



3rd Pan American Materials Congress

TECHNICAL PROGRAM

ORGANIZING SOCIETIES:



Colombian Materials Society



Pan American Materials Congress Plenary — Session I

Sponsored by: Third Pan American Materials Congress Organizing Committee

Program Organizer: Marc Meyers, UCSD

Tuesday AM
February 28, 2017

Room: Marina G
Location: Marriott Marquis Hotel

8:30 AM Introductory Comments

8:40 AM Plenary

Designing Infrastructure Materials for 100-plus Year Service Lives:

*Carolyn Hansson*¹; ¹University of Waterloo

9:20 AM Plenary

Production, Properties, and Applications of Titanium Dioxide Films:

*Carlos Schvezov*¹; ¹Institute of Materials of Misiones

10:00 AM Break

Pan American Materials Congress: Advanced Manufacturing — Materials Processing

Sponsored by: Third Pan American Materials Congress Organizing Committee

Program Organizers: Sonia Brühl, UTN - National University of Technology; Ricardo Castro, University of California, Davis; Dachamir Hotza, UFSC

Tuesday AM
February 28, 2017

Room: Marina D
Location: Marriott Marquis Hotel

Session Chair: To Be Announced

10:20 AM Invited

Carbon Based Coatings Deposited on Nitrided Stainless Steel: Study of Thermal Degradation:

*Sonia Brühl*¹; Eugenia Dalibon Bähler¹; Vladimir Trava-Airoldi²; Naureen Ghafoor³; Lina Rogström³; Magnus Oden³; ¹National University of Technology; ²Instituto Nacional de Pesquisas Espaciais (INPE); ³Linköping University

10:50 AM

Conceptual-Functional Model of Drilling Electrochemical Discharge Machining:

*Gerardo Hernandez*¹; Alejandra Hernandez¹; ¹COMIMSA

11:10 AM

Deep Drilling in Soda-lime Glass Using Air Jet Assisted Electrochemical Discharge Machining (ECDM):

*Rajendra Arya*¹; *Akshay Dvivedi*¹; Pradeep Kumar¹; ¹Indian Institute of Technology, Roorkee

11:30 AM

Mechanisms and Influence of In-situ Pre-heating during Friction Welding:

*Daniel Adams*¹; Jerry Gould²; Michael Skinner¹; Tom Budd¹; ¹Manufacturing Technology, Inc. (MTI); ²EWI

11:50 AM Invited

Microstructure-processing-property Relationships in Nanocrystalline Ceramics Produced Using Current-activated, Pressure-assisted Densification (CAPAD):

*Javier Garay*¹; ¹University of California San Diego

12:10 PM Invited

Sintering of Anisotropic Porous Microstructures:

*Eugene Olevsky*¹; Andrey Maximenko¹; Diletta Giuntini¹; Rajendra Bordia²; ¹San Diego State University; ²Clemson University

12:30 PM

Finite Element Modelling of Current-activated, Pressure-assisted Densification (CAPAD): The Role of Materials Properties and Geometry on Thermal Gradients:

*Meir Shachar*¹; Alexander Dupuy²; Yasuhiro Kodera²; Javier Garay¹; ¹University of California, San Diego; ²University of California, Riverside

Pan American Materials Congress: Materials for Green Energy — Materials for Green Energy

Sponsored by: Third Pan American Materials Congress Organizing Committee

Program Organizers: Ramalinga Viswanathan Mangalaraja, University of Concepcion; Hector Calderon, ESFM-IPN; Julie Schoenung, University of California, Irvine; Roberto Arce, SAM - Soc. Argentina de Materiales

Tuesday AM
February 28, 2017

Room: Marina G
Location: Marriott Marquis Hotel

Session Chair: Ramalinga Viswanathan Mangalaraja, University of Concepcion

10:20 AM

Defect Engineering for Strong Photocatalysis of TiO₂ Nanoparticles with Dopants: DFT Calculations and Experimental Verifications:

*Heechae Choi*¹; Sovann Khan²; So Hye Cho²; Taeseup Song³; ¹Virtual Lab Inc. ; ²KIST; ³Yeungnam University

