(II) 1,4,8,11,15,18,22,25-Octabutoxy-29H,31H-Phthalocyanine Films, **R. SAINI**, A. MAHAJAN, R.K. BEDI, Guru nanak dev University, Amritsar, India	**D3-9** Bio-Tribological Properties of UHMWPE Against Surface Modified Titanium Alloy, **D. XIONG**, L. XIONG, Nanjing University of Science and Technology, China
4:30 pm	**C2/F4-3-10** Pulse Laser Deposition and Characterization of V_2O_5/Mn_3O_4 Composites Thin Films for Supercapacitor Application, C.-C. CHANG, **C.-H. HSU**, K.-W. YEH, T.-W. HUANG, M.-K. WU, Institute of Physics, Academia Sinica Taiwan, Taiwan, Republic of China	**D3-10** Fabrication of Superhydrophobic Surfaces on Stainless Steel Substrates for Potential Biomedical Applications, S. BECKFORD, **M. ZOU**, University of Arkansas
4:50 pm		**D3-11** What is the Role of Lipopolysaccharide (LPS) on the Tribocorrosive Behavior of Titanium in Dentistry?, **V.A.R. BARAO**, Univ Estadual Paulista, Brazil, M.T. MATHEW, Rush University Medical Center, J.C. YUAN, University of Illinois at Chicago, W.G. ASSUNCAO, Univ Estadual Paulista, Brazil, M.A. WIMMER, Rush University Medical Center, C. SUKOTJO, University of Illinois at Chicago **Student Award Finalist**
5:10 pm		
	Exhibits Reception **5:30-7:00 pm** **Exhibition Hall**	**Exhibits Reception** **5:30-7:00 pm** **Exhibition Hall**

Tuesday Afternoon, May 3, 2011

	Tribology & Mechanical Behavior of Coatings & Thin Films **Room: California - Session E1-2 - Friction and Wear of Coatings: Lubrication, Surface Effects, and Modeling** **Moderators:** J.C. Sanchez-Lopez, Instituto de Ciencia de Materiales de Sevilla (CSIC-US), H. Evans, University of Birmingham, S.M. Aouadi, Southern Illinois University, Carbondale	**Coatings and Materials for Fuel Cells and Batteries** **Room: Sunrise - Session TS2** **Coatings and Materials for Fuel Cells and Batteries** **Moderators:** E. Yu, Newcastle University, G.V. Dadheech, General Motors
1:30 pm	**E1-2-1** Developing Coatings for Increased Operational Life in Gears, **S.J. BULL**, A. OILA, Newcastle University, UK	**TS2-1 Invited** New Advances in Battery Materials and Concepts for Electricbased Transportation, **G-A. NAZRI**, General Motors Global Research and Development
1:50 pm	**E1-2-2** Understanding Lubrication Mechanism of Novel Boron-Based Lubricant Tested on ta-C Coating for Automotive Applications, **K. MISTRY**, J.-H. KIM, E. BRIGGS, O.L. ERYILMAZ, A. ERDEMIR, Argonne National Laboratory	Invited talk continued.
2:10 pm	**E1-2-3** Influence of the Lubricant on the Frictional Behaviour of Amorphous Carbon Coatings Sliding Against Steel, **C. HEAU**, P. MAURIN-PERRIER, L. MOURIER, HEF R&D, France	**TS2-3** Development of Li-Mn-O Thin Film Cathodes for Lithium-Ion Batteries by Magnetron Sputtering and Laser-Assisted Structuring and Annealing, C. ZIEBERT, J. FISCHER, N. THIEL, J. PROELL, R. KOHLER, M. RINKE, W. PFLEGING, **S. ULRICH**, Karlsruhe Institute of Technology, Germany
2:30 pm	**E1-2-4** Nanocomposite Ti-Ni-C Coatings for Electrical Contact Brush Applications, **M. MALMROS**, U. WIKLUND, Uppsala University, Sweden	**TS2-4** Lithium Insertion into Vertically-Aligned Carbon Nanotubes During Growth, K. RANA, G. KUCUKAYAN, **E. BNEGU**, Bilkent University, Turkey
2:50 pm	**E1-2-5 Invited** Space Tribometers: Experiments on Orbit, B.A. KRICK, **G.W. SAWYER**, University of Florida	**TS2-5** Influence of a Coating on the Oxidation Resistance and Resistivity of Several Chromia Former Alloys for High Temperature Vapor Electrolysis Application, **S. GUILLOU**, C. DESGRANGES, CEA, France, S. CHEVALIER, University of Bourgogne, France
3:10 pm	Invited talk continued.	**TS2-6** Deposition and Post-Annealing of Ceria Films Deposited by Pulsed Unbalanced Mangetron Sputtering, **PARK**, J.J. MOORE, J. LIN, Colorado School of Mines, M. MANUEL, University of Florida, A. EL-AZAB, Florida State University, T. ALLEN, P. XU, University of Wisconsin, D. HURLEY, M. KHAFIZOV, Idaho National Laboratory
3:30 pm	**E1-2-7** Ultra-Low Carbon (ULC) Steel Modified by Triode Plasma Nitriding and PVD Coating: Effects on the Micro-Abrasive Wear Behavior, **C.A. LLANES LEYVA**, C. GODOY, Universidade Federal de Minas Gerais, Brazil, A.C. BOZZI, Universidade Federal do Espírito Santo, Brazil, J.C. AVELAR-BATISTA WILSON, Tecvac Ltd, UK	**TS2-7** Sputtered Lanthanum Silicate Electrolytes for SOFCs, **J.C. OLIVEIRA**, University of Coimbra, Portugal, M.M. VIEIRA, Polytechnic Institute of Leiria, Portugal, A.L. SHAULA, A. CAVALEIRO, University of Coimbra, Portugal
3:50 pm	**E1-2-8** Modeling Surface Imperfections in Coatings under Contact Loading, **L.M. KEER**, Northwestern University, K. ZHOU, Nanyang Technological University, Singapore, Q.J. WANG, Northwestern University	**TS2-8** Nanostructured Titania Materials for PEM Fuel Cell Water Management, M.A. ELHAMID, **G.V. DADHEECH**, General Motors
4:10 pm	**E1-2-9** Application of the Friction Energy Density Approach to Quantify the Fretting Wear Endurance of MoS_2 Solid Lubricant Films: Influence of Temperature and Frequency, S. FOUVRY, **H. GALLIEN**, Ecole Centrale de Lyon - LTDS, France	**TS2-9** Electrolytic Co-Deposition for Synthesis of $(Mn,Co)_3O_4$ Spinel Coatings to Protect SOFC Interconnect Alloys, **J.H. ZHU**, M.J. LEWIS, Tennessee Technological University
4:30 pm	**E1-2-10** Tribological Properties of Laser Surface Texturing and Molybdenizing Duplex-Treated Steel, **J.L. LI**, D. XIONG, Nanjing University of Science and Technology, China	**TS2-10** Development of Low Cost Protection Coatings for SOFC Interconnect Applications, **G. XIA**, X.H. LI, J.D. TEMPLETON, R.C. SCOTT, J.W. STEVENSON, Pacific Northwest National Laboratory
4:50 pm	**E1-2-11** Wear Analysis of Multilayered Coated Punch in Metal Forming Process, **T.-S. YANG**, National Formosa University, Taiwan, Y.-Y. CHANG, Mingdao University, Taiwan, S.-Y. CHANG, National Formosa University, Taiwan	
5:10 pm	**E1-2-12** The Onset of Plastic Yielding in Coated Spherical Contact, R. GOLTSBERG, G. DAVIDI, **I. ETSION**, Technion, Israel	
	Exhibits Reception **5:30-7:00 pm** **Exhibition Hall**	**Exhibits Reception** **5:30-7:00 pm** **Exhibition Hall**

Wednesday Morning, May 4, 2011

	Coatings for Use at High Temperature **Room: Sunrise - Session A1-1 - Coatings to Resist High Temperature Oxidation, Corrosion and Fouling** **Moderators:** Y. Zhang, Tennessee Technological University, J.R. Nicholls, Cranfield University, L.G. Johansson, Chalmers University of Technology, D. Naumenko, Forschungszentrum Julich	**Hard Coatings and Vapor Deposition Technology** **Room: Royal Palm 1-3 - Session B1-3** **PVD Coatings and Technologies** **Moderators:** P. Eklund, Linköping University, J. Vetter, Sulzer Metaplas GmbH, J.-H. Huang, National Tsing Hua University
8:00 am	**A1-1-1 Invited** Oxidation Failure of TBC Systems: An Assessment of Mechanisms, **H. EVANS**, University of Birmingham, UK	**B1-3-1** Cylindrical Magnetrons Sputter Deposition of Ti-Si-C-N Nanocomposite Coatings on Inner Surface of Cylinders, **R. WEI**, Southwest Research Institute
8:20 am	Invited talk continued.	**B1-3-2** Arc Deposited Ti-Si-C-N Hard Coatings from Ternary Ti_3SiC_2 Cathodes, **A. ERIKSSON**, J.Q. ZHU, N. GHAFOOR, Linköping University, Sweden, M. JOHANSSON, J. SJÖLEN, Seco Tools AB Fagersta, Sweden, J. JENSEN, G. GRECZYNSKI, M. ODÉN, L. HULTMAN, J. ROSÉN, Linköping University, Sweden
8:40 am	**A1-1-3** Comparative Study of the Reactivity and High Temperature Oxidation Behaviour of MCrAlY-Talc and MCrAlY-hBN Fabricated by SPS, **D. OQUAB**, Institut Carnot CIRIMAT ENSIACET, France, N. RATEL-RAMOND, CEMES-CNRS, France, D. MONCEAU, Institut Carnot CIRIMAT ENSIACET, France, C. ESTOURNÈS, CIRIMAT & PNF2/CNRS, France	**B1-3-3 Invited** Atomic Scale Studies of Nanocomposite Coatings with Atom Probe Tomography, **J.M. CAIRNEY**, University of Sydney, Australia, F. TANG, The University of New South Wales, Australia, P.J. FELFER, The University of Sydney, Australia, A. BENDAVID, P. MARTIN, CSIRO, Australia
9:00 am	**A1-1-4** The Effects of Ni:Co Ratio on the Phase Stability and High-Temperature Corrosion Resistance of (Ni, Co)CrAlY Alloys and Coatings, **Z. TANG**, Iowa State University, F. ZHANG, CompuTherm, LLC, B. GLEESON, University of Pittsburgh	Invited talk continued.
9:20 am	**A1-1-5** The Development of New Bond Coat Compositions for Thermal Barrier Coating Systems Operating in Industrial Gas Turbine Conditions, **M. SERAFFON**, N.J. SIMMS, J. SUMNER, J.R. NICHOLLS, Cranfield University, UK	**B1-3-5** Structural and Mechanical Property of (TiCrAlSi)N Coating with Different Si Contents, **H. ITO**, K. YAMAMOTO, T. OKUDE, Kobe Steel Ltd., Japan
9:40 am	**A1-1-6** The Effect of Composition on the Durability of β-phase Bond Coats, **R.W. JACKSON**, University of California, Santa Barbara, R. ADHARAPURAPU, GE Global Research, B.T. HAZEL, GE Aviation, D.M. LIPKIN, GE Global Research, C.G. LEVI, T.M. POLLOCK, University of California, Santa Barbara	**B1-3-6** Seed Layer Influence on the Texture, Orientation and Piezoelectric Properties of Pulsed-DC Sputtered AlN Thin Films, **M. HASHEMINIASARI**, J. SCALES, J. LIN, J.J. MOORE, Colorado School of Mines
10:00 am	**A1-1-7** Structure and Cyclic Oxidation Resistance of Pt, Pd and Pt/Pd Modified Aluminide Coatings on CMSX-4 Superalloy, **R. SWADŹBA**, B. WITALA, Silesian University of Technology, Poland	**B1-3-7 Invited** Industrial-Scale Sputter Deposition of Photocatalytic Active Titania (TiO_2) and Thin Film (YSZ/CGO) for Solid Oxide Fuel Cells, **L.P. NIELSEN**, K.P. ALMTOFT, I.H. ANDERSEN, B.H. CHRISTENSEN, M.B. SØRENSEN, Danish Technological Institute, Tribology Centre, Denmark, A.J. NIELSEN, C. VAHLSTRUP, J. BØTTIGER, Aarhus University, Denmark, S. SØNDERBY, Linköping University, Sweden
10:20 am	**A1-1-8** Compositional Effects on the Hot Corrosion of β -NiAl Alloys, **M.N. TASK**, F.S. PETTIT, B. GLEESON, G.H. MEIER, University of Pittsburgh	Invited talk continued.
10:40 am	**A1-1-9** Thermal Cycling Behavior of TBC Systems with Doped Pt-rich γ-γ' Bond Coatings Made by Spark Plasma Sintering (SPS), **S.D. SELEZNEFF**, M. BOIDOT, D. OQUAB, Institut Carnot CIRIMAT ENSIACET, France, C. ESTOURNÈS, CIRIMAT & PNF2/CNRS, France, D. MONCEAU, Institut Carnot CIRIMAT ENSIACET, France	**B1-3-9** Antibacterial Activity of TiO_2 Coatings Deposited by CAE-PVD, **J. ESPARZA**, A. I. N., Spain
11:00 am	**A1-1-10** Coating Performance on Low Re Superalloy, **B.A. PINT**, J.A. HAYNES, Oak Ridge National Laboratory, Y. ZHANG, Tennessee Technological University	**B1-3-10** Preparation of $BiFeO_3/LaNiO_3$ Multiferroic Oxide Superlattice Structure Prepared by RF Sputtering, **Y.-T. LIU**, National Chiao Tung University, Taiwan, S.-J. CHIU, National Tsing Hua University, Taiwan, H.-Y. LEE, National Synchrotron Radiation Research Center, Taiwan, S.-Y. CHEN, National Chiao Tung University, Taiwan
11:20 am	**A1-1-11** Isothermal and Cyclic Oxidation Kinetics of γ–γ' NiPtAl Bond Coatings in Thermal Barrier Coating Systems, **D. MONCEAU**, S.D. SELEZNEFF, M. BOIDOT, C. ESTOURNES, D. OQUAB, Institut Carnot CIRIMAT ENSIACET, France	**B1-3-11** Evolution of the Structure and Optoelectrical Performance of ZnO Thin Films Deposited by DC Magnetron Sputtering after Post Deposition Annealing Treatments, **M. YUSTE**, R. ESCOBAR GALINDO, I. CARETTI, O. SÁNCHEZ, Instituto de Ciencia de Materiales de Madrid, Spain
11:40 am	**A1-1-12** Type I Hot Corrosion of PGM-Modified NiAl Bond Coat, **V.S. DHEERADHADA**, D.M. LIPKIN, General Electric, T.M. POLLOCK, University of California, Santa Barbara, B.T. HAZEL, GE Aviation, A. VAN DER VEN, R. ADHARAPURAPY, University of Michigan	**B1-3-12** Characterization and Piezoelectric Properties of Reactively Sputtered (Sc, Al) N Thin Films on Diamond Structure, **M.-Y. WU**, J.-L. HUANG, J.-H. SONG, National Cheng Kung University, Taiwan, J.-C. SUNG, KINIK Company, Taiwan, Y.-C. CHEN, National Cheng Kung University, Taiwan, S. WU, Tung Fang Design University, Taiwan, D.-F. LII, Cheng Shiu University, Taiwan
	Exhibition Closes Today at 2:00 pm **CSM FTS at 12:15 – 1:15 pm California Room**	**Exhibition Closes Today at 2:00 pm** **CSM FTS at 12:15 – 1:15 pm California Room**

Wednesday Morning, May 4, 2011

	Hard Coatings and Vapor Deposition Technology **Room: Golden West - Session B6-1** **Application-Oriented Coating Design and Architectures** **Moderators:** C. Mitterer, Montanuniversität Leoben, M. Stueber, Karlsruhe Institute of Technology	**Fundamentals and Technology of Multifunctional Thin Films: Towards Optoelectronic Device Applications** **Room: Sunset - Session C3** **Optical Characterization of Thin Films, Surfaces, and Devices** **Moderators:** U. Beck, BAM, E. Schubert, University of Nebraska-Lincoln
8:00 am	**B6-1-1** Phase Diagram Based Design of a Spinel-Corundum Coating, **J. RAMM**, OC Oerlikon Balzers AG, Liechtenstein, M. DÖBELI, ETH Zürich, Switzerland, D. KURAPOV, H. RUDIGIER, M. SOBIECH, OC Oerlikon Balzers AG, Germany, J. THOMAS, IFW Dresden, Germany, B. WIDRIG, OC Oerlikon Balzers AG, Germany	**C3-1 Invited** Analysing Solid Surfaces by FT-IR Imaging ANR AFM-Raman-Spectroscopy, J. SAWATZKI, **BOESE**, Bruker Optik GmbH, Germany
8:20 am	**B6-1-2** Effect of Crystalline Phase on Dielectric Properties of the Plasma Sprayed Al_2O_3 Coatings, **Y. GAO**, X. CHONG, The Thermal Spraying Center of Dalian Maritime University, China, J. GAO, Harbin Institute of Technology, China	Invited talk continued.
8:40 am	**B6-1-3** Controlled Phase Transformation for Local Property Design in MAX Phase Coatings, **O. SCHROETER**, C. LEYENS, R. BASU, Technische Universität Dresden, Germany	**C3-3** X-Ray Fluorescence as a Powerful Tool for the Study of Chemistry of Thin Films, A. SIOZIOS, D.F. ANAGNOSTOPOULOS, M.A. KARAKASSIDES, **P. PATSALAS**, University of Ioannina, Greece
9:00 am	**B6-1-4 Invited** Quantum Design of Hard Boron-Rich coatings, **D. MUSIC**, J.M. SCHNEIDER, RWTH Aachen University, Germany	**C3-4** Electrochromic Properties of Nanocrystalline MoO_3/V_2O_5 Composite Thin Films, **C.-C. CHANG**, C.-H. HSU, K.-W. YEH, Academia Sinica, Taiwan, C.-S. HSU, C.-C. CHAN, C-.K. LIN, Feng Chia University, Taiwan, M.-K. WU, Academia Sinica, Taiwan
9:20 am	Invited talk continued.	**C3-5** Nitrogen-Doping Induced Changes in the Microstructure and Optical Properties of Nanocrystalline WO_3 Thin Films, **R.S. VEMURI**, S.K. GULLAPALLI, C.V. RAMANA, University of Texas at El Paso
9:40 am	**B6-1-6** DFT Combinatorics by Extending the Rule of Mixture to Sub Unit-Cell Level, **M. TO BABEN**, D. MUSIC, J. EMMERLICH, J.M. SCHNEIDER, RWTH Aachen University, Germany	**C3-6** Effect of Growth Temperature on the Structure, Electrical and Optical Characteristics of Sputter-Deposited Y_2O_3 Thin Films, **V.H. MUDAVAKKAT**, K. BHARATHI, University of Texas at El Paso, V.N. KRUCHININ, L.D. POKROVSKY, V.V. ATUCHIN, Institute of Semiconductor Physics, Russia, C.V. RAMANA, University of Texas at El Paso
10:00 am	**B6-1-7** Growth and Characterization of Single-Crystal $V_xW_{1-x}N(001)$ Thin Films, **H. KINDLUND**, J. BIRCH, L. HULTMAN, Linköping University, Sweden	**C3-7 Invited** Characterization of Nanometer Films by X-Ray and EUV Reflectometry, **S. BRAUN**, M. MENZEL, S. SCHÄDLICH, A. LESON, IWS Dresden, Fraunhofer Institute for Material and Beam Technology, Germany
10:20 am	**B6-1-8** Ductility Enhancement in Transition Metal Nitrides by Alloying and Valence Electron Concentration Tuning, **D.G. SANGIOVANNI**, V. CHIRITA, L. HULTMAN, Linköping University, Sweden	Invited talk continued.
10:40 am	**B6-1-9** Microstructural Study and Mechanical Properties of TiC/C Composite Coatings Deposited by hybrid PVD/PECVD Process, **A.-A. EL MEL**, E. GAUTRON, B. ANGLERAUD, A. GRANIER, Université de Nantes, France, V. BURŠÍKOVÁ, P. VAŠINA, P. SOUČEK, Masaryk University, Czech Republic, P.-Y. TESSIER, Université de Nantes, France	**C3-9** Effect of Nitrogen Pressure on the Growth, Microstructure and Optical Properties of TiN Thin Films, C.V. RAMANA, R.S. VEMURI, University of Texas at El Paso, **V. KAICHEV**, Boreskov Institute of Catalysis, Russia, V. KOCHUBEY, Institute of Semiconductor Physics, Russia, A. SARAEV, Novosibirsk State University, Russia, V.V. ATUCHIN, Institute of Semiconductor Physics, Russia
11:00 am	**B6-1-10** In-Situ XRD Investigations of Interface Reactions in Nanoscale Cr/ta-C Multilayers, **U. RATAYSKI**, D. RAFAJA, U. MÜHLE, TU Bergakademie Freiberg, Germany, C. BAEHTZ, Forschungszentrum Dresden-Rossendorf, H.-J. SCHEIBE, M. LEONHARDT, Fraunhofer-Institut für Werkstoff- und Strahltechnik IWS Dresden	**C3-10** Morphological Evolution and Optical Characterization of ZnO Thin Films on PET and Glass Substrates by RF-Sputtering Technique, **J.R. BORTOLETO**, State Univ of São Paulo - UNESP, Brazil, E.P. DA SILVA, E. AMORIM, E. MARTINS, UNESP - Univ Estadual Paulista, Brazil, S.F. DURRANT, State Univ of São Paulo - UNESP, Brazil, P.N. LISBOA-FILHO, UNESP - Univ Estadual Paulista, Brazil
11:20 am	**B6-1-11** Fabry-Perot Based Layer Systems with Embedded Public, Hidden and Forensic Information for Anti-Counterfeiting Applications, **U. BECK**, R. STEPHANOWITZ, A. HERTWIG, BAM, Germany, R. DOMNICK, M. BELZNER, ARA Coatings, Germany, D. HÖNIG, S. SCHNEIDER, ACCURION, Germany	**C3-11** Study of the Physical Properties of PLD Grown Cobalt Doped Nanocrystalline $Zn_{0.9}Cd_{0.1}S$ Thin Films, **A.K. CHAWLA**, S. SINGHAL, H.O. GUPTA, R. CHANDRA, Indian Institute of Technology Roorkee, India
11:40 am	**B6-1-12** Simulation of a Variety of Applications for Complex Coating Structures, **N. BIERWISCH**, N. SCHWARZER, Saxonian Institute of Surface Mechanics, Germany	**C3-12** Environment Sensitivity and Film Stability of InGaZnO TFT with Annealing Temperature Dependence, **Z.-X. FU**, National Chiao Tung University, Taiwan, Z.-Z. LI, Minghsin University of Science and Technology, Taiwan, Y.-T. CHOU, P.-T. LIU, National Chiao Tung University, Taiwan, B.-M.. CHEN, Minghsin University of Science and Technology, Taiwan
	Exhibition Closes Today at 2:00 pm **CSM FTS at 12:15 – 1:15 pm California Room**	**C3-13** Structural and Optical Properties of Chlorinated Plasma Polymers, R. TURRI, State University of São Paulo - UNESP, Brazil, C.U. DAVANZO, UNICAMP, Brazil, W.H. SCHREINER, State University of Paraná, Brazil, J.H. DIAS DA SILVA, M.B. APPOLINARIO, **S.F. DURRANT**, State University of São Paulo - UNESP, Brazil

Wednesday Morning, May 4, 2011

	Applications, Manufacturing, and Equipment **Room: Royal Palm 4-6 - Session G3** **Atmospheric and Hybrid Plasma Technologies** **Moderators:** H. Barankova, Uppsala University, S. Dixit, Plasma Technologies, Ltd.	**Applications, Manufacturing, and Equipment** **Room: California - Session G4/E4** **Coatings for Machining Advanced Materials and Advanced Manufacturing Methods** **Moderators:** M. Arndt, OC Oerlikon Balzers AG, X. Nie, University of Windsor
8:00 am	**G3-1** Atmospheric Pressure Plasma Treatment of Polymers for Ink-Jet Deposition of Flexible Solar Cell Platforms, **D.D. PAPPAS**, V. RODRIGUEZ-SANTIAGO, A.A. BUJANDA, U.S. Army Research Laboratory, V. CHHASATIA, B. LEE, Y. SUN, Drexel University	**G4/E4-1** Nanocomposite (Ti,Cr,Al,Si)N Coatings for Hard Machining of PM High Speed Steel, K. BOBZIN, F. KLOCKE, RWTH Aachen University, Germany, K. ARNTZ, Fraunhofer-Institut für Produktionstechnologie IPT, Germany, N. BAGCIVAN, RWTH Aachen Univ, Germany, M. STOLORZ, Fraunhofer-Institut für Produktionstechnologie IPT, Germany, **M. EWERING**, L. STALPERS, RWTH Aachen Univ, Germany
8:20 am	**G3-2** Investigation on the Discharge Formation Mechanisms and Surface Analysis of SiO_2-Like Layers on Polymers Synthesized Using High Current Dielectric Barrier Discharge at Atmospheric Pressure, **M.C.M. VAN DE SANDEN**, A. PREMKUMAR PETER, Eindhoven Univ of Tech, Netherlands, S.A. STAROSTIN, H.W.D. DE VRIES, FUJIFILM, Netherlands, M. CREATORE, Eindhoven Univ of Tech, Netherlands	**G4/E4-2** Substrate Surface Etching Effects on Machining Performance of Diamond-Coated Cutting Tools, R. THOMPSON, D. NOLEN, Vista Engineering, **F. QIN**, K. CHOU, University of Alabama
8:40 am	**G3-3 Invited** Surface Modification of Inks, Coatings and Adhesives - The Interfacial Effects, **R. WOLF**, Enercon Industries Corporation	**G4/E4-3** Improving Gear Cutting Tools in Wind Turbine Manufacturing, **J.J. KOHLSCHEEN**, Kennametal, Germany
9:00 am	Invited talk continued.	**G4/E4-4** Influence of Edge Micro-Geometry and Coating Design on the Drilling of Titanium Alloys with Carbide Drills, **A. PILKINGTON**, S.J. DOWEY, J.T. TOTON, RMIT University and Defence Materials Technology Centre, Australia, D. GRIFFETT, Cuttertec Pty, Australia, O. SMITH, Sutton Tools Pty, Australia, E.D. DOYLE, RMIT University and Defence Materials Technology Centre, Australia
9:20 am	**G3-5** The Development of a Low Cost, High Throughput Method for the Deposition of Functional Materials Using Atmospheric Pressure Plasma Enhanced Chemical Vapor Deposition, **K.W. JOHNSON**, S. GURUVENKET, North Dakota State University, R.A. SAILER, D.L. SCHULZ, Center for Nanoscale Science and Engineering	**G4/E4-5 Invited** Coating and Tool Wear in Composite Machining, **J. BOHLMARK**, Sandvik Tooling Stockholm SE, Sweden, E. MERSON, W.T. GOH, Sandvik Tooling Sheffield, UK
9:40 am	**G3-6** Effects of Coating Morphology on *In-Situ* Impedance Spectra of Plasma Electrolytic Oxidation Process, **C.-J. LIANG**, A. YEROKHIN, University of Sheffield, UK, E.V. PARFENOV, Ufa State Aviation Technical University, Russia, A. MATTHEWS, University of Sheffield, UK	Invited talk continued.
10:00 am	**G3-7** The Effect of Current Mode and Discharge Type on the Corrosion Resistance of Plasma Electrolytic Oxidation (PEO) Coated Magnesium Alloy AJ62., R.O. HUSSEIN, P. ZHANG, X. NIE, **D.O. NORTHWOOD**, University of Windsor, Canada	**G4/E4-7** Fatigue Behavior of TiN Coating on WC-Co Cemented Carbides, **J.-F. SU**, X. NIE, H. HU, University of Windsor, Canada
10:20 am	**G3-8 Invited** An Integrated Microwave Atmospheric Plasma Source, **R. GESCHE**, Ferdinand-Braun-Institut, Berlin, Germany	**G4/E4-8** Improved Cutting Processes of Austenitic Steels with γ-Alumina Based PVD Coating Systems, **S.E. CORDES**, RWTH Aachen University, Germany
10:40 am	Invited talk continued.	**G4/E4-9** An Investigation into the Tribological Performance of PVD Coatings on High Thermal Conductivity Cu Alloy Substrates and the Effect of an Intermediate Electroless Ni-P Layer Prior to PVD Treatment, J.C. AVELAR-BATISTA WILSON, Tecvac Ltd, UK, S. BANFIELD, Tecvac Ltd and Univ of Sheffield, UK, J. EICHLER, A. LEYLAND, A. MATTHEWS, The Univ of Sheffield, UK, **J. HOUSDEN**, Tecvac Ltd, UK
11:00 am	**G3-10** Nanocoating System with Focused ICP Atmospheric Plasma Torch for Anti-Reflective Coating, **Y. GLUKHOY**, A. USENKO, American Advanced Ion Beam Inc.	**G4/E4-10** Mechanical Properties of Partially Oxidized Silicon Nitride Films Deposited by RF Reactive Magnetron Sputtering, J. FILLA, C. AGUZZOLI, V. SONDA, CLG. AMORIM, Universidade de Caxias do Sul, Brazil, GV. SOARES, I. BAUMVOL, Universidade Federal do Rio Grande do Sul, Brazil, **C.A. FIGUEROA**, Universidade de Caxias do Sul, Brazil
11:20 am	**G3-11** Role of Plasma-Precursor Interaction on the Growth, Properties of the Thin Films Deposited via a Remote, Non-Thermal, Atmospheric Pressure Plasma Method, **S. GURUVENKET**, S. ANDREW, K.W. JOHNSON, R.A. SAILER, D.L. SCHULZ, North Dakota State University	**G4/E4-11 Invited** Carbon Based Coatings for Machining of Aluminum and Magnesium Alloys, **A.T. ALPAS**, S. BHOWMICK, University of Windsor, Canada, M.J. LUKITSCH, General Motors Research and Development Center
11:40 am	**G3-12** Plasma Characteristics of Hollow Cathode Discharge in Plasma Ion Implantation of Slender Bore, **C.Z. GONG**, X.B. TIAN, H.F. JIANG, S.Q. YANG, Harbin Institute of Technology, China, R.K.Y. FU, P.K. CHU, City University of Hong Kong, China	Invited talk continued.
	Exhibition Closes Today at 2:00 pm **CSM FTS at 12:15 – 1:15 pm California Room**	**Exhibition Closes Today at 2:00 pm** **CSM FTS at 12:15 – 1:15 pm California Room**

Wednesday Afternoon, May 4, 2011

	Coatings for Use at High Temperature **Room: Sunrise - Session A1-2 - Coatings to Resist High Temperature Oxidation, Corrosion and Fouling** **Moderators:** Y. Zhang, Tennessee Technological University, J.R. Nicholls, Cranfield University, L.G. Johansson, Chalmers University of Technology, D. Naumenko, Forschungszentrum Julich	**Hard Coatings and Vapor Deposition Technology** **Room: Golden West - Session B6-2** **Application-Oriented Coating Design and Architectures** **Moderators:** C. Mitterer, Montanuniversität Leoben, M. Stueber, Karlsruhe Institute of Technology
1:30 pm	**A1-2-1** Effect of Increased Water Vapor Levels on TBC Lifetime, **A. VANDEPUT**, CIRIMAT - ENSIACET Toulouse, B.A. PINT, J.A. HAYNES, Oak Ridge National Laboratory, Y. ZHANG, Tennessee Technological University	**B6-2-1 Invited** Various Approaches to Reveal the Architecture of Nanocomposite Thin Films, **C. SANDU**, T. YAMADA, S. HARADA, R. SANJINÉS, EPFL, Switzerland, A. CAVALEIRO, Coimbra University, Portugal, N. SETTER, EPFL, Switzerland
1:50 pm	**A1-2-2** Oxidation Resistance of Nanocomposite CrAlSiN under Long-Time Heat Treatment, **H.-W. CHEN**, Y.-C. CHAN, National Tsing Hua University, Taiwan, J.-W. LEE, Mingchi University of Technology, Taiwan, J.-G. DUH, National Tsing Hua University, Taiwan	Invited talk continued.
2:10 pm	**A1-2-3** HRTEM Study of Arc-Sputtered Nanocomposite TiSiN Thin Films, **J. MOONEY**, E.I. MELETIS, University of Texas at Arlington, Y.H. CHENG, American Eagle Instruments, Inc.	**B6-2-3** Effect of Cathodic Arc Plasma Treatment on the Properties of WC-Co Based Hard Metals, **S.A. AKKAYA**, Istanbul Technical University, Turkey, E.S. SIRELI, Böhler Sert Maden ve Takım Inc, Turkey, M.K.K. KAZMANLI, M. URGEN, Istanbul Technical University, Turkey
2:30 pm	**A1-2-4 Invited** Moisture-Induced Desktop Spallation of TBCs., **J.L. SMIALEK**, NASA Glenn Research Center	**B6-2-4** Influence of Coating Architecture on Fracture Resistance of CrAlYN Based Coatings, **M. SCHLÖGL**, F. ROVERE, J. PAULITSCH, J. KECKES, P. MAYRHOFER, Montanuniversität Leoben, Austria
2:50 pm	Invited talk continued.	**B6-2-5** Stress Design of Hard Coatings, **R. DANIEL**, J. KECKES, C. MITTERER, Montanuniversität Leoben, Austria
3:10 pm	**A1-2-6** A Single Step Process to Form an In-Situ Oxidized Alumina Foam Coating for Alloys for Extreme Environments at High Temperatures, **X. MONTERO**, M. GALETZ, M. SCHÜTZE, Dechema e.V., Germany	**B6-2-6** Nano-Beam X-Ray Diffraction Reveals Strain, Composition, Texture and Crystal Size Gradients Across Nano-Crystalline Thin Films, **J. KECKES**, R. DANIEL, M. BARTOSIK, C. MITTERER, Montanuniversität Leoben, Austria, S. SCHOEDER, M. BURGHAMMER, ESRF, Grenoble, France
3:30 pm	**A1-2-7** Oxidation Behavior of Slurry Aluminide Coatings on Stainless Steel Alloy CF8C-Plus, **J.A. HAYNES**, B.L. ARMSTRONG, S. DRYEPONDT, Oak Ridge National Laboratory, Y. ZHANG, Tennessee Technological University	**B6-2-7** Numerical Modeling of the Stress Degradation Process in Hard Coatings, **W. ECKERT**, W. Eßl, G. MAIER, R. EBNER, Materials Center Leoben Forschung GmbH, Austria, C. MITTERER, J. KECKES, Montanuniversität Leoben, Austria
3:50 pm	**A1-2-8** Nitriding and Coating of a Stainless Steel for Corrosion Protection in Carburizing Atmospheres, V. MELO, TRAMES SA de CV, Mexico, **M. SALAS**, E. OSEGUERA, ITESM, Mexico, R. TORRES, Pontifícia Universidade Católica do Parana, Brazil, R.M. SOUZA, University of Sao Paulo, Brazil	**B6-2-8** Application-Driven Design of Wear-Resistant Coatings by Means of an Integrated Multi-Scale Coating Design Tool, **M. FUCHS**, Saxonian Institute of Surface Mechanics, Germany, K. HOLMBERG, VTT Technical Research Centre of Finland, N. SCHWARZER, Saxonian Institute of Surface Mechanics, Germany, P. KELLY,
4:10 pm	**A1-2-9** Formation and Characterization of Ti-Modified Aluminide Coatings on Nickel-Based Superalloy B-1900, **F. SHAHRIARI**, F. ASHRAFIZADEH, A. SAATCHI, Isfahan University of Technology, Iran	**B6-2-9** Coating Design for Metalcutting Applications, **A. INSPEKTOR**, R. PENICH, Kennametal Inc., P.A. SALVADOR, N. PATEL, Carnegie Mellon University
4:30 pm		**B6-2-10** The Effect of an AlCrN Based Coating and Post Treatment on Uncoated Carbide Drills Designed for Ti Alloys, in Drilling of Mill Annealed Ti_6Al_4V., **S.J. DOWEY**, Surface Technology Coatings, Australia, A. PILKINGTON, J.T. TOTON, E.D. DOYLE, RMIT University, Australia, O. SMITH, Sutton tools Pty, Australia
4:50 pm		**B6-2-11** Towards an Improved Understanding of the Drill Test. A study of Cutting Parameters, Work Piece Material, Coatings and Finish and their Influence on Cutting Forces Measured during Drilling, **J.T. TOTON**, RMIT Univ, Australia, S.J. DOWEY, Surface Tech Coatings, A. PILKINGTON, RMIT Univ., O. SMITH, Sutton Tools Pty., E.D. DOYLE, Royal Melbourne Inst of Tech Univ and Defence Materials Technology Centre
5:10 pm		**B6-2-12** TiN Multilayer Systems for Compressor Airfoil Liquid Droplet Erosion Protection, **A. FEUERSTEIN**, M. BRENNAN, M. ROMERO, Praxair Surface Technologies, Inc
5:30 pm	**Awards Convocation** **California Room - 5:30 pm**	**Awards Convocation** **California Room - 5:30 pm**
	Awards Buffet Reception: **Poolside near the Tiki Pavilion - 7:30 pm**	**Awards Buffet Reception:** **Poolside near the Tiki Pavilion - 7:30 pm**

Wednesday Afternoon, May 4, 2011

	Tribology & Mechanical Behavior of Coatings & Thin Films **Room: California - Session E5** **Nano- and Microtribology** **Moderators:** N. Randall, CSM Instruments, J.-H. Hahn, Korea Research Institute of Standards and Science	**New Horizons in Coatings and Thin Films** **Room: Sunset - Session F3** **New Boron, Boride and Boron Nitride Based Coatings** **Moderators:** H. Hoegberg, Linkoping University, M. Keunecke, Fraunhofer Institute for Surface Engineering & Thin Films
1:30 pm	**E5-1** Microstructural Tailoring of Metallic Multilayer Thin Films by Laser Interference Metallurgy for Enhanced Tribological Properties, **C. GACHOT**, F.TH. MUECKLICH, University of Saarland, Germany	**F3-1** Hardness, Thermal Stability and Oxidation Resistance of Cr_5B_3 Films, **D.M. PILLOUD**, J.-F. PIERSON, Institut Jean Lamour (UMR CNRS 7198), France
1:50 pm	**E5-2** Nanotribological Properties of CrN Films Deposited in an Industrial Chamber by HIPIMS and DC Magnetron Sputtering, **E. BROITMAN**, G. GRECZYNSKI, L. HULTMAN, Linköping University, Sweden	**F3-2** Direct Current Magnetron Sputtering of ZrB_2 Thin Films from a Compound Target in an Industrial Scale Deposition System, **H. HÖGBERG**, Linköping University, Sweden, M. OTTOSSON, Uppsala University, Sweden, J. LU, J. JENSEN, M. SAMUELSSON, L. HULTMAN, Linköping University, Sweden
2:10 pm	**E5-3** Nano-/Micro Scale Fretting and Reciprocating Wear of Thin Films and Si(100), B. BEAKE, Micro Materials Ltd, UK, **T.W. LISKIEWICZ**, University of Leeds, UK, J.F. SMITH, Micro Materials Ltd, UK	**F3-3** A Combinatorial Effect of Substrate and Surface Terminating Species on Phase Pure Growth of c-BN, K. LARSSON, Uppsala University, Sweden
2:30 pm	**E5-4** The Effect of Environmental and Contact Conditions on Micro-Tribology Experiments on Engineering Coatings, **M. GEE**, J.W. NUNN, L.P. ORKNEY, National Physical Laboratory, UK	Invited talk continued.
2:50 pm	**E5-6** Nanomechanics of Thin Films: a Cross Sectional Approach, **C.A. BOTERO VEGA**, E. JIMENEZ-PIQUÉ, Universitat Politècnica de Catalunya, Spain, T. KULKARNI, Boston university, L.M. LLANES PITARCH, Universitat Politècnica de Catalunya, Spain, V.K. SARIN, Boston university	**F3-5** **TBA, A. CLOUD**, University of Illinois
3:10 pm	**E5-7** Sub-Micro-Pillar Compression Tests on Nanocrystalline Nickel Tribofilms, **C.C. BATTAILE**, S.V. PRASAD, J.R. MICHAEL, B.L. BOYCE, Sandia National Laboratories	**F3-6** The Effect of Deposition Parameters on the Structure, Chemistry and Physical Properties of Deposited B-C-N Films, **M.F. GENISEL**, E. BENGU, Bilkent University, Turkey
3:30 pm	**E5-8** Nanoscale Mechanical Imaging of Multilayered Films for Flexible Display Using Contact Resonance Force Microscopy, **J.-H. HAHN**, Korea Research Institute of Standards and Science, Korea, D.-H. KIM, H.-S. AHN, Seoul National University of Science and Technlogy, Korea	**F3-7** Bonding Structure of B-C-N Ternary Compounds and Their Tribomechanical Properties, **I. CARETTI**, I. JIMÉNEZ, Instituto de Ciencia de Materiales de Madrid, Spain
3:50 pm	**E5-9 Invited** Effect of Surface Coating Topography on the Tribological Properties of Nanoparticle Films, **M. AKBULUT**, Texas A&M University	**F3-8** Influence of Nitrogen and Oxygen Addition on the Energy Flux in a rf-Magnetron Discharge for the Deposition of Superhard c-BN Coatings, **S. BORNHOLDT**, Christian-Albrechts-Universität zu Kiel, Germany, J. YE, S. ULRICH, Karlsruhe Institute of Technology (KIT), Germany, H. KERSTEN, Christian-Albrechts-Universität zu Kiel, Germany
4:10 pm	Invited talk continued.	**F3-9** Electrochemical Boriding and Characterization of AISI D2 Tool Steel, **V. SISTA**, Argonne National Laboratory, O. KAHVECIOGLU, Istanbul Technical University, Turkey, O.L. ERYILMAZ, A. ERDEMIR, Argonne National Laboratory, S. TIMUR, Istanbul Technical University, Turkey
4:30 pm		**F3-10** Ultra Fast Boriding of Nickel Aluminide, **O. KAHVECIOGLU**, Istanbul Technical University, Turkey, V. SISTA, O.L. ERYILMAZ, A. ERDEMIR, Argonne National Laboratory, S. TIMUR, Istanbul Technical University, Turkey
4:50 pm		
5:10 pm		
5:30 pm	**ICMCTF Honorary Lecture** **Stan Veprek** **Technical University, Munich Germany** **Search for Superhard Materials: Go Nano!**	
	Awards Convocation - California Room - 5:30 pm **Awards Buffet Reception** **Poolside near the Tiki Pavilion -7:30 pm**	**Awards Convocation - California Room - 5:30 pm** **Awards Buffet Reception** **Poolside near the Tiki Pavilion - 7:30 pm**