10:40 AM

Emission and Photocatalytic Properties of Graphene:ZnO Hybrid Nanostructures:

*Pandiyarajan Thangaraj*¹; Mangalaraja Ramalinga Viswanathan¹; Udayabhaskar Rednam¹; Naveenraj Selvaraj¹; Karthikeyan Balasubramanian¹; Mansilla Héctor D.¹; David Contreras¹; M.A. Gracia Pinilla¹; ¹University of Concepcion

11:00 AM

Thermal and Electrical Conductivities of Mesoporous Nanofluids and Applications for Enzyme Catalysis:

*Shuang Qiao*¹; Ekaterina Novitskaya¹; Flor Sanchez²; Rafael Vazquez-Duhalt²; Olivia Graeve¹; ¹University of California, San Diego; ²Universidad Nacional Autonoma de Mexico

11:20 AM

Simulation of Bonded Magnet Performance for Renewable Energy Applications:

*H. Khazdozian*¹; H. Ucar²; C. Hatter²; M. Kramer¹; M. Paranthaman¹; I. Nlebedim¹; ¹Ames Laboratory; ²Oak Ridge National Laboratory

Pan American Materials Congress: Materials for Transportation and Lightweighting — Processing-Structure-Property Relationships I

Sponsored by: Third Pan American Materials Congress Organizing Committee

Program Organizers: Mary Wells, University of Waterloo; Rafael Colás, Universidad Autónoma de Nuevo León; Fernand Marquis, San Diego State University; Ramalinga Viswanathan Mangalaraja, University of Concepcion; Marta Lopez, University of Concepcion; Elvi Dalgaard, Pratt & Whitney Canada; Patricia Zambrano, Universidad Autonoma de Nuevo Leon

Tuesday AM
February 28, 2017

Room: Mission Hills
Location: Marriott Marquis Hotel

Session Chair: Patricia del Carmen Zambrano Robledo, Universidad Autónoma de Nuevo León/Investigación

10:20 AM

Mechanical and Microstructural Evaluation of New Superalloys, an Actual Review:

*Octavio Covarrubias*¹; ¹Exova

11:00 AM

Phase Transformations in Continuous Heating and Aging Heat Treatments in Ti-Nb-Fe Alloys:

Fernando da Costa¹; Mariana de Mello¹; Camilo Salvador¹; *Rubens Caram*¹; ¹University of Campinas

11:20 AM

Study of Phase Transformations and Decomposition of Martensite in FV535 High Cr Martensitic Steel:

*Lizangela Guerra*¹; Patricia Zambrano¹; Armando Salinas²; Edgar Garcia¹; ¹Universidad Autonoma de Nuevo Leon,

Facultad de Ingenieria Mecanica y Electrica; ²Centro de Investigacion y de Estudios Avanzados del IPN Unidad Saltillo

11:40 AM

Fatigue Behavior of Plasma Scribed HSLA Steels: *Jeffrey Rossin*¹; Michael Kesler¹; Edward George²; Steve Duke³; Michele Manuel¹; ¹University of Florida; ²E&S Consulting, Inc.; ³Florida Department of Transportation

12:00 PM

FeCrAl-steels as Candidates for Structural Material in CSP Systems with Lead-bismuth Eutectic as a Heat Transport Fluid: *Miroslav Popovic*¹; Alan Bolind¹; Peter Hosemann¹; ¹University of California, Berkeley

12:20 PM

Observations and Analyses of Tribochemical Reactions in Lightweight Boron Carbide (B4C) Impacted at High-Velocity: *Jerry LaSalvia*¹; Scott Walck¹; Kristopher Behler¹; Brady Aydelotte¹; Brian Schuster¹; ¹U.S. Army Research Laboratory

Pan American Materials Congress: Nanocrystalline and Ultra-fine Grain Materials and Bulk Metallic Glasses — SPD Processing, Mechanical Properties of Nanocrystalline Materials, BMG