Wednesday Afternoon, May 4, 2011

	Applications, Manufacturing, and Equipment **Room: Royal Palm 4-6 - Session G2** **Coatings for Automotive and Aerospace Applications** **Moderators:** H. Rudigier, OC Oerlikon Balzers AG, S. Roy, University of Newcastle	**Surface Engineering for Thermal Transport, Storage, and Harvesting** **Room: Royal Palm 1-3 - Session TS3** **Moderators:** A.A. Voevodin, Air Force Research Laboratory, T.S. Fisher, Purdue University & Air Force Research Laboratory
1:30 pm	**G2-1** Highly Concentrated and Low Friction Slip-Rolling Contacts Through Thin Film Coatings and/or Alternative Steels?, **C. SCHOLZ**, D. SPALTMANN, M. WOYDT, Federal Institute for Materials Research and Testing, Germany	**TS3-1 Invited** New Approaches with Organic and Inorganic Films for Thermal Energy Conversion, **M. SHTEIN**, K.P. PIPE, University of Michigan, Y. JIN, H. SUN, Michigan State University, A. YADAV, University of Michigan
1:50 pm	**G2-2** Study on Fatigue and Wear Behaviors of a TiN Coating Using an Inclined Impact-Sliding Test, Y. CHEN, **X. NIE**, University of Windsor, Canada	Invited talk continued.
2:10 pm	**G2-3** Friction and Wear Behaviour of MoN-Cu Nanocomposite Coatings Under Lubricated Conditions, **O.L. ERYILMAZ**, J.-H. KIM, A. ERDEMIR, Argonne National Laboratory, M. URGEN, Istanbul Technical University, Turkey	**TS3-3** Effects of Ni Diffusion Barrier on CNT Growth on Metal Foils for Thermal Interface Applications, **S.O. ADEWUYI**, A. BULUSU, S. GRAHAM, B.A. COLA, Georgia Institute of Technology
2:30 pm	**G2-4** Effect of Si Addition on the Friction Coefficients of CrZr-Based Nitride Thin Films at Elevated Temperatures, **S.-Y. LEE**, Y.-S. KIM, J.-H. OH, Korea Aerospace University, Korea, J.-J. LEE, Seoul National University, Korea, W. Y. JEUNG, Korea Institute of Science and Technology, Korea	**TS3-4** Carbon Nanotube-Coated Foils as Low-Resistance Thermal Interface Materials, **S.L. HODSON**, Purdue Univ & Birck Nanotech Cntr.,, A. BULUSU, Georgia Inst of Tech., J.R. WASNIEWSKI, D.H. ALTMAN, Raytheon Integrated Defense Systems, B.A. COLA, S. GRAHAM, Georgia Inst of Tech, X. XU, Purdue Univ & Birck Nanotech Cntr., A. GUPTA, Raytheon Integrated Defense Systems, T.S. FISHER, Purdue Univ & AFRL
2:50 pm	**G2-5** Optimized DLC Coatings for Fuel Injection Components to Minimize Wear and Friction in Various Fuels, **A. HIEKE**, G. VAN DER KOLK, Ionbond Netherlands BV, Venlo, Netherlands, G. HAKANSSON, Ionbond Sweden AB, Sweden, F. GUSTAVSSON, P. FORSBERG, S. JACOBSON, Uppsala University, Sweden	**TS3-5** Crystalline Thin Film Materials with Anisotropic Thermal Conductivity, **C. MURATORE**, Air Force Research Laboratory, V. VARSHNEY, Air Force Research Laboratory/UTC, J.J. GENGLER, Air Force Research Laboratory/Spectral Energies, J. HU, J.E. BULTMAN, Air Force Research Laboratory/UDRI, T. SMITH, A.A. VOEVODIN, Air Force Research Laboratory
3:10 pm	**G2-6** Deposition and Characteristics of Chromium Nitride Thin Film Coatings on Precision Balls for Tribological Applications, M.D. DRORY, **R.D. EVANS**, The Timken Company	**TS3-6** Thermal Conductivity of Si-B-C-N Thin Films, **J.J. GENGLER**, Air Force Research Laboratory/Spectral Energies, J. HU, Air Force Research Laboratory/UDRI, J.G. JONES, A.A. VOEVODIN, Air Force Research Laboratory, P. STEIDL, J. VLCEK, University of West Bohemia, Czech Republic
3:30 pm	**G2-7 Invited** Recent Advancements in Coatings for Piston Rings, **K. HONDA**, Riken Corporation, Japan	**TS3-7** Pressure Dependence on Thermal Conductivity and Interface Conductance of Interface Materials for Thermal Switching, **A.R. WAITE**, Air Force Research Laboratory/UTC, J.J. GENGLER, Air Force Research Laboratory/Spectral Energies, J.G. JONES, C. MURATORE, A.A. VOEVODIN, Air Force Research Laboratory
3:50 pm	Invited talk continued.	**TS3-8** Thermal Properties of Diamond/Ag Composites Fabricated by Salt Bath Coating, **M.T. LEE**, J.-S. LIU, C.-Y. CHUNG, S.-J. LIN, National Tsing Hua University, Taiwan
4:10 pm	**G2-9** Surface Energy and Tribochemistry of Ti-DLC Coatings, **L.V. SANTOS**, M.S. OLIVEIRA, S.F. FISSMER, Technological Institute of Aeronautics, Brazil, L.C.D. SANTOS, C.A. ALVES, Universidade Federal do Rio Grande do Norte, Brazil, P.A. RADI, Instituto Nacional de Pesquisas Espaciais - INPE, Brazil, M. MASSI, H.S. MACIEL, Technological Institute of Aeronautics, Brazil	**TS3-9** Homogeneous Solution of $Ca(BH_4)_2$ as a Thermal Energy Storage Material, **P.B. AMAMA**, J.E. SPOWART, A.A. VOEVODIN, Air Force Research Laboratory, T.S. FISHER, Purdue University & Air Force Research Laboratory, P. SHAMBERGER, Air Force Research Laboratory
4:30 pm	**G2-10 Invited** Chromium Carbide: A New Coating Approach for Highly Loaded, Low Friction Applications, **M. KEUNECKE**, K. BEWILOGUA, Fraunhofer Institute for Surface Engineering and Thin Films, Germany, J. BECKER, A. GIES, M. GRISCHKE, OC Oerlikon Balzers AG, Liechtenstein	**TS3-10** Infrared Study of Ta_2O_5 and HfO_2 Thin Films on Si Substrates, **T.J. BRIGHT**, Z.M. ZHANG, Georgia Institute of Technology, C. MURATORE, A.A. VOEVODIN, Air Force Research Laboratory
4:50 pm	Invited talk continued.	**TS3-11** Photonically Enhanced Flow Boiling from Nanostructured Surfaces, **C. HUNTER**, Air Force Research Laboratory, S.K. ARUN, Purdue Univeristy, S.A. PUTNAM, Universal Technology Corporation, N. GLAVIN, Air Force Research Laboratory, T.S. FISHER, Purdue University & Air Force Research Laboratory
5:10 pm	**G2-12** Influence of Humidity on Hardness and the Impact Resistance of Carbon Based Composite Coatings, **J. SOBOTA**, J. GROSSMAN, Institute of Scientific Instruments v.v.i., Czech Republic, V. BURSIKOVA, Masaryk University, Czech Republic, E. MIKMEKOVA, L. DUPAK, Institute of Scientific Instruments v.v.i., Czech Republic, J.	**TS3-12** Enhanced Surfaces in Conjunction with Single and Two-Phase Flows for Power Electronics Cooling Applications, **S. NARUMANCHI**, P. MCCLUSKEY, G. MORENO, C. KING, National Renewable Energy Laboratory
5:30 pm	**Awards Convocation** **California Room - 5:30 pm**	**Awards Convocation** **California Room - 5:30 pm**
	Awards Buffet Reception **Poolside near the Tiki Pavilion - 7:30 pm**	**Awards Buffet Reception** **Poolside near the Tiki Pavilion - 7:30 pm**

Thursday Morning, May 5, 2011

	Coatings for Use at High Temperature **Room: Sunrise - Session A1-3 - Coatings to Resist High Temperature Oxidation, Corrosion and Fouling** **Moderators:** Y. Zhang, Tennessee Technological University, J.R. Nicholls, Cranfield University, L.G. Johansson, Chalmers University of Technology, D. Naumenko, Forschungszentrum Julich	**Hard Coatings and Vapor Deposition Technology** **Room: Golden West - Session B5-1** **Hard and Multifunctional Nano-Structured Coatings** **Moderators:** C.P. Mulligan, Benet Laboratories, US Army ARDEC, R. Sanjines, EPFL, P. Zeman, University of West Bohemia
8:00 am	**A1-3-1** Effect of Steam Exposure on the Creep Properties of Bare and Aluminized Fe- and Ni-Based Alloys, **S. DRYEPONDT**, B.A. PINT, Oak Ridge National Laboratory, Y. ZHANG, Tennessee Technological University	**B5-1-1** Structure and Properties of Ti-Al-Y-N Coatings Deposited from Filtered Vacuum-Arc Plasma, V.A. BELOUS, V.V. VASYLIEV, Kharkov Inst. of Physics & Tech., Ukraine, **V.S. GOLTVYANYTSYA**, S.K. GOLTVYANYTSYA, Real Ltd., Ukraine, E.N. RESHETNYAK, V.E. STREL'NITSKIJ, G.N. TOLMACHEVA, A.A. LUCHANINOV, Kharkov Inst of Physics & Tech., Ukraine, O.S. DANYLINA, Krivoy Rog Tech Univ., Ukraine
8:20 am	**A1-3-2** High Temperature Protection of Ferritic Steels by Nano-Structured Coatings: Supercritical Steam Turbines Applications, **F.J. PEREZ**, M.P. HIERRO, M.S. MATO, I. LASANTA, M. TEJERO, Universidad Complutense de Madrid, Spain, J.C. SANCHEZ-LOPEZ, Instituto de Ciencia de Materiales de Sevilla (CSIC-US), Spain, M. BRIZUELA, TECNALIA-Inasmet, Spain	**B5-1-2** Growth of Hard Amorphous Ti-Al-Si-N Thin Films, **H. FAGER**, A. FALLQVIST, N. GHAFOOR, Linköping University, Sweden, M. JOHANSSON, Seco Tools AB Fagersta, Sweden, P.O.Å. PERSSON, M. ODÉN, L. HULTMAN, Linköping University, Sweden
8:40 am	**A1-3-3** Isothermal and Thermal Cycling Oxidation Behavior of Hot-Dip Alumina Coating on Flake/Spheroidal Graphite Cast Iron, **M.-B. LIN**, C.-J. WANG, National Taiwan University of Science and Technology, Taiwan	**B5-1-3 Invited** Solid Solutions and nanostructures in Al(Si)N Hard Coatings, **J. PATSCHEIDER**, Empa, Switzerland
9:00 am	**A1-3-4** Effect of Silicon on the Formation of Intermetallic Phases in Aluminide Coating on Mild Steel, **W.-J. CHENG**, C.-J. WANG, National Taiwan University of Science and Technology, Taiwan	Invited talk continued.
9:20 am	**A1-3-5 Invited** Coatings for Severe High Temperature Corrosion Conditions, **M. SCHUETZE**, Dechema e.V., Germany	**B5-1-5** Structure Characterization and Antibacteria Behavior of TaN-Ag, TaN-Cu and TaN(Ag,Cu) Nanocomposite Thin Films, **J.-H. HSIEH**, S.-Y. HUNG, Ming Chi University of Technology, Taiwan, C. LI, National Central University, Taiwan
9:40 am	Invited talk continued.	**B5-1-6** Corrosion Resistance and Hardness of Nb-Si-N Coatings Deposited by Dual Magnetron Sputtering, **G. RAMÍREZ**, S.E. RODIL, S. MUHL, L. HUERTA, Universidad Nacional Autonoma de Mexico, E. CAMPS, L. ESCOBAR-ALARCÓN, Instituto Nacional de Investigaciones Nucleares, Mexico
10:00 am	**A1-3-7** Influence of Pt on the Oxide Scales Formed on Diffusion Aluminide Coatings Due to Sodium Sulfate Induced Hot Corrosion at 900°C, **H.M. LAI**, Chalmers University of Technology, Sweden	**B5-1-7** Quaternary-Phase Coatings in the Cr-WC-N System, **M.J. WALOCK**, University of Alabama, Birmingham, I. RAHIL, Arts et Metiers ParisTech, France, Y. ZOU, University of Alabama, Birmingham, C. NOUVEAU, Arts et Metiers ParisTech, France, A.V. STANISHEVSKY, University of Alabama, Birmingham
10:20 am	**A1-3-8** High Temperature Water-Accelerated Degradation Behaviour of Uncoated and PEO Oxide-Coated Zr-2.5Nb, **Y. CHEN**, X. NIE, D.O. NORTHWOOD, University of Windsor, Canada	**B5-1-8** Self-Organized ZrN/Si_3N_4 Lamellar Growth During Reactive Dual Magnetron Sputtering of $Zr_{1-x}Si_xN_y$ Thin Films at High Temperature, **N. GHAFOOR**, K. YUAN, J. BIRCH, J. JENSEN, L. HULTMAN, M. ODÉN, Linköping University, Sweden, J. WEN, University of Illinois at Urbana- Champaign, I. PETROV, University of Illinois at Urbana-Champaign
10:40 am	**A1-3-9** Application of Partially Stabilised Zirconia Coatings for Molten Chloride Environment, **R.A. SHANKAR**, K.U. MUDALI, B. RAJ, Indira Gandhi Centre for Atomic Research, India	**B5-1-9** Modulation Structure and Mechanical Properties of W/ZrB_2 Multilayers, G.Q. LIU, Y.B. KANG, **D.J. LI**, X.Y. DENG, Tianjin Normal University, China
11:00 am		**B5-1-10** Growth and Properties of Cr_2GeC Epitaxial Nanolaminated Thin Films, **P. EKLUND**, Linköping University, Sweden, M. BUGNET, M. JAOUEN, S. DUBOIS, C. TROMAS, T. CABIOC'H, University of Poitiers, France
11:20 am		**B5-1-11** Nanostructured Superhard Films Ti-Hf-Si-N, their Properties and Structure, **D. POGREBNJAK**, Sumy State Univ., Ukraine, M. BERESNEV, Kharkov Natl. Univ., P.V. KONARSKI, Tele & Radio Res Inst.., V. UGLOV, F. KOMARTOV, Belarus State Univ., M.V. KAVERIN, Sumy Inst., D.A. KOLESNIKOV, Belgorod State Univ, V. GRUDNITSKIY, Kharkov Natl. Inst, N.A. MAKHMUDOV, Tashkent Inst., M.V. IL'YASHENKO, G.V. KIRIK, Sumy State Univ.
11:40 am		**B5-1-*12*** *In-Situ* Characterisation of Microstructure Evolution in $Ti_{1-x}Al_xN$ Coatings During Annealing, **CH. WUESTEFELD**, D. RAFAJA, V. KLEMM, M. DOPITA, M. MOTYLENKO, TU Bergakademie Freiberg, Germany, C. BAEHTZ, Forschungszentrum Dresden-Rossendorf, Germany, C. MICHOTTE, CERATIZIT, Luxembourg, M. KATHREIN, CERATIZIT, Austria
12:00 pm	**2012 ICMCTF Planning Meeting** **(Open to all interested attendees) 12-1:15 pm Royal Palm 1-3** **Elsevier FTS 12:15-1:15 pm California Room**	**B5-1-13** Laminated Structure in the Internal Oxidation of Ta-Ru Coatings, **Y.-I. CHEN**, S.-M. CHEN, National Taiwan Ocean University, Taiwan

Thursday Morning, May 5, 2011

	Tribology and Mechanical Behavior of Coatings and Thin Films **Room: California - Session E2-1** **Mechanical Properties and Adhesion** **Moderators:** M.-T. Lin, National Chung Hsing University, J. Michler, Empa	**New Horizons in Coatings and Thin Films** **Room: Sunset - Session F1-1** **Nanomaterials, Nanofabrication, and Diagnostics** **Moderators:** S. Kodambaka, University of California at Los Angels, Y.A. Gonzalvo, Hiden Analytical
8:00 am	**E2-1-1 Invited** Theoretical Model Developed for the Pop-In Arising in the Thin Solids Films and Its Testification by Nanoindentations, **J.-F. LIN**, C.-F. HAN, National Cheng Kung University, Taiwan	**F1-1-1** Ordered ZnO/AZO/PAM Nanowire Arrays Prepared by Seed Layer Assisted Electrochemical Deposition, **Y.-M. SHEN**, C.-H. PAN, National Cheng Kung University, Taiwan, S.-C. WANG, Southern Taiwan University, Taiwan, J.-L. HUANG, National Cheng Kung University, Taiwan
8:20 am	Invited talk continued.	**F1-1-2** Hierarchical and Core-Shell ZnO/TiO_2 Photocatalytic Heterostructures, **J. MIGAS**, D. STONE, L. WANG, M.E. MCCARROLL, S.M. AOUADI, Southern Illinois University, Carbondale
8:40 am	**E2-1-3** Time Resolved Mechanical Surface Testing and Subsequent Physical Analysis, **N. SCHWARZER**, Saxonian Institute of Surface Mechanics, Germany	**F1-1-3** Photo-Degradation Behavior of N-Doped TiO_2 Nanotubes Prepared by Anodic Oxidation and Nitrogen Implantation, **J. LI**, F. HUANG, Q.-J. XUE, CAS Ningbo Institute of Materials Technology and Engineering, China
9:00 am	**E2-1-4** Mechanical Stress Effect on the Formation of Copper-Tin Intermetallic Thin Films, **M.-T. LIN**, C.-C. YANG, S.-N. LI, C.-M. CHEN, National Chung Hsing University, Taiwan	**F1-1-4** Low Temperature Growth Mechanisms of Vertically Aligned Carbon Nanofibers (CNFs) and Carbon Nanotubes (CNTs) by RF-PECVD, **H. WANG**, J.J. MOORE, Colorado School of Mines
9:20 am	**E2-1-5** What Qualifies a Well Adherent Cr-Based Adhesion Layer for Diamond-Like Carbon Coating Systems?, **J. SCHAUFLER**, C. SCHMID, G. YUANG, M. GÖKEN, K. DURST, University Erlangen-Nuremberg, Germany	**F1-1-5** Inkjet-Printed Carbon Nanotube Films, **A.R. HOPKINS**, D.C. STRAW, The Aerospace Corporation
9:40 am	**E2-1-6** Evidence of Vacuum Below Buckling Structures, **E. DION**, C. COUPEAU, J. COLIN, J. GRILHE, Université de Poitiers, France	**F1-1-6** Super-Hydrophobic Surfaces via Synthesis of Vertically Aligned Carbon Nanotube Arrays on Aluminum-Iron Matrix, **B. BAYKAL**, G. KUCUKAYAN, E. BENGU, Bilkent University, Turkey
10:00 am	**E2-1-7** Investigation of the Mechanical Properties of DLC-Coatings by Means of Nanoindentation and It's Modelling, **A. GIES**, OC Oerlikon Balzers AG, Liechtenstein, N. SCHWARZER, Saxonian Institute of Surface Mechanics, Germany, J. BECKER, H. RUDIGIER, OC Oerlikon Balzers AG, Liechtenstein	**F1-1-7** Fabrication of Nanoimprint Molds by Sub-Micron Sphere Lithography, **S. PORTAL**, C. CORBELLA, E. CABRERA, V.-M. FREIRE, E. PASCUAL, J.-L. ANDÚJAR, E. BERTRAN, Universitat de Barcelona, Spain
10:20 am	**E2-1-8** Fracture Behavior of Hard Multilayered Thin Films on Soft Substrates, C.G. OLIVA, Politecnico di Torino, Italy, **R. GHISLENI**, R. RAGHAVAN, Empa, Switzerland, D. UGUES, Politecnico di Torino, Italy, J. MICHLER, Empa, Switzerland	**F1-1-8** Study on CHC-FePt Nanospheres as a Novel Drug Vehicle with Ultrasound-Triggered Release Behavior and MRI Contrast, **T.-Y. LIU**, National Yang-Ming University, Taiwan
10:40 am	**E2-1-9** Correcting Time Dependent Displacement Effects in Nanoindentation Analysis, **M.I. DAVIES**, Univeristy of Nottingham, UK, N. SCHWARZER, Saxonian Institute of Surface Mechanics, Germany, B. BEAKE, Micro Materials Ltd, UK, N.M. EVERITT, University of Nottingham	**F1-1-9** Gas Sensors with Porous Three-Dimentional Framework Using TiO_2/Polymer Double-Shell Hollow Microsphere, **C.-J. CHANG**, C-.K. LIN, Feng Chia University, Taiwan, C.-C. CHEN, National United University, Taiwan, C.-Y. CHEN, E.H. KUO, Feng Chia University, Taiwan
11:00 am	**E2-1-10** Measuring Substrate-Independent Young's Modulus of Thin Films, **J. HAY**, Agilent Technologies	**F1-1-10** Abnormal Retention Characteristics of $NiSi_2$/SiN_X Compound Nanocrystal Memory at Elevated Temperature, **Y.-T. CHEN**, National Sun Yat-sen University, Taiwan
11:20 am	**E2-1-11** Interfacial Indentation Test of FeB/Fe_2B Coatings, M.A. DOÑU-RUIZ, I.E. CAMPOS-SILVA, J. MARTINEZ-TRINIDAD, **G. RODRIGUEZ-CASTRO**, E. HERNANDEZ-SANCHEZ, Instituto Politécnico Nacional, Mexico	**F1-1-11** A Novel Fabrication Technique for Free Standing Nickel Nanowires and their Possible Applications, M. URGEN, **F.B. BAYATA**, N.S. SOLAK, Istanbul Technical University, Turkey
11:40 am	**E2-1-12** Indentation Size Effect on Fe_2B/Substrate Interface, I.E. CAMPOS-SILVA, **E. HERNANDEZ-SANCHEZ**, Instituto Politécnico Nacional, Mexico, M. ORTIZ-DOMÍNGUEZ, Instituto Politecnico Nacional, Mexico, A. RODRIGUEZ-PULIDO, G. RODRIGUEZ-CASTRO, Instituto Politécnico Nacional, Mexico	**F1-1-12** Study of the Synthesis of Diamond Nanotips by Broad Ion Beam Etching, **AL. MAMUN**, Q. YANG, Y. TANG, Y.-S. LI, University of Saskatchewan, Canada
12:00 pm	**2012 ICMCTF Planning Meeting** **(Open to all interested attendees) 12-1:15 pm Royal Palm 1-3** **Elsevier FTS 12:15-1:15 pm California Room**	**2012 ICMCTF Planning Meeting** **(Open to all interested attendees) 12-1:15 pm Royal Palm 1-3** **Elsevier FTS 12:15-1:15 pm California Room**

Thursday Morning, May 5, 2011

	New Horizons in Coatings and Thin Films **Room: Royal Palm 1-3 - Session F5** **New Oxynitride Coatings** **Moderators:** W. Kalss, Oerlikon Balzers, S. Ulrich, Karlsruhe Institute of Technology (KIT)	**Applications, Manufacturing, and Equipment** **Room: Royal Palm 4-6 - Session G1** **Innovations in Surface Coatings and Treatments** **Moderators:** A. Leyland, University of Sheffield, R. Cremer, KCS Europe
8:00 am	**F5-1 Invited** Oxynitride Coatings - Opportunities and Challenges from an Industrial Perspective, **J. SJÖLÉN**, Seco Tools AB, Sweden, A. KHATIBI, L. HULTMAN, Linköping University, Sweden	**G1-1** Electrical Measurement of Contamination Films in Plasma Reactors, **B.P. O'SHAUGHNESSY**, S.H. JANG, University of Texas at Dallas, J.S. LEE, DMS, G.S. LEE, University of Texas at Dallas
8:20 am	Invited talk continued.	**G1-2** Hierarchical Homo- and Hetero-Structures Produced using Unbalanced Magnetron Sputtering Techniques, **S.M. AOUADI**, B. SIROTA, D. STONE, L. WANG, M.E. MCCARROLL, Southern Illinois University, Carbondale
8:40 am	**F5-3** Deposition and High Temperature Stability of Reactively Magnetron Sputtered Al-Cr-O and Al-Cr-O-N Thin Films, **D. DIECHLE**, Karlsruhe Institute of Technology, Germany, A. CAVALEIRO, Coimbra University, Portugal, H. LEISTE, Karlsruhe Institute of Technology, Germany, V. SCHIER, Walter AG, Tübingen, Germany, M. STUEBER, S. ULRICH, Karlsruhe Institute of Technology, Germany	**G1-3** The Titanium Oxide Film for Vascular Stent Modification, **Y.X. LENG**, Southwest Jiaotong University, China
9:00 am	**F5-4** Synthesis of the Al-Cr-O-N Coatings by Reactive Cathodic Arc Evaporation, **D. KURAPOV**, H. RUDIGIER, T. BACHMANN, OC Oerlikon Balzers AG, Liechtenstein, M. DOEBELI, Ion Beam Physics, ETH Zürich, Switzerland	**G1-4 Invited** Synthesis, Interface Engineering, and Applications of Cubic Boron Nitride Films, **W.J. ZHANG**, B. HE, Q. YE, Y. YANG, I. BELLO, S.T. LEE, City University of Hong Kong
9:20 am	**F5-5** Effect of Heat Treatment on the Structural Properties of LARC-Deposited AlCr-Based Oxynitride Coatings, H. NAJAFI, A. KARIMI, EPFL, Switzerland, P. DESSARZIN, **M. MORSTEIN**, Platit AG, Switzerland	Invited talk continued.
9:40 am	**F5-6 Invited** Structure and Properties of Oxynitride Coatings for Cutting Tool Applications, **Y. TANAKA**, K. SATO, H. KAKINUMA, Mitsubishi Materials Corporation, Japan	**G1-6** Solution-Based Diamond-Like Carbon Coatings, **V.Z. POENITZSCH**, C. ELLIS-TERREL, R. WEI, K. COULTER, Southwest Research Institute
10:00 am	Invited talk continued.	**G1-7** Microstructure and Corrosion Behavior of Magnetron Sputtering Ni-P-Based Alloy Thin Films, **F.-B. WU**, C.-C. WU, Y.-C. HSIAO, National United University, Taiwan
10:20 am	**F5-8** Dedicated Oxynitride Coating Systems for Heavy Machinable Materials, P. MAHR, **H. FRANK**, S. REICH, GFE Schmalkaden e.V., Germany	**G1-8** An Investigation into the Effect of Triode Plasma Oxidation (TPO) on the Properties of Ti-6Al-4V, **S. BANFIELD**, Tecvac Ltd and University of Sheffield, UK, J.C. AVELAR-BATISTA WILSON, Tecvac Ltd, UK, G. CASSAR, A. LEYLAND, A. MATTHEWS, University of Sheffield, UK, J. HOUSDEN, Tecvac Ltd, UK
10:40 am	**F5-9** Fabrication and Optical Performance of Zirconium Oxynitride Coatings, **C.V. RAMANA**, I.C. FERNANDEZ, University of Texas at El Paso, A.L. CAMPBELL, Wright-Patterson Air Force Base (WPAFB)	**G1-9** The Stratified - Equiaxed Microstructure Transition of 316L Coatings by Low Pressure Plasma Spraying, **D.-M. YANG**, B.-H. TIAN, Y. GAO, The Thermal Spraying Center of Dalian Maritime University, China
11:00 am	**F5-10** Characterization of Nanostructured Hydrophobic Zirconium Oxynitride Coatings Deposited by RF Magnetron Sputtering, S.K. RAWAL, A.K. CHAWLA, V. CHAWLA, R. JAYAGANTHAN, **R. CHANDRA**, Indian Institute of Technology, Roorkee, India	**G1-10** Interfacial Reaction of $Sn_{3.0}Ag_{0.5}Cu$ Solder with novel $Ni_{-x}Zn$ Under Bump Metallization, **H.-M. LIN**, J.-G. DUH, National Tsing Hua University, Taiwan
11:20 am		**G1-11** A Novel Preparation of Sn,Sb-O_{2-x} Coatings by Pulsed Fiber Laser Annealing, **C.-M. WANG**, National Cheng Kung University, Taiwan, C.-C. HUANG, H.-T. LIN, Cheng Shiu University, Taiwan, J.-L. HUANG, National Cheng Kung University, Taiwan
11:40 am		**G1-12** An analysis of the Temperature-Induced Supersaturation Effects on Structure and Properties of Sono-Electrodeposited Copper Thin Films, **A. MALLIK**, B.C. RAY, National Institute of Technology, India
12:00 pm	**2012 ICMCTF Planning Meeting** **(Open to all interested attendees) 12-1:15 pm Royal Palm 1-3** **Elsevier FTS 12:15-1:15 pm California Room**	**2012 ICMCTF Planning Meeting** **(Open to all interested attendees) 12-1:15 pm Royal Palm 1-3** **Elsevier FTS 12:15-1:15 pm California Room**

Thursday Morning, May 5, 2011

Coatings for Microelectronics and Active Devices
Room: Tiki Pavilion - Session TS6
Moderators: S.J. Bull, Newcastle University

NOTES

8:00 am	**TS6-1** Improvement of Resistance Switching Behavior by Localizing Filament with Si Injection WO_X Switching Layer, **Y.E. SYU**, National Sun Yat-Sen University, Taiwan
8:20 am	**TS6-2** Mechanism and Characteristic Studies of Resistive Switching Effects on a Thin FeO_x-Transition Layer of the $TiN/SiO_2/FeO_x/Fe$ Structure by Thermal Annealing Treatments, **Y.-F. CHANG**, C.-Y. CHANG, National Chiao Tung University, Taiwan, T.-C. CHANG, National Sun Yat-Sen University, Taiwan
8:40 am	**TS6-3 Invited** Integration of Nickel Silicides in VLSI Circuits: A Mateirals Science Perspective, **P. DESJARDINS**, Ecole Polytechnique, Montreal, Canada
9:00 am	Invited talk continued.
9:20 am	**TS6-5** Resistive Switching and Multilevel Characteristics of Ytterbium Oxide Thin Film for Nonvolatile Memory Application, **H.-C. TSENG**, National Sun Yat-sen University, Taiwan
9:40 am	**TS6-6** Study of Sputter Deposited $SiO_2/Co/Pt/SiO_2$ Multilayers for Magnetic Storage, **R. WALIA**, Indian Institute of Technology, Roorkee, India, A.K. CHAWLA, R. CHANDRA, R. JAYAGANTHAN, Indian Institute of Technology Roorkee, India
10:00 am	**TS6-7** Carbon Coated N-Doping of TiO_2 Nanotube Films with Enhanced Visible-Light Photocatalytic Activity, **F. JIA**, Z.P. YAO, Z. JIANG, Harbin Institute of Technology, China
10:20 am	**TS6-8** Effect of the Thermal Stability and Electrical Behavior of Nickel Silicide by using Nickel Nitride, **C.-T. WU**, W-.H. LEE, C.-Y. WU, S-A. YAN, National Cheng-Kung University, Taiwan
10:40 am	**TS6-9** Inkjet-Printed High-k Nanocomposite Dielectric Film for OTFT Applications, **C.-T. LIU**, W-.H. LEE, T.-L. SHIH, H.-J. YAN, National Cheng-Kung University, Taiwan
11:00 am	**TS6-10** Resistive Switching Characteristics of Gallium Oxide for Nonvolatile Memory Application, **J.-J. HUANG**, National Sun Yat-Sen University, Taiwan
11:20 am	**TS6-11** Study of Micro-Imprint by Electroless Nickel Plating Method, **H.-T. HSU**, M.-J. HO, T.-J. YANG, Feng Chia University, Taiwan
11:40 am	
12:00 pm	**2012 ICMCTF Planning Meeting** **(Open to all interested attendees) 12-1:15 pm Royal Palm 1-3** **Elsevier FTS 12:15-1:15 pm California Room**

2012 ICMCTF Planning Meeting
(Open to all interested attendees) 12-1:15 pm Royal Palm 1-3
Elsevier FTS 12:15 – 1:15 pm California Room

Thursday Afternoon, May 5, 2011

	Coatings for Use at High Temperature **Room: Sunrise - Session A2-1** **Thermal and Environmental Barrier Coatings** **Moderators:** R. Wellman, Cranfield University, B.T. Hazel, Pratt & Whitney, R. Trice, Purdue University	**Hard Coatings and Vapor Deposition Technology** **Room: Golden West - Session B5-2** **Hard and Multifunctional Nano-Structured Coatings** **Moderators:** C.P. Mulligan, Benet Laboratories, US Army ARDEC, R. Sanjines, EPFL, P. Zeman, University of West Bohemia
1:30 pm	**A2-1-1 Invited** *Effect of (CMAS-Assisted) Sintering under Service Conditions on the Thermo-Mechanical Stability of Plasma-Sprayed TBCs*, **T.W. CLYNE**, M. SHINOZAKI, Cambridge University, UK	**B5-2-1 Invited** Wear-Resistant PTFE Based Nanocomposites, **T.A. BLANCHET**, S.S. KANDANUR, Rensselaer Polytechnic Institute
1:50 pm	Invited talk continued.	Invited talk continued.
2:10 pm	**A2-1-3** Degradation of YSZ Thermal Barrier Coatings by CMAS Infiltration, **V. KOLARIK**, M.M. JUEZ-LORENZO, Fraunhofer ICT, Germany, W. STAMM, Siemens Power Generation, Germany, H. FIETZEK, Fraunhofer ICT, Germany	**B5-2-3** Comparison of Different Bionic Structures Coated with CrAlN, W. TILLMANN, **J. HERPER**, Technische Universität Dortmund, Germany
2:30 pm	**A2-1-4** The Effect of Volcanic Ash on Sintering of Plasma Sprayed Thermal Barrier Coatings, **M. SHINOZAKI**, T.W. CLYNE, Cambridge University, UK	**B5-2-4** Surface Modification of Nanostructured NiTi Shape Memory Alloy Thin Films Using Various Passivation Layers by dc Magnetron Sputtering, N. CHOUDHARY, **D. KAUR**, Indian Institute of Technology Roorkee, India
2:50 pm	**A2-1-5 Invited** Mechanical Charactersation of Thermal Barrier Coatings After Thermal Treatments, **P. XIAO**, X. ZHAO, A. SHINMI, J. LIU, Y. ZHAO, I. SHAPIRO, University of Manchester, UK	**B5-2-5** Synthesis of Cobalt/Diamond-Like Carbon Composite Thin Films by Biased Target Ion Beam Deposition, **Y. TANG**, Y.-S. LI, University of Saskatchewan, Canada, J. WANG, Canadian Light Source Inc., Canada, Q. YANG, University of Saskatchewan, Canada
3:10 pm	Invited talk continued.	**B5-2-6** Mechanical Properties, Tribological and Corrosion Resistance Evaluation of Cathodic Arc Deposited ZrN/CrN Multilayer Coatings, **S.-F. CHEN**, Natl Taiwan Univ of Sci /Tech, Taiwan, J.-W. LEE, Mingchi Univ of Tech., S.-H. HUANG, Natl. Chiao Tung Univ C.-J. WANG, Natl. Taiwan Univ. of Sci /Tech., T.-E. HSIEH, Natl Chiao Tung Univ, Y.-C. CHAN, H.-W. CHEN, J.-G. DUH, Natl. Tsing Hua Univ J.-W. CHEN, Gigastorage Corp
3:30 pm	**A2-1-7** Interfacial Strength Measurement of Oxidized EB-PVD Thermal Barrier Coatings by the Laser Shock Adhesion Test (LASAT), **G. FABRE**, V. GUIPONT, M. JEANDIN, Centre des Materiaux - Mines ParisTech, France, A. PASQUET, J.Y. GUEDOU, SNECMA Safran Group, France, M. BOUSTIE, Institut PPRIME ENSMA, France, F.L. BERTHE, PIMM ENSAM, France	**B5-2-7** High Temperature Crystallisation of Cr_2AlC MAX-Phase Coatings Sputter-Deposited at Room Temperature, **J.S. COLLIGON**, O. CRISAN, P. DOBROSZ, V. VISHNYAKOV, Manchester Metropolitan University, UK
3:50 pm	**A2-1-8** Observations of Ferroelastic Switching by Raman Spectroscopy, **A. BOLON**, M. GENTLEMAN, Texas A&M University	**B5-2-8 Invited** Recent Advances in Transition Metal Nitride–Based Nanostructured Hard and Superhard Coatings, **H.C. BARSHILIA**, K.S. RAJAM, NAL, Bangalore, India
4:10 pm	**A2-1-9** Factors to Consider in Cyclic Oxidation Testing of Thermal Barrier Coatings with MCrAlY-Bondcoats, **D. NAUMENKO**, P. SONG, L. SINGHEISER, W.J. QUADAKKERS, Forschungszentrum Julich, Germany	Invited talk continued.
4:30 pm	**A2-1-10** Cyclic Oxidation Behavior of HVOF Bond Coatings Deposited on La- and Y-doped Superalloys, **M.A. BESTOR**, J.A. HAYNES, B.A. PINT, Oak Ridge National Laboratory	**B5-2-10** Effects of Nanostructure Formation on the Fundamental Physical Properties of Epitaxial $Hf_{1-x}Al_xN$(001) Alloys, **B.M. HOWE**, Univ of Illinois at Urbana-Champaign, T.W.H. OATES, ISAS, S.A. PUTTNAM, AFRL, J. WEN, Univ of Illinois, M.R. SARDELA, JR., Frederick-Seitz Mat;s Lab, A.A. VOEVODIN, AFRL, H. ARWIN, Linköping Univ, J.E. GREENE, Univ of Illinois, L. HULTMAN, Linköping Univ Sweden, I. PETROV, Univ of Illinois
4:50 pm	**A2-1-11** Characterization of the Alumina Scale Formed on Coated and Uncoated Doped, **K.A. UNOCIC**, B.A. PINT, Oak Ridge National Laboratory	**B5-2-11** Effect and Mechanism of Pulsed Bias on Microhardness of Ti/TiN Multilayer Films Deposited by Arc Ion Plating, **G.Q. LIN**, A.M. WU, B. WU, Q. YAO, Dalian University of Technology, China
5:10 pm	**A2-1-12** Laser Cycling Exposure of Thermal Barrier Coatings on Copper Substrates, **J. SCHLOESSER**, M. BÄKER, J. RÖSLER, Technische Universität Braunschweig, Germany	**B5-2-12** Comparison of Superhard and Superelastic Ti-Based Nanocomposite Erosion Resistant Coatings on Ti-6Al-4V Substrates Prepared by PECVD, **S. HASSANI**, S. GURUVENKET, D. LI, J. KLEMBERG-SAPIEHA, L. MARTINU, Ecole Polytechnique de Montreal, Canada
5:20 pm	**A2-2-10** Processing, Repairing and Cyclic Oxidation Behaviour of Sol-Gel Thermal Barrier Coatings, L. PIN, Institut Clément Ader Mines Albi, France, F. ANSART, J.-P. BONINO, Cirimat Cnrs-Inpt-Ups Ensiacet, France, Y. LE MAOULT, **P. LOURS**, Institut Clément Ader Mines Albi, France	**Poster Session: T&C/SD Room 5:00-7:00 pm** **Poster Reception: 6:00 - 7:00 pm**

Thursday Afternoon, May 5, 2011

	Tribology and Mechanical Behavior of Coatings and Thin Films **Room: California - Session E2-2** **Mechanical Properties and Adhesion** **Moderators:** M.-T. Lin, National Chung Hsing University, J. Michler, Empa	**New Horizons in Coatings and Thin Films** **Room: Sunset - Session F1-2** **Nanomaterials, Nanofabrication, and Diagnostics** **Moderators:** S. Kodambaka, University of California at Los Angels, Y.A. Gonzalvo, Hiden Analytical
1:30 pm	**E2-2-1 Invited** Fatigue Damage in Ultra Thin Cu Films, **C.A. VOLKERT**, C. TRINKS, Institute for Materials Physics, University of Göttingen, Germany	**F1-2-1** Fabrication of Aluminum Nanodot Assisted Growth of Nanoroots for Application in Amorphous/Crystalline Silicon Composite Thin Film Solar Cells, **B. NEWTON**, H.K. MOHAMMED, H. ABU-SAFE, S.Q. YU, H.A. NASEEM, University of Arkansas
1:50 pm	Invited talk continued.	**F1-2-2** Platinum Doped Molybdenum Oxide Nanowires Alcohol Gas Sensor by Atomic Layer Deposition, **C.-C. CHANG**, National Tsing Hua University, Taiwan, H.-C. SHIH, Chinese Culture University, Taiwan
2:10 pm	**E2-2-3** Strain-Rate Sensitivity of Strength in Macro-to-Micro-to-Nano Crystalline Nickel, **R.T. HUMPHREY**, A.F. JANKOWSKI, Texas Tech University	**F1-2-3 Invited** Nanorods, Nanopipes, Nanosmiles, **D. GALL**, Rensselaer Polytechnic Institute
2:30 pm	**E2-2-4** Strain Rate Effect on Hard Surface' Response, Investigated by a Developed Impact Tester with Modulated Repetitive Force, **K.-D. BOUZAKIS**, G. MALIARIS, S. MAKRIMALLAKIS, Aristoteles University of Thessaloniki, Greece	Invited talk continued.
2:50 pm	**E2-2-5** Microstructural Analysis of the Failure Mechanisms of Amorphous Carbon Coating Systems in Load-Scanning Tests, **H. HETZNER**, J. SCHAUFLER, S. TREMMEL, K. DURST, S. WARTZACK, University Erlangen-Nuremberg, Germany	**F1-2-5** Effects of Temperature and Pulse Mode on Nanoporous Anodic Aluminum Oxide Film by Potentiostatic Anodization, C.-K. CHUNG, **M.-W. LIAO**, H.-C. CHANG, National Cheng Kung University, Taiwan
3:10 pm	**E2-2-6** A Route to Avoid Thermo-Mechanical Fatigue Damage in Al Thin Films, W. HEINZ, **G. DEHM**, Montanuniversität Leoben, Austria	**F1-2-6** Tuning the Surface Textures of ZnO Pore-Array Films and Their Morphology-Dependent Photocatalytic Performance, **S.-T. HUNG**, C.-J. CHANG, M.-S. HSU, Feng Chia University, Taiwan
3:30 pm	**E2-2-7** Evaluation of Mechanical Properties in Cu Thin Films Under Various Substrate Conditions by Molecular Dynamics Simulation, J.-C. HUANG, **Y.-C. LIAO**, Tungnan University, Taiwan	**F1-2-7** Epitaxial Si Layer Formed on ZrB_2 Thin Films - Silicene?, A. FLEURENCE, R. FRIEDLEIN, Y. WANG, F. BUSSOLOTTI, **Y. YAMADA-TAKAMURA**, School of Materials Science, JAIST, Japan
3:50 pm	**E2-2-8** Comparison Titanium and Zirconia Dental Implants' Stress Analysis Using Finite Element Method, R. YESILDAL, **F. KARABUDAK**, M.P. YILDIRIM, F. BAYINDIR, Ataturk University, Turkey	**F1-2-8** Synthesis of Bioactive $NaHTi_3O_7$ Films on Ti-Coated Si by a Hydrothermal - Galvanic Couple Method, **C.-J. YANG**, L.-S. CHAO, National Chung Hsing University, Taiwan, Y.-C. CHIEH, Hsiuping Institute of Technology, Taiwan, F.-H. LU, National Chung Hsing University, Taiwan
4:10 pm	**E2-2-9** Effect of Nitrogen Flow Ratio on Microstructure and Property of Ta-Ti-N Thin Film by Reactive Sputtering of Ta-Ti Target, C.-K. CHUNG, **N.-W. CHANG**, T.-S. CHEN, National Cheng Kung University, Taiwan	**F1-2-9** Amorphous Phases and Crystallization Behaviour of Sputtered $Fe_{1-x}C_x$ Films with x Ranging between 0.32 and 0.50, **E. BAUER-GROSSE**, Nancy-University, France, G. LE CAËR, Universite de Rennes, France
4:30 pm	**E2-2-10** Mechanical Properties of Vapor Deposited Polyimide, **R. CHOW**, M. SCHMIDT, Lawrence Livermore National Laboratory	**F1-2-10** Plasma Species Influence on the Properties of Oxynitrided Titanium Surface, **C.A. ALVES**, Federal University of Rio Grande do Norte - Brazil, D.C. BRAZ, J.C.P. BARBOSA, R.C.S. ROCHA, UFRN, Brazil, A. NUNES, Federal University of Rio Grande do Norte - Brazil, C. KRUG, Federal University of Rio Grande do Sul - Brazil
4:50 pm	**E2-2-11** Elastic Properties of Metastable $Mo_{1-x}Si_x$ Alloys: A Brillouin Light Scattering Study, **P. DJEMIA**, Université Paris, France, A. FILLON, G. ABADIAS, A. MICHEL, C. JAOUEN, University of Poitiers, France	**F1-2-11** Frost Reduction on the Micro/Nano Structured Superhydrophobic Aluminium Surface, **C.-T. YANG**, C.-H. LAN, St. John's University, Taiwan
5:10 pm	**E2-2-12** The Effect of Film Thickness Variations in Periodic Cracking: Shear Lag Analysis and Experiments, **AA. TAYLOR**, Erich Schmid Institute, Austria, V. EDLMAYR, Montanuniversität Leoben, Austria, R. RAJ, University of Colorado-Boulder, G. DEHM, Montanuniversität Leoben, Austria	**F1-2-12** Micro/Nanostructured Surfaces of a-C:H:F Films with Anisotropic Properties, C. CORBELLA, **V.-M. FREIRE**, S. PORTAL, G. ONCINS, E. BERTRAN, J.-L. ANDÚJAR, Universitat de Barcelona, Spain
5:30 pm	**E2-2-13** Optimized Adhesion Strength of TiSiN Films Deposited by a Combination of DC and RF Sputtering, **A.R. BUSHROA**, H.H. MASJUKI, M.R. MUHAMAD, University of Malaya, Malaysia, B. BEAKE, Micro Materials Ltd, UK	**Poster Session: T&C/SD Room 5:00-7:00 pm** **Poster Reception: 6:00 - 7:00 pm**