*Sponsored by:*Third Pan American Materials Congress Organizing Committee

Program Organizers: Terence Langdon, University of Southern California; Megumi Kawasaki, Hanyang University; Roberto Figueiredo, Federal University of Minas Gerais; Jose-Maria Cabrera, Universidad Politecnica de Catalunya

Tuesday AM
February 28, 2017

Room: Marina F
Location: Marriott Marquis Hotel

Session Chairs: Terence Langdon, University of Southern California; Hans Roven, Norwegian University of Science and Technology

10:20 AM

A Novel Method for SPD – Continuous Metal Screw Extrusion (CMSE): *Hans Roven*¹; Kristian Skorpen¹; Oddvin Reiso²; ¹Norwegian University of Science and Technology; ²Hydro Aluminium

10:40 AM

Rate Sensitivity and Deformation Mechanisms of Ultrafine-Grained Single Phase and Composite Metals: *Daniel Kiener*¹; Alexander Leitner¹; Verena Maier-Kiener¹; ¹University of Leoben

11:00 AM

Comparisons of Mechanical Property Development during HPT Processing and Subsequent Room Temperature Storage in High Purity Cu and a Pb-62%Sn Alloy: *Yi Huang*¹; Shima Sabbaghianrad²; Abdulla Almazroue³; Khaled Al-Fadhalah⁴; Saleh Alhajeri³; Nian Xian Zhang¹; Terence Langdon¹; ¹University of Southampton; ²University of Southern California; ³P.A.A.E.T.; ⁴Kuwait University

11:20 AM

Micro-scale Mechanical Response of Ultrafine-grained Materials Processed by High-pressure Torsion: *Megumi Kawasaki*¹; Jae-il Jang¹; Byungmin Ahn²; Terence Langdon³; ¹Hanyang University; ²Ajou University; ³University of Southern California

11:40 AM

History-independent Fatigue Response of Polycrystalline Cu with Highly Oriented Nanoscale Twins: *Qingsong Pan*¹; Haofei Zhou²; Qihong Lu¹; Huajian Gao²; *Lei Lu*¹; ¹Institute of Metal Research, CAS; ²Brown University

12:00 PM

On the Strength Effects in Hydrogenated Palladium Subjected to HPT Processing: *Daria Setman*¹; Wolfgang Rössl¹; Andreas Grill¹; Erhard Schafner¹; Wolfgang Sprengel²; Yuzeng Chen³; Michael Zehetbauer¹; ¹University Vienna; ²TU Graz; ³Northwestern Polytechnical University, State Key Lab of Solidification Processing, Republic of China

Pan American Materials Congress: Steels — Properties and Performance

*Sponsored by:*Third Pan American Materials Congress Organizing Committee

Program Organizers: Omar Garcia-Rincon, TERNIUM Mexico SA de CV; Andre Costa E Silva, EEIMVR - Universidade Federal Fluminense

Tuesday AM
February 28, 2017

Room: Marina E
Location: Marriott Marquis Hotel

Session Chair: Kester Clarke, Colorado School of Mines

10:20 AM Invited

Developing Sustainable Pipeline Steels: *Hani Henein*¹; ¹University of Alberta

10:50 AM

The Effect of Particle Speed and Impact Angle on the Erosion of Newly Developed API X120 Pipeline Steel: *Paul Okonkwo*¹; R. Shakoor¹; A.M Mohamed²; ¹Qatar University; ²Department of Metallurgical and Materials Engineering, Faculty of Petroleum and Mining Engineering, Suez University

11:10 AM

The Development of NbC Reinforced Martensitic Stainless Steel Composites for High Wear and Corrosive Environments: *Wen Hao Kan*¹; Qaiser Ihsan Gondal¹; Xin Zhou¹; Jiahui Li¹; Zi Jie Ye¹; Yue Zhu¹; *Vijay Bhatia*¹; Kevin Dolman²; Timothy Lucey²; Xinhua Tang²; Chang Li¹; Gwénaëlle Proust¹; Julie Cairney¹; ¹The University of Sydney; ²Weir Minerals Australia