Thursday Afternoon, May 5, 2011

	New Horizons in Coatings and Thin Films **Room: Royal Palm 1-3 - Session F2-1** **High Power Impulse Magnetron Sputtering** **Moderators:** R. Bandorf, Fraunhofer IST, J. Sapieha, Ecole Polytechnique de Montreal	**Applications, Manufacturing, and Equipment** **Room: Royal Palm 4-6 - Session G6** **Advances in Industrial PVD & CVD Deposition Equipment** **Moderators:** M. Rodmar, Sandvik Tooling Stockholm SE, K. Yamamoto, Kobe Steel Ltd.
1:30 pm	**F2-1-1 Invited** High Power Pulsed Magnetron Sputtering: a Review of Magnetron Ion Sputtering, **J. ALAMI**, Sulzer Metaplas, Germany, K. SARAKINOS, Linköping University, Sweden, K. KONSTANTINIDIS, CIRMAP, University of Mons, Belgium	**G6-1** Current and Future Applications of HIPIMS, **CH. SCHIFFERS**, T. LEYENDECKER, W. KÖLKER, S. BOLZ, CemeCon AG, Germany
1:50 pm	Invited talk continued.	**G6-2** Comparison of Hard Nitride Coatings Deposited by Industrial Scale AIP and HIPIMS Equipment, **K. YAMAMOTO**, S. TANIFUJI, J. MUNEMASA, H. NOMURA, Kobe Steel Ltd., Japan, R. CREMER, KCS Europe, Germany
2:10 pm	**F2-1-3** A Two-Zone Model for High-Power Pulsed Magnetron Sputtering Discharges, **T. KOZAK**, A.D. PAJDAROVA, University of West Bohemia, Czech Republic	**G6-3** Hybrid PVD Industrial Deposition Equipment for R&D Purposes, **L. PEETERS**, F. PAPA, R. TIETEMA, T. KRUG, Hauzer Techno Coating, Netherlands
2:30 pm	**F2-1-4** Temporal Evolution of the Radial Plasma Emission Profile in HIPIMS Plasma Discharge, **A. HECIMOVIC**, T. DE LOS ARCOS, M. BÖKE, J. WINTER, Institute for Experimental Physics II, Ruhr-Universität Bochum, Germany	**G6-4** Advantages of New Generation of Superior Arc Management Circuity, P. OZIMEK, **W. GLAZEK**, L. ZYSKOWSKI, Huettinger Electronic Sp. Z o.o., Poland
2:50 pm	**F2-1-5** The Influence of Pulse Arrangement and Off-Time Between Positive and Negative Pulse in Bipolar HIPIMS, **R. BANDORF**, M. RESCHKE, H. GERDES, G. BRÄUER, Fraunhofer IST, Germany	**G6-5 Invited** PVD Systems and Technology for Dedicated Hard Coatings: Challenges and Solutions, **J. VETTER**, G. ERKENS, J. MÜLLER, J. CRUMMENAUER, Sulzer Metaplas GmbH, Germany
3:10 pm	**F2-1-6** A Study on the Deposition Rate of Modulated Pulse Power (MPP) Magnetron Sputtering of Metallic Thin Films, **J. LIN**, J.J. MOORE, Colorado School of Mines, W.D. SPROUL, USA Reactive Sputtering, INC	Invited talk continued.
3:30 pm	**F2-1-7** The Effect of Various Deposition Parameters on the Phase of Tantalum Thick Films Deposited by Modulated Pulse Power Magnetron Sputtering, **W. MYERS**, J. LIN, J.J. MOORE, Colorado School of Mines, W.D. SPROUL, Reactive Sputtering, Inc., S. LEE, US Army ARDEC Benet Labs	**G6-7** Laser-Arc-Module System Combined with a Novel Filtering Unit for Industrial ta-C Coating of Parts and Tools, **H.-J. SCHEIBE**, Fraunhofer IWS, Germany, M. FALZ, MA. HOLZHERR, VTD Vakuumtechnik Dresden GmbH, Germany, M. LEONHARDT, A. LESON, C.-F. MEYER, Fraunhofer IWS, Germany, K.-D. STEINBORN, VTD Vakuumtechnik Dresden GmbH, Germany
3:50 pm	**F2-1-8** Control of the Magnetic Field for HiPIMS Process Optimization, J. CAPEK, M. HALA, O. ZABEIDA, **J. KLEMBERG-SAPIEHA**, L. MARTINU, Ecole Polytechnique de Montreal, Canada	**G6-8** InlineCoater™ 300: A New PVD System for Fast Research and High Volume Production, M. SAMUELSSON, Linköping University, Sweden, S. ÅSTRÖM, T. JOELSSON, A. FLINK, B. WÄLIVAARA, N. ODELSTAM, **H. LJUNGCRANTZ**, Impact Coatings AB, Sweden
4:10 pm	**F2-1-9** TiAlN Coatings Grown by HIPIMS, **G. GRECZYNSKI**, J. JENSEN, L. HULTMAN, Linköping University, Sweden, M. JOHANSSON, Seco Tools AB Fagersta, Sweden, CH. SCHIFFERS, CemeCon AG, Germany	**G6-9** Thermal Stability Studies of Hf-based Films Prepared by Metal Organic Chemical Vapor Deposition for CMOS technology, **S.-Y. TAN**, W.-C. CHIEN, Chinese Culture University, Taiwan
4:30 pm	**F2-1-10** Titanium Aluminum Nitride Sputtered using HIPIMS Technology, **M. LECHTHALER**, J. WEICHART, O. GSTOEHL, OC Oerlikon Balzers AG, Liechtenstein	
4:50 pm	**F2-1-11** Microstructural, Mechanical and Corrosion Properties of Thick CrN Coatings Deposited using DCMS, MPPMS, and HiPIMS, J. LIN, Colorado School of Mines, **S. LEE**, US Army ARDEC Benet Labs, R. WEI, Southwest Research Institute, W.D. SPROUL, USA Reactive Sputtering, INC, J.J. MOORE, Colorado School of Mines	
5:10 pm	**F2-1-12** Nitride Growth in HIPIMS-Based Deposition Processes, **A. REED**, Air Force Research Laboratory, M.A. LANGE, Air Force Research Laboratory/UTC, C. MURATORE, Air Force Research Laboratory, J. HU, Air Force Research Laboratory/UDRI, J.J. GENGLER, Air Force Research Laboratory/Spectral Energies, J.G. JONES, A.A. VOEVODIN, Air Force Research Laboratory	
	Poster Session: T&C/SD Room 5:00-7:00 pm **Poster Reception: 6:00 - 7:00 pm**	**Poster Session: T&C/SD Room 5:00-7:00 pm** **Poster Reception: 6:00 - 7:00 pm**

Post-deadline Discoveries and Innovations
Tiki Pavilion 1:30 pm

ICMCTF 2011 will feature a special post-deadline session on exciting late-breaking discoveries and emergent technological developments. This session will be comprised of presentations, and debates on topics of broad interest to the Advanced Surface Engineering Division community. This forum is well suited to share and pique the interest of colleagues with preliminary scientific breakthroughs, novel theoretical insights, provocative hypotheses, and technical innovations. We will have two types of presentations: 15-minute talks followed by 5 minutes for discussion, and two 10-minute talks of opposing or complementary viewpoints on a scientific issue. Send in your abstracts (300 words maximum) electronically to Ganpati Ramanath at ramanath@rpi.edu no later than Monday, March 21, 2011, (US-EDT). Notification of acceptance/rejection will be made by March 28, 2011.

Organizers:

- Ganpati Ramanath, Rensselaer Polytechnic Institute, Troy, NY. ramanath@rpi.edu
- Steve J. Bull, Newcastle University, UK. s.j.bull@ncl.ac.uk

Thursday Afternoon Poster Sessions

Coatings for Use at High Temperature
Room: Town & Country - Session AP

Symposium A Poster Session
5:00 – 7:00 pm

AP-1

Preparation and Annealing Study of CrTaN Coatings on WC-Co, Y.-I. CHEN, **Y.-T. LIN**, National Taiwan Ocean University, Taiwan

AP-2

Microstructural Evolution in NiAl-Cr-Zr Coated Superalloys During High Temperature Annealing and Oxidation, **J.P. ALFANO**, M.L. WEAVER, The University of Alabama

AP-3

Microstructural Evolution and Thermal Stability of Vertical-Cracked Thermal Barrier Coatings Through Cyclic Thermal Fatigue, **S.-W. MYOUNG**, K.-S. SONG, T.-W. KANG, Z. LU, Y.-G. JUNG, Changwon National University, Korea, U. PAIK, Hanyang University, Korea

AP-4

Effect of Pre-Nickel Plating on the Microstructure and Phase Constitution of Hot-Dipped Aluminide Coating on Mild Steel, **W.-J. CHENG**, C.-J. WANG, National Taiwan University of Science and Technology, Taiwan

AP-5

Non Destructive Assessment by Photo-Stimulated Luminescence of EB-PVD Thermal Barrier Coatings Damaged by Laser Shock Spallation, **G. FABRE**, V. GUIPONT, M. JEANDIN, Centre des Materiaux - Mines ParisTech, France, F. PASSILLY, T. MAFFREN, ONERA, France, A. PASQUET, J.Y. GUEDOU, SNECMA Safran Group, France

AP-6

Pore Density Control of Al Thin Films with Process Conditions of Magnetron Sputtering, **J.-H. YANG**, J.-I. JEONG, S.-H. JANG, H.-S. PARK, Research Institute of Industrial Science and Technology, Korea

AP-7

Thermal Stability and Corrosion Resistance of AlTiON/CrON Multilayered Coating, W.-Y. HO, **L.-W. SHEN**, Z.-S. YANG, C.-L. CHANG, D.-Y. WANG, Mingdao University, Taiwan

AP-8

The Cyclic Oxidation Resistance Evaluation of Cr-Based Thin Films on Tool Steels, **C.-K. SU**, C.-H. CHENG, Tungnan University, Taiwan, J.-W. LEE, Mingchi University of Technology, Taiwan, H.-P. CHEN, J.-C. HUANG, Tungnan University, Taiwan

AP-9

Nano Modified NiCrAlY Coatings for High Temperature Applications, **S. SAHU**, A.S. KHANNA, Indian Institute of Technology, India

AP-10

Effect of Cermet-Ni Based Alloys Mixture on the Microstructure and Corrosion Resistance of Commercial Hvof Coatings, **L.E. GIL**, Universidad Nacional Experimental Politecnica (UNEXPO), Vicerrectorado Puerto Ordaz, Venezuela, Venezuela (Bolivarian Republic of), M.D. RODRIGUEZ, Universidad Central de Venezuela (UCV), S.M. LISCANO, J.L. LOPEZ, R.J. SUBERO, Universidad Nacional Experimental Politecnica (UNEXPO), Venezuela

AP-11

Thermal Properties Characterization of Gradient $RE_2Zr_2O_7$/YSZ Bilayer Thermal Barrier Coatings Obtained by the APS Method, G. MOSKAL, **A. ROZMYSLOWSKA-GRUND**, Silesian University of Technology, Poland

AP-12

Characteristics of Microstructural Phenomena in TGO Zone of TBC Layer of $Re_2Zr_2O_7$ Type, G. MOSKAL, **R. SWADŹBA**, Silesian University of Technology, Poland

AP-13

Comparison of Surface Quality, Machining Time in P-20 Steel and Alumold in the Manufacture of Thermoplastic Injection Mold, **W. MATTES**, SENAI-SC, Brazil

AP-14

Phase Transformation of MoS2-Nb Composite Coated Films at the High Temperatures, **I. EFEOGLU**, Atatürk University, Turkey, -. ALTINTAS, Bogazici University, Turkey, E. ARSLAN, Atatürk University, Turkey, O. BARAN, Erzincan University, Turkey, D. UGUR, Bogazici University, Turkey

Hard Coatings and Vapor Deposition Technology
Room: Town & Country - Session BP

Symposium B Poster Session
5:00 – 7:00 pm

BP-1

The Structure of TiO_2 Film Prepared by Inductively Coupled Plasma (ICP) Assisted CVD, **S.H. KWON**, J.-J. LEE, D.S. JANG, H.Y. LEE, Seoul National University, Korea

BP-2

Oxygen Impurities in Ti-Si-N System are Hindering the Phase Segregation, Formation of Stable Nanostructure and Degrading the Cutting Performance of Tools Coated with the Nanocomposites, **S. VEPREK**, M. VEPREK-HEIJMAN, Technical University Munich, Germany, M. JILEK, SHM Ltd., Czech Republic, M. PISKA, Brno Technical University, Czech Republic, X. ZENG, Singapore Inst. of Manufacturing Technology, Singapore, A. BERGMAIER, Universität der Bundeswehr, Germany, Q.F. FANG, Chinese Academy of Sciences, China

BP-3

Structural and Mechanical Properties of Multilayered ZrN/CrAlN Coatings Synthesized by a Cathodic-Arc Deposition Process, **T.-H. YANG**, Y.-Y. CHANG, C.-Y. HSIAO, Mingdao University, Taiwan

BP-4

Evaluation of Depth Profile of Residual Stress in a TiN Thin Film, **C.-J. LAN**, J.-H. HUANG, G.-P. YU, National Tsing Hua University, Taiwan

BP-5

Measurement of Fracture Toughness on TiN Thin Films, **A.-N. WANG**, G.-P. YU, J.-H. HUANG, National Tsing Hua University, Taiwan

BP-6

Multi-Layered Nano-Composite PVD Coating for Hard Machining, **J.J. KOHLSCHEEN**, P. IMMICH, U. SCHUNK, U. KRETZSCHMANN, LMT Fette, Germany

BP-7

An Experimental Trial of Prediction and Control Technology of Film Properties by a Numerical Model in Vacuum Vapor Deposition, **J.-I. JEONG**, J.-H. YANG, H.-S. PARK, S.-H. JANG, Research Institute of Industrial Science and Technology, Korea

BP-8

The Effect of Laser Annealing on the Crystal Structure of Magnetron Sputtered Alumina Thin Films, **H. ABU-SAFE**, Lebanese American University, Lebanon, F. RAWWAGH, Yarmouk University, Lebanon, M. TABBAL, American University of Beirut, Lebanon, M. ROUMIE, the National Council for Research, Lebanon

BP-9

Wear and Corrosion Properties of TiSiN and TiSiN/CrN Coatings by Cathodic Arc Deposition, **W.-Y. HO**, C.-H. HSIEH, Y.-Y. CHANG, C.-L. CHANG, MingDao University, Taiwan

BP-10

Properties of Carbon-Based Coatings on Injection Mold Steel Prepared by Nitriding and PCVD Hybrid Process, **K.H. LEE**, J.W. PARK, K.S. PARK, D.W. KIM, Research Institute of Industrial Science and Technology, Korea

BP-11

Study of Electrical Properties of Al_2O_3 Grown on p-Si<100> by PEALD, **A.M. MAHAJAN**, North Maharashtra University, India, B.J. THIBEAULT, University of California, Santa Barbara, A.G. KHAIRNAR, North Maharashtra University, India

BP-12

Electroplating of B_2O_3 from Boric Acid Solution Baths, **S. YOOYEN**, T. KAWAMURA, S. KOTAKE, Y. SUZUKI, Mie University, Japan

BP-13

Effect of Argon Bombardment in Tetrahedral Amorphous Carbon, **E.F. MOTTA**, G.A. VIANA, D.S. SILVA, A.D.S. CORTÊS, F.C. MARQUES, Universidade Estadual de Campinas, Brazil

BP-14

Thermal Stability of V-Al-C Thin Films Grown by DC Magnetron Sputtering Using a Multi-component Target, **YAN. JIANG**, RIZA. ISKANDAR, T. TAKAHASHI, J. ZHANG, M. TO BABEN, M. JOACHIM, J.M. SCHNEIDER, RWTH Aachen University, Germany

BP-15

The Effect of Composition on the Structure, Mechanical Properties, and Thermal Stability of Sputter Coated Ternary Chromium-Molybdenum-Nitride Coatings, **Y. ZOU**, University of Alabama, Birmingham

BP-16

Oxidation Resistance and Microhardness of (Ti,Al,Si)N/(Cr,Al,Y)N Nano-Multilayered Film, **T. MORI**, K. YOSHIWARA, M. TAKAHASHI, Keio University, Japan, T. WATANABE, Kanagawa Industrial Technology Center, Japan, T. SUZUKI, Keio University, Japan

BP-17

Evaluation of Ti_3SiC_2 Coatings Deposited by HTCVD from Methyltrichlorosilane and Titanium Tetrachloride, A. CLAUDEL, **S. LUCA**, R. MARTIN, P-O. ROBERT, D. PIQUE, ACERDE, France, M. MORAIS, E. BLANQUET, M. PONS, SIMAP, France

BP-18

Annealing Effect on Microstructure and Mechanical Properties of Titanium Nitride Thin Film, S.-C. HER, **C.-L. WU**, Yuan Ze University, Taiwan

BP-19

Texture and Magnetic Properties of Electrodeposited FePd Films, **H.-P. LIN**, J.-C. KUO, National Cheng Kung University Taiwan

BP-20

Effect of Oxygen in Aerosol Assisted Chemical Vapor Deposition of TiO_2 Using Titanium tetra-*iso*-propoxide/acetylacetone Solutions., **F. MAURY**, D. DUMINICA, CIRIMAT CNRS-INPT-UPS ENSIACET, France

BP-21

Cylindrical Magnetrons Sputter Deposition of Ta on Carbon Steels using DC Magnetron Sputtering, HIPIMS and MPPMS, R. WEI, Southwest Research Institute, **S. LEE**, M. RILEY, US Army ARDEC Benet Labs

BP-22

Effects of Nitrogen Ratio on Resistive Switching Characteristics of Titanium Oxynitride Thin Films by DC Reactive Magnetron Sputtering, **L.-C. CHANG**, K.-H. CHANG, Ming Chi University of Technology, Taiwan, K.-H. LIU, Chang Gung University, Taiwan, H.-J. TSAI, W.-Z. WANG, Ming Chi University of Technology, Taiwan

BP-23

Plasma Diagnostics for Pulsed-dc Plasma-Polymerizing Para-Xylene using QMS and OES, **C-.M. CHOU**, Feng Chia University & Taichung Veterans General Hospital, Taiwan, C.-C. CHUANG, C.-H. LIN, Feng Chai University, Taiwan, C.-J. CHUNG, Central Taiwan University of Science and Technology & Taipei Medical University, Taiwan, J.-L. HE, Feng Chai University, Taiwan

BP-24

Corrosion Evaluation of Ductile Iron Duplex-Treated by Electroless Ni-P and TiAlZrN Coating, C.-H. HSU, Tatung University, Taiwan, C-.K. LIN, Feng Chia University, Taiwan, **K.-L. CHEN**, Y-.H. CHANG, Tatung University, Taiwan, C.-Y. SU, National Taipei University of Technology, Taiwan

BP-25

Formation of Nitrogen Diffusion Zone with a-CN_x:H Overcoating onto Hot Work and Construction Steel Substrates by Continuous Pulse Plasma Processing, **M. ZLATANOVIC**, School of Electrical Engineering, Serbia, N. POPOVIC, Nuclear Science Institut Vinča, Serbia

BP-26

Microstructures and Mechanical Properties of Nano-Structured TiAlCN/Amorphous Carbon Films, **W.-H. WU**, Y.-Y. CHANG, H-.Y. KAO, Mingdao University, Taiwan

BP-27

The Effect of Bias on The Structure and Property of (Ti,Zr)N Thin Film Deposited by Radio Frequency Magnetron Sputtering, **Y.-W. LIN**, Instrument Technology Research Center, Taiwan, J.-H. HUANG, National Tsing Hua University, Taiwan, G.-P. YU, National Tsing Hua University, Taiwan, Republic of China

BP-28

Microstructures and Mechanical Properties of Cr-Si-B-N Films Synthesized by Unbalanced Magnetron Sputtering, C.-L. CHANG, **C.-Y. HUNG**, Mingdao University, Taiwan, J.-Y. JAO, National Chung Hsing University, Taiwan,

BP-29

Multi Pulse Modulated Pulse Power (MPMPP) Magnetron Sputtering of the Structural Modulated Hard Tribological Coatings, **J. LIN**, J.J. MOORE, Colorado School of Mines, W.D. SPROUL, Reactive Sputtering, Inc., S. LEE, US Army ARDEC Benet Labs

BP-30

Adhesion Properties and Cutting Performance Evaluation of Pulsed DC Deposited CrZrSiN and CrZrN Thin Films, S.-H. HUANG, National Chiao Tung University, Taiwan, J.-W. LEE, Mingchi University of Technology, Taiwan, Republic of China, **S.-F. CHEN**, S.-T. CHANG, C.-J. WANG, National Taiwan University of Science and Technology, Taiwan, T.-E. HSIEH, National Chiao Tung University, Taiwan, J.-W. CHEN, Gigastorage Corporation,

BP-31

Multilayer Diamond Coatings for the Machining of Aircraft Materials, C. BAREISS, W. KOELKER, M. WEIGAND, **CH. SCHIFFERS**, O. LEMMER, CemeCon AG, Germany

BP-32

Characterization of NiAl / TiAlSiN Thin Films Deposited by Unbalanced Magnetron Sputtering for Glass Modeling Dies Application, D.-Y. WANG, **W.-C. CHEN**, T.-A. LI, Mingdao University, Taiwan

BP-33

Evaluation of Ca Doped $Ce_{0.8}$ $Gd_{0.2}O_{1.9}$ Electrolyte by Various Deposition Method, **S.H. YANG**, K.H. KIM, H.W. CHOI, Kyungwon University, Korea

BP-34

Large Scale Deposition of TiC/a-C Nanocomposite Coatings by Magnetron Sputtering using Novel Ceramic Compound Targets, **M. STUEBER**, S. ULRICH, H. LEISTE, Karlsruhe Institute of Technology, Germany, P. POLCIK, M. O`SULLIVAN, PLANSEE Composite Materials GmbH, Germany

BP-35

Pulsed Processing for Low Temperature Deposition of PZT for Sensor Applications, **G.T. WEST**, P. KELLY, Manchester Metropolitan University, UK

BP-36

Enhanced Efficiency in Dye-Sensitized Solar Cells Based on TiO_2 Nanotube/Nanoparticle Composition Powder, **L. CHANGHYO**, K.H. KIM, H.W. CHOI, Kyungwon University, Korea

BP-37

Unipolar Resistive Switching Behaviors of CoO/ZrO_2 Thin Film Memory, **D.-Y. LEE**, J.-W. WU, T.-Y. TSENG, National Chiao Tung University, Taiwan

BP-38

Microstructures and Mechanical Properties of TI-V-Cr-Si-N Films Synthesized by Magnetron Sputtering, **J.-Y. JAO**, National Chung Hsing University, Taiwan,, H.-C. SHIH, Chinese Culture University, Taiwan, S. HAN, National Taichung Institute of Technology

BP-39

Theoretical Investigation of the Dynamical and Thermodynamic Stability of One Monolayer SiN_x Interfaced with TiN, T. MARTEN, E.I. ISAEV, **B. ALLING**, L. HULTMAN, I. ABRIKOSOV, Linköping University, Sweden

BP-40

Properties of Multilayer (GZO/Ag/GZO) Thin Films Deposited on Polymer Substrate, **K. H. LEE**, Y. S. JUNG, H.W. CHOI, W.J. KIM, K.H. KIM, Kyungwon University, Korea

BP-41

Magnetron Sputtered ZrN/SiN_x Nanocomposite Thin Films: Relationship Between Chemical Composition, Film Morphology and Electrical Properties, D. OEZER, S.C. SANDU, **R. SANJINÉS**, EPFL, Switzerland

BP-42

The Effect of H_2S Addition on the Crystal Quality of the Nanocrystalline Diamond Films Grown by the Down-Flow Microwave Plasma-Assisted Chemical Vapor Deposition, H. GAMO, Toppan Printing Co., Ltd., Japan, M. KIKUCHI, K. SHIMADA, Toyo University, Japan, T. ANDO, Northeastern University, Japan, **M. N. GAMO**, Toyo University, Japan

BP-43

Investigation on the Structural and Mechanical Properties of Sputtered Chromium Tungsten Nitride Films, T.-L. CHEN, T.-N. LIN, Y.L. PENG, **K.-W. WENG**, Mingdao University, Taiwan

BP-44

Characterization of Cu-Ag Alloy Thin Films, J.-H. HSIEH, **S.-Y. HUNG**, Ming Chi University of Technology, Taiwan

BP-45

Thermal Stability and Age-Hardening of Ti-Al-N Coatings, **H. XIE**, L. CHEN, ZhuZhou Cemented Carbide Cutting Tools Co., LTD, China

BP-46

A Comparative Research on Magnetron Sputtering and Arc Evaporation Deposition of Ti-Al-N Coatings, **L. CHEN**, S. WANG, ZhuZhou Cemented Carbide Cutting Tools Co., LTD, China

BP-47

Effect of AC vs. Pulsed DC Power Supplies in Depositing Alumina Thin Films, **J. MEHTA**, M. GORDON, University of Arkansas

BP-48

Evaluation of Microstructures and Mechanical Properties of Niobium and Vanadium Carbide Coated H11 Tool Steels, **J.-W. LEE**, Mingchi University of Technology, Taiwan, C.-T. LIN, Unilift Corp., Taiwan, M.-K. WU, J.-C. HUANG, Tungnan University, Taiwan

BP-49

Substrate Heating Effect on the (002) Orientation and Piezoelectric Properties of Reactively Sputtered AlN Coatings, **M. HASHEMINIASARI**, J. LIN, J. SCALES, J.J. MOORE, Colorado School of Mines

BP-50

Effect of Nitrogen Content in SiC_xN_y Thin Films Deposited by Magnetron Co-Sputtering Technique, **S. PESSOA**, S. MEDEIROS, L.V. SANTOS, H.S. MACIEL, A. S. DA SILVA SOBRINHO, M. MASSI, Technological Institute of Aeronautics, Brazil

BP-51

Low Temperature Deposition of Mixed Phase Alpha-Alumina by Physical Vapor Deposition Characterized by a TEM Surface Map, **E.B. LANCASTER**, M. BENAMARA, M. GORDON, University of Arkansas