11:30 AM

Hot-stamping Response of Laser Welds in Low-carbon Steels: *Martha Guerrero-Mata*¹; Michael Andreassen²; S Liu³; O Garcia⁴; J. Speer³; ¹Universidad Autonoma de Nuevo Leon; ²Technical University of Denmark; ³Colorado School of Mines; ⁴Ternium Mexico

11:50 AM

The Influence of Hydrogen on Tensile Properties of TRIP-aided Bainitic Ferrite Steels with Carbon/Manganese Variations: *Andrea Bollinger*¹; John Speer¹; Kip Findley¹; Emmanuel De Moor¹; Toshio Murakami²; ¹Colorado School of Mines; ²Kobe Steel LTD

Pan American Materials Congress Plenary — Session II

*Sponsored by:*Third Pan American Materials Congress Organizing Committee

Program Organizer: Marc Meyers, UCSD

Tuesday PM
February 28, 2017

Room: Marina G
Location: Marriott Marquis Hotel

2:00 PM Plenary

Circular Economy- A Pathway to Resource Recovery and Recycling: *Diran Apelian*¹; ¹Worcester Polytechnic Institute

2:40 PM Plenary

Nano-sized Internal Precipitation during Oxidation of an Fe-Cr Alloy in Wet Environment: *Fernando Rizzo*¹; Leonardo Agudo²; Gert Nolze²; Maria Mosqueda²; Axel Kranzmann²; Andre Costa e Silva³; ¹INT/MCTI, Brazil; ²BAM; ³UFF

3:20 PM Break

Pan American Materials Congress: Advanced Manufacturing — Metals and Alloys

Sponsored by: Third Pan American Materials Congress Organizing Committee

Program Organizers: Sonia Brühl, UTN - National University of Technology; Ricardo Castro, University of California, Davis; Dachamir Hotza, UFSC

Tuesday PM
February 28, 2017

Room: Marina D
Location: Marriott Marquis Hotel

Session Chair: Sonia Brühl, UTN

3:40 PM Keynote

Overview - The Use of Plasma Nitriding for Surface Hardening Stainless Steels: Carlos Pinedo¹; Andre Tschiptschin²; ¹TMS; ²University of Sao Paulo

4:20 PM

Combining CALPHAD-informed Phase-field Modeling with Rapid Solidification Experiments for Prediction of Microstructure Evolution during Laser-based Additive Manufacturing: Aurelien Perron¹; John Roehling¹; Patrice Turchi¹; Jean-Luc Fattebert¹; Joseph McKeown¹; ¹Lawrence Livermore National Laboratory

4:40 PM

Tailoring the Mechanical Properties of Additively Manufactured Ti-6Al-4V Alloys by Post Processing: Guney Mert Bilgin¹; Ziya Esen²; Seniz Kushan Akin²; Arcan Dericioglu¹; ¹Middle East Technical University; ²Cankaya University

5:00 PM

Effect of Tool Rotation on Tool Wear Phenomenon in Rotary Tool micro-USB: Sandeep Kumar¹; Akshay Dvivedi¹; Pradeep Kumar¹; ¹Indian Institute of Technology, Roorkee

5:20 PM

Green Machining Process: Near-dry Electric Discharge Machining: Krishnakant Dhakar¹; Kuldeep Chaudhary¹; Akshay Dvivedi¹; Pradeep Kumar¹; ¹Indian Institute of Technology Roorkee

Pan American Materials Congress: Materials for Green Energy — Environmental Assessment of Green Energy

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Tuesday PM
February 28, 2017

Room: Marina G
Location: Marriott Marquis Hotel

Session Chair: Julie Schoenung, University of California, Irvine

3:40 PM

A Comparison between Recycled Spent Zeolite and Calcite Limestone for Manganese Removal: Adarlene Silva¹; Rodrigo Figueiredo¹; Versiane Leao¹; ¹Universidade Federal de Ouro Preto