BP-52

Enhancement of Thermal Stability on DLC Nanofilm by Using Addition of Silicon Top-Layer, C.-K. CHUNG, T.-Y. CHEN, C-W. LAI, **M.-W. LIAO**, National Cheng Kung University, Taiwan

BP-53

Formation and Characteristics of ZnNO Thin Film From n-Type to p-Type Conductivity by Thermal Annealing, **Y.-J. CHEN**, T.-F. YOUNG, T.-C. CHAN, T.-M. TSAI, K.-C. CHANG, C.-H. LI, National Sun Yat-Sen University, Taiwan

BP-54

Microstructure and Properties of Arc Sprayed Coatings Prepared by Conventional and Nanocomposite Cored Wires, **M. TUIPRAE**, S. WIROJANUPATUMP, S. JIANSIRISOMBOON, ChiangMai University, Thailand

BP-55

Microstructure and Residual Stress Evolution in TiZrN Thin Films Deposited at Different Temperatures by Pulsed Cathodic Arc Technique, D. ESCOBAR **RINCÓN**, E. RESTREPO-PARRA, **P.J. ARANGO**, Universidad Nacional de Colombia

BP-56

Study of the Structural and Mechanical Properties of Tungsten Zirconium Nitride Nanostructured Coatings Deposited by by Physical Vapor Deposition, **P. DUBEY**, R. CHANDRA, Indian Institute of Technology Roorkee, India

BP-57

Characterization of Zirconia, Titania, Yttria Thermal Spray Powders and Coatings, **S.M. LISCANO**, L.E. GIL, Universidad Nacional Experimental Politecnica (UNEXPO), Venezuela, M.H. STAIA, Universidad Central de Venezuela, A.S. SCAGNI, Plasmatec Ingenieros C.A, Venezuela

BP-58

Coating of Superalloy with Laser Surface Alloying, **M.H. RHEE**, Korea Automotive Technology Institute, Korea, W. Y. JEUNG, Korea Institute of Science and Technology, Korea, J.W. MIN, W.Y. CHUNG, Korea Automotive Technology Institute, Korea

BP-59

Structure and Oxidation Behavior of Compositionally Gradient CrN_x Coatings Prepared Using Arc Ion Plating, **M. ZHANG**, Liaoning Normal University, China, K.H. KIM, Pusan National University, Korea

BP-60

Heat Treatment of Nanocrystaline TiZrN Film Deposited by Unbalanced Magnetron Sputtering, **Q.-Y. CHEN**, J.-H. HUANG, G.-P. YU, National Tsing Hua University, Taiwan, Y.-W. LIN, Instrument Technology Research Center, Taiwan

BP-61

Morphology and Growth Mechanism of SiC Films Synthesized by Liquid Phase Epitaxy Assisted Chemical Vapor Deposition, **P.-T. LEE**, National Cheng Kung University, Taiwan, S.-C. WANG, Southern Taiwan University, Taiwan, P.-K. NAYAK, National Cheng Kung University, Taiwan, J.-C. SUNG, KINIK Company, Taiwan, J.-L. HUANG, National Cheng Kung University, Taiwan

BP-62

Synthesis of CrN and CrAlN Coatings for High Temperature Wear Applications, **H. ALAGÖZ**, M.F. GENISEL, Bilkent University, Turkey, M. UĞRAŞ, Atılım University, Turkey, E. BENGÜ, Bilkent University, Turkey

BP-63

Structure and Corrosion Resistance of ZrO_2 Ceramic Coatings on AZ91D Mg Alloys by Plasma Electrolytic Oxidation, **Z.P. YAO**, Z. JIANG, S.Q. WU, Harbin Inst itute of Technology, China

Fundamentals and Technology of Multifunctional Thin Films: Towards Optoelectronic Device Applications
Room: Town & Country - Session CP

Symposium C Poster Session
5:00 – 7:00 pm

CP-1

Electrical Properties and Instability of Multi-channeled Polycrystalline Silicon Thin-Film Transistors with Surrounding Gate Structure, H.-W. LIU, **S.-M. CHIOU**, F.-H. WANG, C.-Y. KUNG, National Chung Hsing University, Taiwan

CP-2

AZO Coatings Deposited by Reactive HiPIMS for Modified TCO Properties on Polymeric Web, P. BARKER, **P. KELLY**, G.T. WEST, Manchester Metropolitan University, UK, J.W. BRADLEY, University of Liverpool, UK, H. ASSENDER, University of Oxford, UK

CP-3

Dye-Sensitized Solar Cells Based on TiO_2 Nanorod Films Annealed at Different Temperatures, L.J. MENG, Instituto Superior de Engnharia do Porto, Portugal, **M.P. DOS SANTOS**, Universidade Nova de Lisboa, Portugal

CP-4

Enhanced Photoluminescence from $Zn_{0.55}Cd_{0.45}S$:Mn/ZnS Core Shell Quantum Dots Prepared by Co-Precipitation Technique, **S. SINGHAL**, A.K. CHAWLA, H.O. GUPTA, R. CHANDRA, Indian Institute of Technology Roorkee, India

CP-5

Photocarrier Drift Mobility of ZnO in the Temperature Range 30 to 280 K, **H. YAMAGUCHI**, Y. ISHIDSUKA, T. KOMIYAMA, Y. CHONAN, T. AOYAMA, Akita Prefectural University, Japan

CP-6

Thermal Properties of C-Si-O Composite Thin Films Deposited by PBII Method, **S. ABE**, N. MOOLSRADOO, S. WATANABE, Nippon Institute of Technology, Japan

CP-7

Influence of Substrate Temperature on Electrical and Optical Properties of Al-Doped ZnO Thin Film, S.-C. HER, **T.-C. CHI**, Yuan Ze University, Taiwan

CP-8

Temperature Effect on the Optical and Mechanical Properties of Silver Thin Film Deposited on Glass Substrate, **S.-C. HER**, Y.-H. WANG, Yuan Ze University, Taiwan

CP-9

Charge Trapping Induced Frequency-Dependence Degradation in n-MOSFETs with High-k/Metal Gate Stacks, **C.-H. DAI**, National Sun Yat-sen University, Taiwan

CP-10

Electrical and Optical Characterization of Fluorine Doped Tin Dioxide Film Grown by Spray Method, **M. OSHIMA**, Univeristy of Miyazaki, Japan, K. NAOMI, K. YOSHINO, University of Miyazaki, Japan

CP-11

Improving the Visible Transmittance of Low-e Titanium Nitride Based Coatings for Solar Thermal Applications, **M. YUSTE**, R. ESCOBAR GALINDO, O. SÁNCHEZ, J.M. ALBELLA, Instituto de Ciencia de Materiales de Madrid, Spain

CP-13

Processing of TiO_2 Films by dc Magnetron Sputtering and Pulsed dc Magnetron Sputtering., **L.C. FONTANA**, Universidade do Estado de Santa Catarina, Brazil, J. LIN, J.J. MOORE, Colorado School of Mines

CP-14

The Band Diagram Constructed by Scanning Surface Potential Microscopy (SSPM) in n-ITO/p-Si Heterojunction Solar Cells, P.-C. JUAN, Center for Coatings and Laser Applications, Taiwan, C.-H. LIU, National Taiwan Normal University, Taiwan, **J.-F. DAI**, Ming Chi University of Technology, Taiwan, C.-L. LIN, Feng Chia University, Taiwan

CP-15

Optical Optimized Transparent Electrode for Thin Film Solar Cell by Atomic Layer Deposition, **C.-N. HSIAO**, C-.C. YU, P.-K. CHIU, C-.C. KEI, National Applied Research Laboratories, Taiwan, H.-C. PAN, Gintech Energy Corporation, Taiwan

CP-16

Helical SiO_2 Film for Indiscriminatively Circular Polarization Handedness Inversion, **Y.-D. KIM**, Y. ZOU, J.-J. KIM, J.-B. KIM, C.-K. HWANGBO, Inha University, Korea

CP-17

The Electrical Impedance Spectra Characterization of Electrochromic Glass, **W.-D. JHENG**, National Chin-Yi University of Technology, Taiwan, C-.K. LIN, Feng Chia University, Taiwan, C.-C. CHEN, National United University, Taiwan

CP-18

Tantalum Oxide Films Prepared by Magnetron Sputtering for All Solid State Electrochromic Devices, **S.-C. WANG**, Southern Taiwan University, Taiwan, K.-Y. LIU, J.-L. HUANG, National Cheng Kung University, Taiwan

CP-19

Effect of Annealing Temperature on the Microstructure and Photoluminescence of Low Resistivity Si/Si-N/Ta-N Thin Films Using Magnetron Sputtering, C.-K. CHUNG, T.-S. CHEN, **N.-W. CHANG**, M.-W. LIAO, National Cheng Kung University, Taiwan

CP-20

Surfactant Assisted Growth of SnO_2 Thin Films for Gas Sensing Applications, **K. KHUN KHUN**, A. MAHAJAN, R.K. BEDI, Guru nanak dev University, Amritsar, India

CP-21

Structural Evolution and Photocatalytic Activity of Pulsed Magnetron Sputtered Titania-Based Coatings, N. FARAHANI, P. KELLY, G.T. WEST, M. RATOVA, Manchester Metropolitan University, UK, C. HILL, Cristal Global, UK, **J. KULCZYK-MALECKA**, Manchester Metropolitan University, UK

CP-22

Pulsed Laser Deposition of $(WO_3)_{1-x}(Nb_2O_5)_x$ Thin Films: Characterization and Gasochromic Studies, C.-H. HSU, C.-C. CHANG, **K.-W. YEH**, T.-W. HUANG, M.-K. WU, Academia Sinica, Taiwan

CP-23

Characterization of IZO-Based Thin Film Transistors Fabricated Using a Novel Two-Step Deposition Process, **W. KIM**, S.-H. LEE, J.-H. BANG, H.-S. UHM, J.-S. PARK, Hanyang University, Korea

CP-24

Effects of Additive Gases on the Instability Due to Air Exposure in ZnO Films and ZnO-Based Thin Film Transistors, J.-H. BANG, **S.-H. LEE**, W. KIM, H.-S. UHM, J.-S. PARK, Hanyang University, Korea

CP-25

Highly Efficient Dye-Sensitized Solar Cells Using Anodic Titanium Oxide Nanotube Arrays With Surface Treatment, **L.-L. LI**, E.G. DIAU, National Chiao Tung University, Taiwan, C.-C. CHEN, National United University, Taiwan

CP-26

$CuInSe_2$ Thin Film Photovoltaic Absorber Formation by Rapid Thermal Annealing of Binary Stacked Precursors, **J. KOO**, S.-C KIM, H. PARK, W.-K. KIM, Yeungnam University, Korea

CP-27

Galvanic Corrosion Behaviour of Al Based Coatings in 0.6 M NaCl Solution, **O.A. FASUBA**, A. YEROKHIN, A. MATTHEWS, A. LEYLAND, University of Sheffield, UK

CP-28

In Situ Thermal Residual Stress Evolution in ZnO Thin Films Deposited by Magnetron Sputtering on Si, **P.-O. RENAULT**, C. KRAUSS, E. LE BOURHIS, P. GOUDEAU, University of Poitiers, France, E. BARTHEL, SVI, Aubervilliers, France, S.Y. GRACHEV, A. BENEDETTO, SGR, Saint Gobain, France

CP-29

X-ray Photoelectron Spectroscopy Depth Profiling of La_2O_3/Si Thin Films Deposited by Reactive Magnetron Sputtering, C.V. RAMANA, R.S. VEMURI, University of Texas at El Paso, **V. KAICHEV**, Boreskov Institute of Catalysis, Russia, V. KOCHUBEY, Institute of Semiconductor Physics, Russia, A. SARAEV, Novosibirsk State University, Russia, V.V. ATUCHIN, Institute of Semiconductor Physics, Russia

CP-30

Microstructure and Dispersive Optical Parameters of Thermally Evaporated Nickel Films, C.V. RAMANA, University of Texas at El Paso, **V.V. ATUCHIN**, T.I. GRIGORIEVA, V.N. KRUCHININ, Institute of Semiconductor Physics, Russia, D.V. LYCHAGIN, Tomsk State University of Architecture and Building, Russia, L.D. POKROVSKY, Institute of Semiconductor Physics, Russia

CP-31

Effect of Nitrogen Pressure on the Growth, Microstructure and Optical Properties of TiN Thin Films, C.V. RAMANA, N. ESPARAJA, V. RANGEL, **S. WHITE**, University of Texas at El Paso, A.L. CAMPBELL, Wright-Patterson Air Force Base (WPAFB)

CP-32

Optical and Electrical Properties of Nanocrystalline $NiFe_{1.925}Dy_{0.075}O_4$ Thin Films, **K. BHARATHI**, C.V. RAMANA, University of Texas at El Paso

CP-33

Optimization of the Sol-Gel Process for the Deposition of Transparent ZnO Thin Films, J.C. AGUAYO CANDELAS, I.M. SANDOVAL JIMÉNEZ, **J.J. ARAIZA IBARRA**, Universidad Autónoma de Zacatecas, Mexico, M. YUSTE, O. SÁNCHEZ, R. ESCOBAR GALINDO, Instituto de Ciencia de Materiales de Madrid, Spain

CP-34

Large Area Colloidal Crystals for Photonic Applications, **S. PORTAL**, E. CABRERA, O. ARTEAGA, M.-A. VALLVÉ, Universitat de Barcelona, Spain, J. FERRE-BORRULL, Universitate Rovira i Virgili, Spain, J. IGNÉS-MULLOL, E. BERTRAN, Universitat de Barcelona, Spain

CP-35

Diamond Like Carbon/Metal Nanocomposite Films for Solar Harvesting Applications, H. ZOUBOS, University of Ioannina, Greece, S. KALOGIROU, G. CONSTANTINIDIS, P.C. KELIRES, Cyprus University of Technology, Cyprus, **P. PATSALAS**, University of Ioannina, Greece

CP-36

Temperature Effect on $Cu(InGa)Se_2$ Thin Film Photovoltaic Absorber Formation by Reactive Annealing of Metal Precursors, **H. PARK**, J. KOO, J.-S. HAN, W.-K. KIM, Yeungnam University, Korea

CP-37

Photovoltaic Characteristics of Ag-Doped CdTe Thin Film Solar Cell by He-Ne Laser Exposure, **J.-S PARK**, K.-D. MYUNG, N.-H. KIM, G.-B CHO, W.-S. LEE, Chosun University, Korea

CP-38

Transportation Model Establishment of InGaZnO TFT by Using Vacuum System Measurement, Z.-Z. LI, Minghsin University of Science and Technology, Taiwan, **Z.-X. FU**, Y.-T. CHOU, P.-T. LIU, National Chiao Tung University, Taiwan, B.-M.. CHEN, Minghsin University of Science and Technology, Taiwan

CP-39

Effects of the Structure of Electroplated Cu-Zn-Sn on the Characteristics of Resulting Cu_2ZnSnS_4 Thin Film, **C.-Y. SU**, National Cheng Kung University, Taiwan, Q.-Y. CHIU, Industrial Technology Research Institute, Taiwan, C.-H. TSAI, J.-M. TING, National Cheng Kung University, Taiwan

CP-40

Effect of Thickness of Top Si Layer on the Photoluminescence Behavior of High-Temperature-Annealed Two-Layer Si/C Film, C.-K. CHUNG, T.-Y. CHEN, **C-W. LAI**, National Cheng Kung University, Taiwan

CP-41

Electron Microscopy Analysis of the Growth and Interface Structure of Sputter-Deposited ZrO_2 Thin Films, **C.V. RAMANA**, R.S. VEMURI, A. FERRER, University of Texas at El Paso

CP-42

High Transparent Soluble Polyimide/Polyimide–Nanocrystalline-Titania Hybrid Optical Materials for Antireflective Applications, Y.-Y. YU, W.-C. CHIEN, **H.-H. YU**, Ming Chi University of Technology, Taiwan

CP-43

Preparation and Characterization of P3HT:$CuInSe_2$:TiO_2 Thin Film for Application on Hybrid Solar Cell, Y.-Y. YU, W.-C. CHIEN, **S.-H. CHEN**, Ming Chi University of Technology, Taiwan

CP-44

Using Sputtered Pt/TiN Thin Film as a Counter Electrode in Low Temperature Dye-Sensitized Solar Cells, **W.-Y. WU**, Mingdao University, Taiwan, P. CHEN, J.-M. TING, National Cheng Kung University, Taiwan

CP-45

Dependence of CdTe Film Properties on Electrodeposition Parameters and Annealing Effects, **C.-H. HUANG**, T.H. LI, National Dong Hwa University, Taiwan

CP-46

Electrical and Morphological Properties of Metal Doped-TiO_2 Sol-Gel Thin Films, R. VALASKI, Inmetro, Brazil, **M. CREMONA**, Pontifícia Universidade Católica do Rio de Janeiro, Brazil, C. ARANTES, C. LEGNANI, W. QUIRINO, C. ACHETE, Inmetro, Brazil

CP-47

Preparation of Impurity-Doped ZnO Transparent Electrodes Suitable for Thin-Film Solar Cell Applications by Various Types of Magnetron Sputtering Depositions, **T. MINAMI**, J. NOMOTO, T. HIRANO, T. MIYATA, Kanazawa Institute of Technology, Japan

CP-48

PL and EL Characteristics of Rare Earth-Activated $BaLa_2O_4$ Phosphor Thin Films with or without Co-doping of Bi, **T. MIYATA**, Y. NISHI, J.-I. ISHINO, T. MINAMI, Kanazawa Institute of Technology, Japan

CP-49

Exciton Wavefunction Coupled Surface Plasmon Resonance for In-doped ZnO Nanowires with Aluminum Cylindrical Micropillars, **C.-H. FANG**, Y.-T. LIANG, J.-C. WANG, T.-E. NEE, Chang Gung University, Taiwan

CP-50

Preparation and Post Annealing Effect on Physical Properties of Nanostructure ZTO Thin Films, **V.K. JAIN**, University of Rajasthan, India, P. KUMAR, National Physical Laboratory, India, P. JAIN, Indian Institute of Technology, India, S. SRIVASTAV, S. AGRAWAL, Y.K. VIJAY, University of Rajasthan, India

Biomedical Coatings
Room: Town & Country - Session DP

Symposium D Poster Session
5:00 – 7:00 pm

DP-1

A Study on Cell Adhesion and Hemocompatibility of CN_x Coated on Carbon Nanotubes, M.L. ZHAO, Y.C. YUE, **D.J. LI**, Tianjin Normal University, China

DP-2

Characterization and Antibacterial Performance of ZrCN/Amorphous Carbon Coatings Deposited on Titanium Implants, **Y.-Y. CHANG**, Mingdao University, Taiwan, H.-L. HUANG, China Medical University and Hospital, Taiwan, H-.Y. KAO, Mingdao University, Taiwan, C.-H. LAI, T.-M. SHIEH, China Medical University and Hospital, Taiwan

DP-3

Modification of the Surface of Porous Polymer Fibrous and Membranes by Deposition of Multifunctional Bioactive Nanostructured Films, **V. SHTANSKY**, N. SHEVEIKO, V. KIRUYKHANTSEV-KORNEEV, National University of Science and Technology "MISIS", Russia, A. GLOUSHANKOVA, Cancer Research Center of RAMS, S. GRIGORYAN, Cental Research Dental Institute

DP-4

Stable Superhydrophilic Surfaces on Titanium Substrates, R. FLEMING, **M. ZOU**, University of Arkansas

DP-5

Allylamine Plasma Enhanced Cytocompatibility of Porous NiTi Bone Implants, **S.L. WU**, City University of Hong Kong, X.M. LIU, Hubei University, China, K.W.K. YEUNG, T. HU, City University of Hong Kong, Z.S. XU, Hubei University, China, J.C.Y. CHUNG, P.K. CHU, City University of Hong Kong

DP-6

Antibacterial with Silver-Embedded Silica/ Polyethylene Nanocomposite, **C.-H. CHIEN**, K-.H. CHEN, National Tsing Hua University, Taiwan, Y.-C. PU, C.-M. LIU, Industrial Technology Research Institute Taiwan, H-C. SHIH, National Tsing Hua University, Taiwan

DP-7

HA Thin Film Coating on the Femtosecond Laser Textured Ti-35Nb-xZr Alloy for Biomedical Application, **Y.-H. JEONG**, H.-C. CHOE, Chosun University, Korea, S.-W. EUN, Korea Polytechnic V Colleges, Korea

DP-8

Effects of EB-PVD HA Coating on the Electrochemical Characteristics of Nanotubular Film Formed Ti-35Ta-xHf Alloy, **B.-H. MOON**, H.-C. CHOE, Y.-M. KO, Chosun University, Korea, S.-W. EUN, Korea Polytechnic V Colleges, Korea

DP-9

Structure and Properties of Ti-O-N Films Synthesized by Reactive Magnetic Sputtering, **Y.X. LENG**, Southwest Jiaotong University, China

DP-10

Microscopical Observation of Osteoblast Growth on Micro-arc Oxidized Titanium Dioxide, **H.-T. CHEN**, Feng Chia University & China Medical University Hospital, Taiwan, C.-J. CHUNG, Central Taiwan University of Science and Technology & Taipei Medical University, Taiwan, T.-C. YANG, Feng Chai University, Taiwan, C.-H. TANG, China Medical University, Taiwan, K.-C. CHEN, J.-L. HE, Feng Chai University, Taiwan

DP-11

In vivo Osseointegration Performance of Titanium Dioxide Modified Polyetheretherketone Using Arc Ion Plating, **H.-K. TSOU**, Feng Chia University & Taichung Veterans General Hospital, Taiwan, M.H. CHI, Feng Chai University, Taiwan, Y.-W. HUNG, Taichung Veterans General Hospital & National Chung Hsing University, Taiwan, C.-J. CHUNG, Central Taiwan University of Science and Technology & Taipei Medical University, Taiwan, J.-L. HE, Feng Chai University, Taiwan

DP-12

Corrosion Behavior of Ag-Ti(C,N) Coatings for Biomedical Applications, **G. RAMÍREZ**, Universidad Nacional Autonoma de Mexico, N. MANNINEM, S. CARVALHO, Universidade do Minho, Portugal, S.E. RODIL, Universidad Nacional Autonoma de Mexico, M. HENRIQUES, I. CARVALHO, Universidade do Minho, Portugal

DP-13

Silver Diffusion and Ionization Mechanisms on Antibacterial Ag(Au)-TiCN Coatings, I. CARVALHO, Universidade do Minho, Portugal, **R. ESCOBAR GALINDO**, Instituto de Ciencia de Materiales de Madrid, Spain, S. CALDERON, M. HENRIQUES, Universidade do Minho, Portugal, C. PALACIO, Universidad Autónoma de Madrid, A. CAVALEIRO, Coimbra University, Portugal, S. CARVALHO, Universidade do Minho, Portugal

DP-14

Anti-Adherence Properties of Oral Pathogen on Silver Ion Coated Titanium Surface, **B.-H. KIM**, Y.-M. KO, Chosun University, Korea, D.-L. CHO, S.-H. OHK, Chonnam National University, Korea