4:00 PM

Environmental Impact of the Synthesis of Calcium Silicates (C2S AND C3S) by Combustion Processes: Juan Restrepo¹; Oscar Restrepo¹; Jorge Tobón¹; ¹Universidad Nacional de Colombia

4:20 PM

Environmentally Responsible Polymer Selection for Organic Photovoltaic Solar Cells: Haoyang He¹; Yadira Gutierrez²; Thomas Young²; Julie Schoenung¹; ¹University of California Irvine; ²University of California, Davis

4:40 PM

Electromagnetic Levitation Refining Of Silicon-iron Alloys for Generation of Solar Grade Silicon: Yindong Yang¹; Katherine Le¹; Mansoor Barati¹; Alex McLean¹; ¹University of Toronto

5:00 PM

Novel Metrics for Assessing Criticality of Byproduct Metals: Gabrielle Gaustad¹; Michele Bustamante²; Berlyn Hubler¹; Callie Babbitt¹; Alexandra Leader¹; ¹Rochester Institute of Technology; ²MIT

5:20 PM

Technical and Environmental Assessment of an Alternative Binder for Low Traffic Roads with LCA Methodology: Alejandra Balaguera Quintero¹; Diana Gómez Cano¹; Gloria Carvajal Peláez¹; Yhan Arias²; ¹Universidad de Medellín; ²Universidad Nacional de Colombia

Pan American Materials Congress: Materials for Transportation and Lightweighting — Structure-Property Relationships II

Sponsored by: Third Pan American Materials Congress Organizing Committee

Program Organizers: Mary Wells, University of Waterloo; Rafael Colás, Universidad Autónoma de Nuevo León; Fernand Marquis, San Diego State University; Ramalinga Viswanathan Mangalaraja, University of Concepcion; Marta Lopez, University of Concepcion; Elvi Dalgaard, Pratt & Whitney Canada; Patricia Zambrano, Universidad Autonoma de Nuevo Leon

Tuesday PM
February 28, 2017

Room: Mission Hills
Location: Marriott Marquis Hotel

Session Chair: To Be Announced

3:40 PM

Cyclic Deformation Characteristics of AM30 Mg Alloy Extrusion along Two Orthogonal Directions: Ali A. Roostaei¹; Hamid Jahed¹; ¹University of Waterloo

4:00 PM

Understanding of Twin-twin Junctions in Connection with the Local Stresses in HCP Magnesium: M. Arul Kumar¹; Irene J Beyerlein¹; Carlos Tome¹; ¹Los Alamos National Laboratory

4:20 PM

Effect of Forging on Microstructure, Texture and Compression Behaviour of Extruded AZ31B: Dwayne Toscano¹; Sugrib Shaha¹; Hamid Jahed¹; Mary Wells¹; Bruce Williams²; Jonathan McKinley²; ¹University of Waterloo; ²CanmetMATERIALS

4:40 PM

Effects of Hypoeutectic Sc Additions to Al-4.5 wt% Cu under Different Cooling Rates: Abdoul-Aziz Bogno¹; Jonas Vallotton¹; Hani Henein¹; Mark Gallerneault²; Dieter Herlach³; ¹University of Alberta; ²ALCERECO INC.; ³DLR, Institute of Materials Physics in Space

5:00 PM

Microstructure and Hardness of Subzero Quenched and Heat Treated Ti-6Al-4V Alloy: Abdelrahman Abbas¹; Andrew Seif¹; Iman El Mahallawi²; Waleed Khalefa²; ¹British University in Egypt; ²Cairo University

Pan American Materials Congress: Nanocrystalline and Ultra-fine Grain Materials and Bulk Metallic Glasses — Mechanical Properties of Structural Materials Processed by SPD

Sponsored by: Third Pan American Materials Congress Organizing Committee

Program Organizers: Terence Langdon, University of Southern California; Megumi Kawasaki, Hanyang University; Roberto Figueiredo, Federal University of Minas Gerais; Jose-Maria Cabrera, Universidad Politecnica de Catalunya

Tuesday PM
February 28, 2017

Room: Marina F
Location: Marriott Marquis Hotel

Session Chairs: Megumi Kawasaki, Hanyang University; Malgorzata Lewandowska, Warsaw University of Technology