DP-15

Photocatalytical Performance of Silver Containing Titania Films by Reactive Sputtering, **C.-C. HSIEH**, M.-S. WONG, National Dong Hwa University, Taiwan, H.-H. CHANG, Tza Chi University, Taiwan

DP-16

Corrosive Nature of Orthopedic Implant Alloys: Influence of Protien and Corrosion Mechanisms, **M.T. MATHEW**, Rush University Medical Center, R. POURZAL, University of Duisburg-Essen, Germany, J. HALLAB, Rush University Medical Center, A. FISCHER, University of Duisburg-Essen, J. JACOBS, M.A. WIMMER, Rush University Medical Center

DP-17

Thick Polycrystalline Diamond Layers for Biomedical Application, **M. FIJALKOWSKI**, Technical University of Lodz, Poland, A. KARCZEMSKA, Technica University of Lodz, Poland, J.M. LYSKO, Institute of Electron Technology, Poland, A. BOLSHAKOV, D. SOVYK, V. RALCHENKO, Russian Academy of Science, Russia

DP-18

Wear and Friction Properties of DLC Coatings Deposited by CFUBMS on Anodized-CP-Ti used in Biomaterail Applications, O. BARAN, **C. ALBAYRAK**, Erzincan University, Turkey, A. ALSARAN, I. EFEOGLU, A. ÇELİK, Atatürk University, Turkey

DP-19

Tribocorrosion of Multi-Layered ZrN/(Ti,Al)N Thin Coatings Deposited by Magnetron Sputtering, **O. JIMENEZ-ALEMAN**, M. FLORES, E. RODRIGUEZ, Universidad de Guadalajara, Mexico

DP-21

Tribocorrosion Behavior of TiAlPt$_x$N Coatings in a Ringer´s Solution, **M. FLORES**, O. JIMENEZ, Universidad de Guadalajara, Mexico, J. GARCIA, Universidad Panamericana, Mexico, E. RODRIGUEZ, Universidad de Guadalajara, Mexico, L. HUERTA, Universidad Nacional Autonoma de Mexico

Tribology and Mechanical Behavior of Coatings and Thin Films
Room: Town & Country - Session EP

Symposium E Poster Session
5:00 – 7:00 pm

EP-1

Textured Coatings with Ag_3VO_4 Solid Lubricant Reservoirs, **S. SCHWARTZ**, Valparaiso University, B. LUSTER, D.P. SINGH, D. STONE, Southern Illinois University, Carbondale, M. BABEN, J.M. SCHNEIDER, RWTH Aachen University, Germany, K. POLYCHRONOPOULOU, C. REBHOLZ, University of Cyprus, P. KOHLI, S.M. AOUADI, Southern Illinois University, Carbondale

EP-2

Formation of Micro- and Nanostructured Phases in Ni-Cr-B-Si-Fe Coatings Improving Their Protection Functions, **D. POGREBNJAK**, N. BRATUSHKA, M.V. IL'YASHENKO, G.V. KIRIK, P. SHYPYLENKO, Sumy State University, Ukraine, L. ALOTSEVA, V. PROHORENKOVA, East-Kazakstan State Technical University, Kazakhstan, V. PSHYK, A. DEMIANENKO, Sumy State University, Ukraine

EP-3

Tribological Properties and Thermal Stability of C-Si-O Composite Thin Films Deposited by PBII Method, **N. MOOLSRADOO**, S. ABE, S. WATANABE, Nippon Institute of Technology, Japan

EP-4

The Effects of Gas Environment on Tribological Behaviors of Anodized Al Alloy, **G-.S. LEE**, Y.-Z. LEE, Sungkyunkwan University, Korea

EP-5

Analysis of Mechanical Properties and Structure of a-C:H DLC Thin Films, **A.N. BERTHELSEN**, S. LOURING, N.D. MADSEN, Aarhus University, Denmark, B.H. CHRISTENSEN, K.P. ALMTOFT, L.P. NIELSEN, Danish Technological Institute, Tribology Centre, Denmark, J. BØTTIGER, Aarhus University, Denmark

EP-6

Nano-Impact Test on Pvd Coatings and Correlation Between Experimental and Fem Results, **K.-D. BOUZAKIS**, S. GERARDIS, M. PAPPA, Aristoteles University of Thessaloniki, Greece

EP-7

Surface Modification of Metastable Phase-Structural States, Realizing the Effect of Self-Strengthening and Encreasing Wear Resistance in the Process of Steels Wear, **O.P. CHEILIAKH**, Y.O. CHEILIAKH, V.V. CHIGAREV, O.V. LYUBY, Priazovskiy State Technical University, Ukraine

EP-8

Tribological Properties of Duplex Coatings Deposited on Ti_6Al_4V Alloy Using MAO and CFUBMS, *Y. TOTIK, E. ARSLAN, I. EFEOGLU, E.E. DEMIRCI, Atatürk University, Turkey*

EP-9

Multi-Pass Scratch Tests of DLC Coatings Deposited on CP-Titanium by Magnetron Sputtering, *E. ARSLAN, Y. TOTIK, Atatürk University, Turkey, O. BARAN, Erzincan University, Turkey, E.E. DEMIRCI, I. EFEOGLU, Atatürk University, Turkey*

EP-10

Comparison of Gas Nitrided and Powder-Pack Borided AISI 4140 Steel Behaviour in Terms of Tribological Properties, L. LOPEZ, ITESM, Mexico, **J. SOLIS**, SEP-DGEST-ITTLA/ITESM, Mexico, U. FIGUEROA, E. OSEGUERA, ITESM, Mexico, O.A. GOMEZ, SEP-DGEST-ITTLA/ITESM, Mexico

EP-11

Optimized DLC Films for High-Performance Racing Engine Applications, **O. CODDET**, Platit AG, Switzerland, B. TORP, Platit Scandinavia, Denmark, G. BULAJA, Platit Inc., USA, C. GALAMAND, Platit AG, Switzerland, G. HUFFMAN, Calico Coatings, USA, T. CSELLE, Platit AG, Switzerland

EP-12

Mechanical Evaluation of Two Tungsten Carbide Based Coatings by Means of Conventional and Instrumented Indentation Tests, *J.G. LABARBERA-SOSA,* Universidad Central de Venezuela

EP-13

Fatigue Behavior of a Structural Steel Coated with WC-12Co Nanostructured Deposited by Means of HVOF Thermal Spray, *C.J. VILLALOBOS-GUTIERREZ, Y. SANTANA, J.G. LA BARBERA-SOSA, E.A. SALAZAR, I. RODRIGUEZ, M.H. STAIA, S. PUCHI-CABRERA,* Universidad Central de Venezuela

EP-14

Tribological Behaivor of ZrN PVD Coating on 7075-T6 Aluminum Alloy with and Interlayer of Electroless Ni-P, **Y. SANTANA**, Universidad Central de Venezuela

EP-15

Structural, Surface and Mechanical Properties of a-C:H:Si:F and a-C:H:Si:Cl Films Produced by PECVD, T. MATIELLO, R. TURRI, M.B. APPOLINARIO, R. MARTINS, State University of São Paulo - UNESP, Brazil, C.U. DAVANZO, UNICAMP, Brazil, W.H. SCHREINER, State University of Paraná, Brazil, N. CRISTINO DA CRUZ, E. RANGEL, J.R. BORTOLETO, **S.F. DURRANT**, State University of São Paulo - UNESP, Brazil

EP-16

Wear Behaviour of HVOF Sprayed and Post Heat Treated Conventional and Nanostructured WC–Co Coatings, **M.D. RODRIGUEZ**, Universidad Central de Venezuela (UCV), Venezuela, L.E. GIL, Universidad Nacional Experimental Politecnica (UNEXPO), Venezuela, S. CAMERO, S. PARDI, M. GUZMAN, G. LEMOINE, Universidad Central de Venezuela (UCV), Venezuela

EP-17

The Study on the Mechanical Properties of Perfect Lattice and Sputtering of Al/Cu Multilayer Thin Film by Molecular Dynamics Simulation, J.-C. HUANG, **Y.-C. LIAO**, Tungnan University, Taiwan

New Horizons in Coatings and Thin Films
Room: Town & Country - Session FP

Symposium F Poster Session
5:00 – 7:00 pm

FP-1

The Resistive Switching Characteristics in Rare-Earth-Oxide Sm_2O_3 Films for Nonvolatile Memory Applications, **M.-C. CHEN**, S.-Y. HUANG, National Sun Yat-Sen University, Taiwan

FP-2

The Preparation and Photo-Sensing of Thermal Evaporated ZnS/ZnO Core-Shell Nanowires, **Y.-W. CHENG**, National Cheng Kung University Taiwan, H.-C. SHIH, Chinese Culture University, Taiwan, C.-P. LIU, National Cheng Kung University Taiwan

FP-3

Reproducible and High Response Switching Characteristics of Well-Ordered ZnO Nanowires on PET Substrate for Low-Cost Flexible UV Photodetectors, **I.-C. YAO**, T.-Y. TSENG, P. LIN, National Chiao Tung University, Taiwan

FP-4

Defects and Oxygen Incorporation in TiAlN, M. TO BABEN, L. RAUMANN, **J.M. SCHNEIDER**, RWTH Aachen University, Germany

FP-5

Aluminum Films with Protruding Nanoislands by Thermal Evaporation, **R. FLEMING**, M. ZOU, University of Arkansas

FP-6

Study of the Structure and Physical Properties of Ge-Sb-Te Thin Film Deposited by rf Magnetron Sputtering, C.-M. LEI, Chinese Culture University, Taiwan, C.-Y. TAI, National Central University, Taiwan, C.C. HUANG, D.W. HEWAK, University of Southampton, UK, **Y.-W. LIN**, Chinese Culture University, Taiwan

FP-7

Preparation of Transparent Fe_2O_3/TiO_2 Coating Film for Water Splitting System by Layer-by-layer Self Assembling Method, S.-J. KIM, **H.-J. OH**, K.-J. NOH, H.-K. KU, Sejong University, Korea, S.-C. JUNG, Sunchon National University, Korea, W.-J. LEE, Korea Electrotechnology Research Institute, Korea

FP-8

The Nano-Depth Profiling Analysis of La-Substituted $BiFeO_3$ Multiferroic Thin Films Sputtered on Silicon Surface with Different Postannealing Temperatures, P.-C. JUAN, **C.-W. HSU**, Ming Chi University of Technology, Taiwan, C.-H. LIU, National Taiwan Normal University, Taiwan

FP-9

Two-Step Synthesis and Electrical Transport Properties of Tungsten Oxide Nanowires Bundles, **T. HSIEH**, C.-C. CHANG, National Tsing Hua University, Taiwan, B.J. WEI, National Chung Hsing University, Taiwan, H-C. SHIH, National Tsing Hua University, Taiwan

FP-10

Position and O_2 Concentration Effects on Growth of Carbon Nanotubes (CNTs) by DC-PECVD at Low Temperature, **H. WANG**, J.J. MOORE, Colorado School of Mines

FP-11

Novel Nanoplate Thin Film Solar Cell Using Amorphous Silicon-Based Materials, **B.-F. HSIEH**, J.-W. FAN, S.-T. CHANG, C.-Y. LIN, National Chung Hsing University, Taiwan

FP-12

Recycling of Used DLC-Coated WC/Co Dies for Practical Dry Stamping, **T. AIZAWA**, Shibaura Institute of Technology, Japan, Y. MORITA, Nano-Coat and Film LLC, Japan

FP-13

Voltage-Induced Metal-Insulator Transition (MIT) on VO_2 Nanowire Grown by PLD, **B.-J. KIM**, ETRI, Korea, G.-W. SEO, J.-H. SHIN, Etri & Ust, Korea, S.-Y. CHOI, J.-Y. CHOI, ETRI, Korea, Y.-W. LEE, Pukyong National University, Korea, H.-T. KIM, ETRI, Korea

FP-14

Synthesis and Dielectric Properties of CuO/Polymer Nanocomposite Films, **C.-R. LIN**, Southern Taiwan University, Taiwan, Y.-J. SIAO, National Cheng Kung University Taiwan, X. QI, National Cheng Kung University, Taiwan, J-.C. FAN, H-.H. SUNG, Da-Yeh University, Taiwan

ARDEC Benet Labs

FP-15

The Effect of Thickness on Structure and Properties of Tantalum Thin Films Deposited by Modulated Pulse Power Magnetron Sputtering, **W. MYERS**, J. LIN, J.J. MOORE, Colorado School of Mines, W.D. SPROUL, Reactive Sputtering, Inc., S. LEE, US ArmyARDEC Benet Labs

FP-16

Graphene Layers Deposited by Hot Wire CVD, **C. CORBELLA**, J. BADIA-CANAL, V.-M. FREIRE, E. BERTRAN, J.-L. ANDÚJAR, Universitat de Barcelona, Spain

FP-17

Direcet Deposition of TiO_2 Thin Film by Using Electrospray method, **H.S. KIM**, S.S. KIM, Korea Advanced Institute of Science and Technology, Korea

FP-18

Analysis of the Inorganic Component of Autogenous Tooth Bone Graft Material, **S.-C. JIN**, S.-G. KIM, J.-H. BYEON, Y.-K. KIM, Chosun University, Korea, S.-Y. KIM, Yeungnam University, Korea, I.-W. UM, Dentist - Private Practice, Korea

FP-19

Non-Catalytic Method to Prepare Organized Nickel–Carbon Nanofibers on Nanopatterned Silicon Substrates, **A.-A. EL MEL**, Université de Nantes, France, W. XU, C.-H. CHOI, Stevens Institute of Technology, E. GAUTRON, B. ANGLERAUD, A. GRANIER, P.-Y. TESSIER, Université de Nantes, France

FP-20

Stable Electron-Emission from a Tip-Type Carbon Nanotube-Based Emitter via Formation of Interlayers, **J.-P. KIM**, H.-B. CHANG, Y.-R. NOH, Hanyang University, Korea, J.-U. KIM, Korea Electrotechnology Research Institute, Korea, J.-S. PARK, Hanyang University, Korea

FP-21

Small Angle Neutron Scattering (SANS) Characterization of Electrically Conducting Polyaniline Nanofiber/Polyimide Nanocomposites, **A.R. HOPKINS**, The Aerospace Corporation, S.J. TOMCZAK, AFRL/RZSM, Edwards Air Force Base, V. VANDANA, AFRL/PRSM, Edwards AFB, A.J. JACKSON, NIST

FP-22

Electrical Oscillation in Planar VO_2 Device at High Voltage, **G.-W. SEO**, J.-H. SHIN, ETRI & UST, Korea, B.-J. KIM, ETRI, Korea, Y.-W. LEE, Pukyong National University, Korea, S.-Y. CHOI, J.-Y. CHOI, H.-T. KIM, ETRI, Korea

FP-23

Corrosion Properties of TiTaBN Coatings Deposited by Pulsed-dc and Biased-dc Sputtering, **O. BARAN**, Erzincan University, Turkey, Y. TOTIK, I. EFEOGLU, Atatürk University, Turkey, B. PRAKASH, Luleå University of Technology, Sweden

FP-24

Effects of Tip-Curvatures and Selective Growth on Electron Emission Behavior in Conical-Type Carbon Nanotube Field-Emitters, **Y.-R. NOH**, J.-P. KIM, H.-B. CHANG, J.-S. PARK, Hanyang University, Korea

Applications, Manufacturing, and Equipment
Room: Town & Country - Session GP

Symposium G Poster Session
5:00 – 7:00 pm

GP-1

The Effect of Carbon Ion Implantation on the Mechanical Properties of CrAlSiN Coatings, **H.-Y. KAO**, Y.-Y. CHANG, Mingdao University, Taiwan

GP-2

Improvement on Corrosion Resistance of Austempered Ductile Iron via Low Temperature Duplex Coatings, C.-H. HSU, **K.-H. HUANG**, Y.-T. CHEN, Tatung University, Taiwan, P.-L. SUN, C-.K. LIN, Feng Chia University, Taiwan

GP-3

Deposition of Amorphous Hudrogenated Carbon Films by Atmospheric Plasma Glow Discharge, **J.D. KIM**, Geniatech Inc., Korea

GP-4

Photocatalytic Activities of TiO_2 Films Prepared by Metal-Organic Chemical Vapor Deposition and Sol-Gel Method Using Hybrid Photocatalytic Degradation Process System, **S.-C. JUNG**, H. LEE, M. LEE, Sunchon National University, Korea, S.-J. KIM, Sejong University, Korea, B.-H. KIM, Chosun University, Korea, S.-G. SEO, Chonnam National University, Korea

GP-5

Covering with Carbon Black and Thermal Treatment by a CO_2 Laser Surfaces of AISI 4340 Steel, **G. DE VASCONCELOS**, D.C. CHAGAS, Institute of Advanced Studies - IEAv-CTA, Brazil, A.N. DIAS, UNIVAP, Brazil

GP-6

Microwave Plasma Enhanced CVD Diamond Coatings on WC-Co Substrates Pre-Coated with Ceramic Interlayers of Different Stoichiometry, **Y.-S. LI**, University of Saskatchewan, Canada

GP-7

The Effect of Combined Processes for Photocatalytic Degradation of Propylene Gas using Titanium Dioxide Thin Film Coated on Alumina Beads, **H. LEE**, Y.-S. BAE, S.-H. PARK, Sunchon National University, Korea, S.-J. KIM, Sejong University, Korea, D.-J. LEE, S.-C. KIM, S.-C. JUNG, Sunchon National University, Korea

GP-8

Fabrication and Mechanical Characteristics of Metal Matrix Composite with Homogeneously Dispersed Ceramic Particles, **E.-H. KIM**, W.-R. LEE, Changwon National University, Korea, C.-G. LEE, M.-K. LEE, J.-J. PARK, Korea Atomic Energy Research Institute, Korea, C-.S. LEE, METIA Corporation, Korea, Y.-G. JUNG, Changwon National University, Korea

GP-9

Synthesis of Hydrogenated Amorphous Carbon Films with a Line Type Atmospheric-Pressure Plasma CVD Apparatus, **M. AGEMI**, K. KAYAMA, M. NOBORISAKA, Keio University, Japan, A. SHIRAKURA, Kanagawa Academy of Science and Technology (KAST), Japan, T. SUZUKI, Keio University, Japan

GP-10

Influence of the Deposition Pressure on Properties of a-C:H Films Synthesized Using a Dielectric Barrier Discharge, **R. HORIKOSHI**, K. KAYAMA, M. NOBORISAKA, Y. TACHIMOTO, Keio University, Japan, T. WATANABE, Kanagawa Industrial Technology Center, Japan, A. SHIRAKURA, Kanagawa Academy of Science and Technology (KAST), Japan, T. SUZUKI, Keio University, Japan

GP-11

The Forming Mechanism of the MAO Coating on Mg-Li Alloy with Different Contents of Li, **Y.J. XU**, Z.P. YAO, L.L. SHI, Z. JIANG, Harbin Institute of Technology, China

GP-12

Surface Texture and Stress State in Post Polished Cathodic Arc PVD Coatings, **A. PILKINGTON**, S.J. DOWEY, J.T. TOTON, RMIT University and Defence Materials Technology Centre, Australia, L. WARD, RMIT University, Australia, D. GRIFFETT, Cuttertec Pty, Australia, E.D. DOYLE, RMIT University and Defence Materials Technology Centre, Australia

GP-13

Thermal Annealing Effect on Material and Electrical Properties of NbN_x Gates on HfO_2 Gate Dielectrics, **S.-Y. LIN**, Y.-S. LAI, National United University, Taiwan

GP-14

Study of Galvanic Effect Between RuN_x Barriers and Copper Seed, **C.-Y. WU**, National Cheng-Kung University, Taiwan, W.-S. LEE, National Cheng-Kung University Taiwan, C.-T. WU, National Cheng-Kung University, Taiwan

GP-15

Electrochemical Behavior of the Ti_6Al_4V Alloy Implanted by Nitrogen PIII, **G.S. SAVONOV**, Instituto Tecnologico de Aeronautica - ITA & Instituto Nacional de Pesquisas Espaciais - INPE, Brazil, M. UEDA, R.M. OLIVEIRA, Instituto Nacionale de Pesquisas Espaciais - INPE, Brazil, C. OTANI, Instituto Tecnologico de Aeronautica - ITA, Brazil

GP-16

Biocompatibility of Hydroxyapatite Nanocrystal Coated TiO_2 Nanomesh Surface, **J.-W. SHIM**, K.-L. LEE, Y.-M. KO, Y.-H. HWANG, M.-J. JEONG, Chosun University, Korea, S.-C. JUNG, Sunchon National University, Korea, B.-H. KIM, Chosun University, Korea

GP-17

Hydrophilicity of TiO_x Thin Films by Atmospheric Pressure Plasma Enhanced Chemical Vapor Deposition, **S.-S. KIM**, J.-U. SHIN, S.-C. OH, Institue for Advanced Engineering, Korea

GP-19

Uniformity Enhancement of Incident Dose on Concave Surface in Plasma Immersion Ion Implantation Assisted by Pulsed Beam-Line Plasma, **Z.T. ZHU**, X.B. TIAN, Z.J. WANG, C.Z. GONG, S.Q. YANG, Harbin Institute of Technology, China, R.K.Y. FU, P.K. CHU, City University of Hong Kong, China

GP-20

Aligned ZnO Nanorods Using a Hydrothermal Method and Anodic Aluminum Oxide Nanotemplates, **W.-K. JU**, B.-S. KIM, J.-H. SUNG, M.-W. LEE, S.-G. PARK, S.-G. LEE, E.-H. LEE, B.-H. O, INHA University, Korea

GP-21

Attachment and Proliferation of Human Gingival Fibroblast on Nitrogen-Plasma Treated TiO_2 Surface after Visible Light Treatment, **K.-L. LEE**, J.-W. SHIM, Y.-M. KO, Y.-H. HWANG, H.-C. CHOE, J.-K. KOOK, Chosun University, Korea, S.-C. JUNG, Sunchon National University, Korea, B.-H. KIM, Chosun University, Korea

GP-22

Liquid-Phase Deposition of Low-k Carbon Nitride Films, **H. KIYOTA**, M. HIGASHI, T. KUROSU, M. CHIBA, Tokai University, Japan

GP-23

Deposition of $In_{2-x}Fe_xO_3$ Films by Ultrafast Microwave Annealing Technique, S.B. QADRI, Naval Research Laboratory, **C. FAHED**, George Mason University, N.A. MAHADIK, H. KIM, M. OSOFSKY, Naval Research Laboratory, M.V. RAO, George Mason University, Y. TIAN, L. T. Technologies

GP-24

Incorporation of Silver Nanoparticles in DLC Films for Spatial Application, **S.F. FISSMER**, L.V. SANTOS, M. MASSI, Technological Institute of Aeronautics, Brazil, P.A. RADI, Instituto Nacional de Pesquisas Espaciais - INPE, Brazil

GP-25

The Electrical Contact Resistance Endurance of Thin Silver Coatings Subjected to Fretting Wear: Influence of the Coating Thickness, P. JEDRZEJCZYK, **S. FOUVRY**, Ecole Centrale de Lyon - LTDS, France, P. CHALANDON, PSA, France

GP-26

Plasma Nitrocarburizing of AISI 304 Stainless Steel Under Floating Potential, **T.R. DA ROSA**, Technological Institute of Aeronautics, Brazil, L.C. FONTANA, M. TOMIYAMA, J.H.C.P. SANTOS, Universidade do Estado de Santa Catarina, Brazil, H.S. MACIEL, Technological Institute of Aeronautics, Brazil

GP-27

Tribological Properties of Magnetron-Sputtered MoSiN Coatings at Elevated Temperatures, S.-Y. LEE, **Y.-S. KIM**, J.-H. OH, Korea Aerospace University, Korea

GP-28

The Characteristics of Interface for Pentacene/ZnO Hybrid p-n Junction Diode, **J-B. KWON**, H.-H. KIM, M.-S. KIM, J.-H. HAN, D.-H. LEE, B.-H. O, S.-G. LEE, E.-H. LEE, S.-G. PARK, Inha University, Korea

GP-29

High-Frequency Magnetic Properties of NiFe/Fe-Oxide Films, **R.-B. YANG**, W.-F. LIANG, Feng Chai University, Taiwan, K.-W. LIN, National Chung Hsing University, Taiwan, C.-Y. TSAY, C-.K. LIN, Feng Chia University, Taiwan

GP-30

Improved Nucleation and Transition in Fast Response Liquid Crystal Displays by Atmospheric Plasma Treatments, **G.M. WU**, H.W. CHIEN, C.C. HUANG, Chang Gung University

GP-31

Nitriding of Tool Steels in Electron Beam Excited Plasma, **P. ABRAHA,** J. MIYAMOTO, Meijo University, Japan

Symposium T Poster Session
Room: Town & Country - Session TSP

TP Poster Session
5:00 – 7:00 pm

TSP-2

Fabrication and Characterization of Nanocomposite Films, S.-C. HER, **T.-Y. SHIU**, Yuan Ze University, Taiwan

TSP-3

Alumina Template Assistance in Pt/Sn Core-Shell Nano-Sphere Fabrication, **C.-L. CHEN**, C.-C. CHEN, Y.-S. LAI, National United University, Taiwan

TSP-4

Critical Experimental Study of Cavity Size Effect on Pool Boiling of Copper Pillared Substrates, **N. GLAVIN**, Air Force Research Laboratory, C. LI, Villanova University, C. HUNTER, Air Force Research Laboratory, T.S. FISHER, Purdue University & Air Force Research Laboratory, C. MURATORE, Air Force Research Laboratory, S. PUTNAM, Universal Technology Corporation, A. REED, Air Force Research Laboratory, M.A. LANGE, Universal Technology Corporation

TSP-5

Mathematical Simulation of Layer Growth Kinetics in a Plasma Nitriding Process, V. MELO, M. FUENTES, TRAMES SA de CV, Mexico, **E. OSEGUERA**, A. CASTILLO, ITESM, Mexico

TSP-6

The Characterizatiion of Delafossite-$CuAlO_2$ Films by Sol-Gel Processing, **H.Y. CHEN**, National Kaohsiung University of Applied Sciences, Taiwan, R.-S. YU, Asis University, Taiwan, W.C. CHENG, National Kaohsiung University of Applied Sciences, Taiwan

TSP-7

Studies Among the Structural, Morphological and Electrical Parameters of PEG Assisted Thermally Sprayed CuO Films, **I. SINGH**, Khalsa College Amritsar, India, R. KUMAR, Guru nanak dev University, India

TSP-8

Effects of an Interposing Ni Layer on the Formation of Cobalt Silicides, **W.-W. WU**, National Chiao Tung University, Taiwan, K.-C. LU, National Cheng Kung University, Taiwan

TSP-9

Effect of Ni^{7+} Ion Irradiation on Structure, Electrical, and Gas Sensing Properties of Thermally Oxidized ZnO Films, **A. BAL**, A. SINGH, R.K. BEDI, Guru nanak dev University, Amritsar, India

TSP-10

Why Taking Creep Material Behavior Into Account is of Great Importance, **P. HEUER-SCHWARZER**, N. BIERWISCH, Saxonian Institute of Surface Mechanics, Germany

TSP-11

Interfacial Structure and Electrical Properties of Epitaxial $NiSi_2$/Si Contacts Formed by a Solid-Phase Reaction in Ni-P/Si(100) System, **H.-F. HSU**, C.-L. WU, T.-H. CHEN, H.-Y. WU, National Chung Hsing University, Taiwan

TSP-12

GDOES for Accurate and Well Resolved Thin Film and Coating Analysis, **P. SCHAAF**, M. WILKE, L. SPIEß, G. TEICHERT, H. ROMANUS, TU Ilmenau, Institut für Werkstofftechnik, Germany

TSP-13

Structural and Photoelectrochemical Properties of $Ti_{1-x}W_xO_2$ Thin Films Deposited by Magnetron Sputtering, **G. ABADIAS**, A. GAGO, T. YANG, N. ALONSO-VANTE, University of Poitiers, France

TSP-14

Characterization and Properties of Multilayered BN/SiO_2 Thin Films for Tailoring Thermal and Mechanical Contact Interfaces, **J. HU**, J.E. BULTMAN, Air Force Research Laboratory/UDRI, J.J. GENGLER, Air Force Research Laboratory/Spectral Energies, C. MURATORE, A.A. VOEVODIN, Air Force Research Laboratory

TSP-15

Atom Probe Reconstruction Limitations in the Quantification of Interfacial Intermixing in Multilayered Thin Films, J.G. BRONS, University of Alabama, A.A. HERZING, I.M. ANDERSON, NIST, **G.B. THOMPSON**, University of Alabama

TSP-16

Wear Properties of Thick TiSiCN Coatings, **J.-F. SU**, Y. CHEN, X. NIE, University of Windsor, Canada, R. WEI, Southwest Research Institute

TSP-17

Pressure Cell for Thermal Conductivity Measurement of Thin Films under Applied Stress with the Time Domain Thermoreflectance Technique, **J.E. BULTMAN**, A.J. SAFRIET, Air Force Research Laboratory/UDRI, J.J. GENGLER, Air Force Research Laboratory/Spectral Energies, A.R. WAITE, Air Force Research Laboratory/UTC, C. MURATORE, J.G. JONES, Air Force Research Laboratory, B.M. HOWE, I. PETROV, University of Illinois at Urbana-Champaign

TSP-18

Fabrication of Tapered Waveguide Using Hybrid Imprint Lithography, **H.-H. KIM**, J-B. KWON, M.-S. KIM, J.-H. HAN, D.-H. LEE, B.-H. O, S.-G. LEE, E.-H. LEE, S.-G. PARK, INHA University, Korea

TSP-19

Cr-Doped Carbon Films Coated 316L Stainless Steel for PEMFC Bipolar Plates, **G.Q. LIN**, A.M. WU, B. WU, Dalian University of Technology, China

TSP-20

Thermal Properties of Metal/Carbon Interfaces, **C. MURATORE**, Air Force Research Laboratory, S. SHENOGIN, UES/Air Force Research Laboratory, J.J. GENGLER, Air Force Research Laboratory/Spectral Energies, J. HU, Air Force Research Laboratory/UDRI, A. ROY, A.A. VOEVODIN, Air Force Research Laboratory

Friday Morning, May 6, 2011

	Coatings for Use at High Temperature **Room: Sunrise - Session A2-2** **Thermal and Environmental Barrier Coatings** **Moderators:** R. Wellman, Cranfield University, B.T. Hazel, Pratt & Whitney, R. Trice, Purdue University	**Hard Coatings and Vapor Deposition Technology** **Room: Golden West - Session B7** **Thermodynamics and Kinetic Considerations for Coating Growth** **Moderators:** V. Gorokhovsky, Southwest Research Institute, San Antonio Texas, P. Patsalas, University of Ioannina
8:00 am	**A2-2-1 Invited** Synchrotron Studies of Environmental Barrier Coatings, **K.T. FABER**, Northwestern University	**B7-1 Invited** Suppression of Intermixing in Strain-Relaxed Epitaxial Layers, T.L. LEONTIOU, Cyprus University of Technology, Cyprus, J.D. TERSOFF, IBM, **P.C. KELIRES**, Cyprus University of Technology, Cyprus
8:20 am	Invited talk continued.	Invited talk continued.
8:40 am	**A2-2-3** Low Thermal Conductivity Multi-Phase Thermal Barrier Coatings, **V. TOLPYGO**, W. BAKER, Honeywell, R. LECKIE, C.G. LEVI, University of California, Santa Barbara, A. LIMARGA, D. CLARKE, Harvard University, K. MURPHY, Alcoa Howmet	**B7-3** Theoretical Investigation of Atomistic Surface Processes in Multinary Nitrides Materials, **B. ALLING**, L. HULTMAN, Linköping University, Sweden
9:00 am	**A2-2-4** Deposition of Thick and 50 % Porous YpSZ Layer by Spraying Nitrate Solution in a Low Pressure Plasma Reactor, C. FOURMOND, **F. ROUSSEAU**, D. MORVAN, F. PRIMA, Chimie ParisTech, France, M.H. VIDAL-SETIF, O. LAVIGNE, ONERA, France	**B7-4** Influence of Particle and Energy Flux on Stress and Texture Development in Magnetron-Sputtered TiN Films, **G. ABADIAS**, University of Poitiers, France, W.P. LEROY, S. MAHIEU, D. DEPLA, Ghent University, Belgium
9:20 am	**A2-2-5 Invited** Foreign Object Damage Phenomena of Various Thermal and Environmental Barrier Coatings, **S.R. CHOI**, Naval Air Systems Commands	**B7-5** Fundamental Aspects of Mixed Oxide Thin Film Growth, **M. SARAIVA**, Ghent University, Belgium, V. GEORGIEVA, N. JEHANATHAN, University of Antwerp, Belgium, S. MAHIEU, W.P. LEROY, Ghent University, Belgium, R. PERSOONS, Flemish Institute for Technological Research (VITO), Belgium, G. VAN TENDELOO, A. BOGAERTS, University of Antwerp, Belgium, D. DEPLA, Ghent University, Belgium
9:40 am	Invited talk continued.	**B7-6** Modelling Reactive Sputter Deposition of Titanium Nitride in a Triode Magnetron Sputtering System, J.C. SAGÁS, D.A. DUARTE, Technological Institute of Aeronautics, Brazil, L.C. FONTANA, Universidade do Estado de Santa Catarina - Brazil, **T.R. ROSA**, D.R. IRALA, Technological Institute of Aeronautics, Brazil
10:00 am	**A2-2-7** Effect of Composition on the Growth and Microstructure of Hafnia-Zirconia Based Thermal Barrier Coatings, **M. NOOR-A-ALAM**, A. CHOUDHURI, C. RAMANA, University of Texas at El Paso	**B7-7 Invited** Thermodynamics of Small Systems Applied to Fluid Mixtures of Condensing Films at Critical Consulate Points, **M.A. MILLER**, Southwest Research Institute
10:20 am	**A2-2-8** Characterization of Microstructure, Thermal and Electric Properties of $RE_2Zr_2O_7$ of the TBC Thermal Barrier Coatings Obtained by the APS Method, **A. ROZMYSLOWSKA-GRUND**, G. MOSKAL, Silesian University of Technology, Poland	Invited talk continued.
10:40 am	**A2-2-9** Strain Localisation in Thermal Barrier Coatings Mechanical Compressive Test, **V. MAUREL**, Centre des Materiaux - Mines ParisTech, France, P. DE BODMAN, SNECMA Safran Group, France, L. RÉMY, Centre des Materiaux - Mines ParisTech, France	**B7-9** Understanding the Catalytic Effect of H_2S on CVD-Growth of α-Al_2O_3:Thermodynamic Gas Phase Simulations and ab Initio Theory, A. BLOMQVIST, Uppsala Univ, Sweden, **C. ÅRHAMMAR**, Sandvik Tooling Stockholm SE, Sweden, S. NORGREN, Sandvik Mining & Construction AB, Sweden, F. SILVEARV, Uppsala Univ, Sweden, M. RODMAR, Sandvik Tooling Stockholm SE, Sweden, R. AHUJA, Uppsala University, Sweden
11:00 am	**A2-2-11** Analysis of Thermoelastic Characteristics for Vertical-Cracked Thermal Barrier Coatings Through Mathematical Approaches, **J. GO**, Y.-G. JUNG, S. KIM, Changwon National University, Korea, U. PAIK, Hanyang University, Korea	**B7-10** Study of Structural Properties of PVD Coatings on Inclined Substrates, K. KUMAR, **S. MUKHERJEE**, Institute for Plasma Research, India
11:20 am		**B7-11** Structural Analysis of Alumina Thin Films Deposited by Dual Magnetron Sputtering, **W. ENGELHART**, V. SCHIER, Walter AG, Tübingen, Germany, W. DREHER, NMI Naturwissenschaftliches und Medizinisches Institut, Germany, O. EIBL, Universität Tübingen, Germany
11:40 am		**B7-12** Volatile Ni(II) Complexes with Beta-diiminates Derived - Novel Precursors for MOCVD Processes, **I.K. IGUMENOV**, K.V. ZHERIKOVA, N.B. MOROZOVA, Nikolaev Institute of Inorganic Chemistry SB RAS, Russia
12:00 pm	**Thank You & Farewell Party** **Trellises Courtyard near Pool 12:30 – 1:30 pm** **AWARD DEADLINE October 1, 2011**	**Thank You & Farewell Party** **Trellises Courtyard near Pool 12:30 – 1:30 pm** **AWARD DEADLINE October 1, 2011**

Friday Morning, May 6, 2011

	Tribology and Mechanical Behavior of Coatings and Thin Films **Room: California - Session E2-3** **Mechanical Properties and Adhesion** **Moderators:** M.-T. Lin, National Chung Hsing University, J. Michler, Empa	**New Horizons in Coatings and Thin Films** **Room: Royal Palm 1-3 - Session F2-2** **High Power Impulse Magnetron Sputtering** **Moderators:** R. Bandorf, Fraunhofer IST, J. Sapieha, Ecole Polytechnique de Montreal
8:00 am	**E2-3-1** Optimization of the Scratch Test for Specific Coating Designs, **G. FAVARO**, CSM Instruments SA, Switzerland, N. BIERWISCH, Saxonian Institute of Surface Mechanics, Germany, Q.-H. DUONG, P. KEMPE, CSM Instruments SA, Switzerland, J. RAMM1, Oerlikon Balzers AG, Switzerland, N. SCHWARZER, Saxonian Institute of Surface Mechanics, Germany, B. WIDRIG, OC Oerlikon Balzers AG, Germany	**F2-2-1 Invited** The influence of High Power Impulse Magnetron Sputtering (HIPIMS) Pulse Parameters on Plasma, Target and Substrate Interactions for Chromium, **F. PAPA**, Hauzer Techno Coating, BV, Netherlands, H. GERDES, R. BANDORF, Fraunhofer IST, Germany, A.P. EHIASARIAN, Sheffield Hallam Univ, UK, I. KOLEV, BV, R. TIETEMA, Hauzer Techno Coating, Netherlands, G. BRAEUER, Fraunhofer IST, T. KRUG, Hauzer Techno Coating, Netherlands
8:20 am	**E2-3-2** A Modified Scratch Test for the Mechanical Characterization of Scratch Resistance and Adhesion of Thin Hard Coatings on Soft Substrates, **T. SANDER**, S. TREMMEL, S. WARTZACK, University Erlangen-Nuremberg, Germany	Invited talk continued.
8:40 am	**E2-3-3 Invited** The Plastic Deformation of Metallic Thin Films on Substrate Seen Through In Situ TEM Experiments, **M. LEGROS**, CEMES-CNRS, France	**F2-2-3** A Comparison of PET Plasma Pre-Treatment Using Medium Frequency and Low Frequency-High Power Pulse Oxygen-Containing Discharges, M. AUDRONIS, V. BELLIDO-GONZALEZ, Gencoa Ltd, UK, S. HINDER, **M. BAKER**, University of Surrey, UK, A. MATTHEWS, University of Sheffield, UK
9:00 am	Invited talk continued.	**F2-2-4** Growth of HfO_2-Based High-k Dielectric Films by High Power Impulse Magnetron Sputtering, **K. SARAKINOS**, B. LÜ, H. ARWIN, Linköping University, Sweden, K. KONSTANTINIDIS, CIRMAP, University of Mons, Belgium, M. TO BABEN, D. MUSIC, J.M. SCHNEIDER, RWTH Aachen University, Germany, U. HELMERSSON, Linköping University, Sweden
9:20 am	**E2-3-5** Correlation between Adhesion Strength and Coating/Substrate Mechanical Properties using the Scratch Test Technique, **B. ZHOU**, N. RANDALL, CSM Instruments	**F2-2-5** Growth of V-Al-C Thin Films by HPPMS and DC Magnetron Sputtering Using a Multi-Component Target, **YAN. JIANG**, S. MRAZ, T. TAKAHASHI, RWTH Aachen University, Germany
9:40 am	**E2-3-6** Numerical and Experimental Analyses of Scratch Tests Conducted on Coated Systems with Residual Stress Gradients, N.K. FUKUMASU, **R.M. SOUZA**, University of Sao Paulo, Brazil, A.A.C. RECCO, University of Santa Catarina, Brazil, A.P. TSCHIPTSCHIN, University of Sao Paulo, Brazil	**F2-2-6** Correlation Between Plasma and Properties of Cr_2AlC MAX Phase Coatings, **C. LEYENS**, O. SCHROETER, R. BASU, Technische Universität Dresden, Germany
10:00 am	**E2-3-7** Mechanical and Wear Characterization of Electroless Nickel-Boron Coatings, V. VITRY, A.-F. KANTA, **F. DELAUNOIS**, Université de Mons, Belgium	**F2-2-7** Rotatable Magnetron Sputtering of Aluminium in Continuous and Pulse Modes Using Different Strength Magnetic Arrays, **M. AUDRONIS**, V. BELLIDO-GONZALEZ, R. BROWN, Gencoa Ltd, UK
10:20 am	**E2-3-8** Investigation of the Mechanical Properties of Hierarchically Structured Gold Nanoparticles, **A.J. SMITH**, Y.W. HAO, E.I. MELETIS, University of Texas at Arlington	
10:40 am	**E2-3-9** A Study on the Microstructures and Mechanical Properties of Ti-Al-Cr-Si-N Nanocomposite Thin Films Prepared by Pulsed DC Reactive Magnetron Sputtering System, **P.-C. HUANG**, Tungnan University, J.-W. LEE, Mingchi University of Technology, Taiwan, H.-P. CHEN, Tungnan University, Taiwan, Y.-C. CHAN, H.-W. CHEN, J.-G. DUH, National Tsing Hua University, Taiwan	
11:00 am	**E2-3-10** Influence of the Nitriding and TiAlN/TiN Coating Thickness on the Mechanical Properties and Adhesion of Duplex Treated AISI H13 Steel, **R. TORRES**, P.C. SOARES, Pontifícia Universidade Católica do Parana, Brazil, C.M. LEPIENSKI, Universidade Federal do Parana, Brazil, R.M. SOUZA, M. FARIA, A.P. TSCHIPTSCHIN, University of Sao Paulo, Brazil	
11:20 am	**E2-3-11** Microstructure and Characterization of Ternary Sputtering Ni-Ru-P Coatings, **Y.-C. HSIAO**, F.-B. WU, National United University, Taiwan	
11:40 am	**E2-3-12** Micro-Scratch Testing for Interface Characterizations of Diamond-Coated Tools, **P. LU**, University of Alabama, X. XIAO, M.J. LUKITSCH, General Motors Research and Development Center, K. CHOU, The University of Alabama	
12:00 pm	**E2-3-13** Methods for the Determination of the Mechanical Properties and Adhesion of Coatings for Precision Glass Molding Tools, **F. KLOCKE**, RWTH Aachen University, Germany, K.-D. BOUZAKIS, Aristoteles University of Thessaloniki, Greece, K. GEORGIADIS, Fraunhofer-Institut für Produktionstechnologie IPT, Germany, S. GERARDIS, Aristoteles University of Thessaloniki, Greece	**Thank You & Farewell Party** **Trellises Courtyard near Pool 12:30 – 1:30 pm** **AWARD DEADLINE October 1, 2011**

Friday Morning, May 6, 2011

Applications, Manufacturing, and Equipment
Room: Royal Palm 4-6 - Session G5
Coatings, Pre-Treatment, Post-Treatment and Duplex Technology
Moderators: N. Bagcivan, RWTH Aachen University, E. Kusano, Kanazawa Institute of Technology

NOTES

8:00 am	**G5-1** The Growth of Single Fe_2B Phase on Low Carbon Steel via Phase Homogenization in Electrochemical Boriding (PHEB), **G. KARTAL**, S. TIMUR, Istanbul Technical University, Turkey, O.L. ERYILMAZ, A. ERDEMIR, Argonne National Laboratory
8:20 am	**G5-2 Invited** Duplex Treatment for Forming Tools, **A. REITER**, Oerlikon Balzers, Germany
8:40 am	Invited talk continued.
9:00 am	**G5-4** Development of rf/dc Plasma Systems for Nitriding of Aluminum Alloys, **T. AIZAWA**, Y. SUGITA, Shibaura Institute of Technology, Japan
9:20 am	**G5-5** Adherent Nanocrystalline Diamond Thin Films Grown on Surface-Modified Ti and Ti Alloys at Moderate Temperatures, **Y.-S. LI**, University of Saskatchewan, Canada
9:40 am	**G5-6** Microstructure and Properties Thermally Sprayed and Laser Remelted of the Fe-Cr-Mo-W-Mn-C-B Coating, **A.I. IWANIAK**, G. MOSKAL, Silesian University of Technology, Poland
10:00 am	**G5-7 Invited** Alumina Coatings Obtained by Thermal Spraying and Plasma-Anodizing - a Comparison, **T. LAMPKE**, D. MEYER, G. ALISCH, D. NICKEL, I. SCHARF, Chemnitz University of Technology, Germany
10:20 am	Invited talk continued.
10:40 am	**G5-9** Repair of Thermal Damage in Gate Dielectric for Germanium-Based Metal-Oxide-Semiconductor Device by Supercritical Fluid Technology, **C.-S. HUANG**, P.-T. LIU, National Chiao Tung University, Taiwan
11:00 am	**G5-10** Improvements on the Cavitation Erosion Resistance of Austenitic Stainless Steels by Plasma Surface Alloying Processes with Carbon and Nitrogen Followed by PAPVD Cr-Al-N, **C. GODOY**, R. BORGES, Universidade Federal de Minas Gerais, Brazil, J.C. AVELAR-BATISTA WILSON, TECVAC Ltd., UK, R.G. MELO, Universidade Federal de Minas Gerais, Brazil
11:20 am	
11:40 am	
12:00 pm	**Thank You & Farewell Party** **Trellises Courtyard near Pool 12:30 – 1:30 pm** **AWARD DEADLINE October 1, 2011**

Thank You & Farewell Party
Trellises Courtyard near Pool 12:30 – 1:30 pm

AWARD DEADLINE October 1, 2011

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