3:40 PM

Effects on Hardness and Microstructure of AISI 1020 Low Carbon Steel Subjected to High-Pressure Torsion Process: Diana Marulanda¹; *Hernando Jimenez*¹; Jitraporn Wonsa-Ngam²; Terence Langdon³; ¹Universidad Antonio Nariño; ²King Mongkut's Institute of Technology Ladkrabang; ³University of Southampton

4:00 PM

Static and Cyclic Mechanical Properties of High Strength Pearlitic Steels: *Marlene Kapp*¹; Anton Hohenwarter²; Bo Yang¹; Reinhard Pippan¹; ¹Erich Schmid Institute of Materials Science; ²Montanuniversität Leoben

4:20 PM

The Influence of Testing Temperature on the Fracture Behavior of SPD-processed Iron and Tantalum: *Anton Hohenwarter*¹; ¹Department of Materials Physics, Montanuniversität Leoben, Austria

4:40 PM

Precipitation Processes and Related Strengthening Mechanisms in a Nanostructured 6082 Aluminium Alloy: *Malgorzata Lewandowska*¹; Witold Chrominski¹; ¹Warsaw University of Technology

5:00 PM

Strengthening Contributions on a Commercially Al-Mg-Si Alloy Processed by ECAP: Tarek Khelfa¹; Mohamed Ali Reki¹; Jairo-Alberto Muñoz-Bolaños²; Mohamed Khitouni¹; *Jose-Maria Cabrera*²; ¹University of Sfax; ²Universidad Politecnica de Catalunya

5:20 PM

Effect of Grain Size on Strain Rate Dependence of Mechanical Properties in CP Ti: *Ying Chun Wang*¹; Alexander Zhilyaev²; Shukui Li¹; Terence Langdon³; ¹School of Materials Science and Engineering, Beijing Institute of Technology; National Key Laboratory of Science and Technology on Materials under Shock and Impact; ²Institute for Problems of Metals Superplasticity, Russian Academy of Sciences; Research Laboratory for Mechanics of New Nanomaterials, St. Petersburg State Polytechnical University; ³Materials Research Group, Faculty of Engineering and the Environment, University of Southampton

Pan American Materials Congress: Steels — Steelmaking & Solidification

Sponsored by: Third Pan American Materials Congress Organizing Committee

Program Organizers: Omar Garcia-Rincon, TERNIUM Mexico SA de CV; Andre Costa E Silva, EEIMVR - Universidade Federal Fluminense

Tuesday PM
February 28, 2017

Room: Marina E
Location: Marriott Marquis Hotel

Session Chair: Martha Guerrero-Mata, Universidad Autonoma de Nuevo Leon

3:40 PM Invited

Jansto: New Generation Niobium Bearing Structural Steels for Future Infrastructure Demands: *Steven Jansto*¹; ¹CBMM-North America, Inc.

4:10 PM

Controlling Mold Heat Transfer by Dispersed Metallic Particles in Slag Film during Continuous Casting of Steels: *Jungwook Cho*¹; ¹Pohang University of Science and Technology

4:30 PM

Modeling of Metal-Slag Mass and Momentum Exchanges in Gas-Stirred Ladles: Marco Ramirez-Argáez¹; *Carlos González-Rivera*¹; ¹UNAM

4:50 PM

Dissolution of MgO Containing Additions in Steelmaking Slag and Its Impact on the Formation of Magnesiowustite: Antonio Augusto Martins¹; Rafaela Batista¹; Roberto Avillez²; *Andre Costa E Silva*³; ¹CSN; ²PUC-RIO; ³EEIMVR

5:10 PM

Study on Adjustment and Optimization of LF Refining Slag of Spring Steel 55SiCrA: Chao Gu¹; *Yanping Bao*¹; Lu Lin¹; Min Wang¹; Lihua Zhao¹; Zixuan Wu¹; ¹University of Science and Technology Beijing

5:30 PM

The Effect of Deoxidation Practice on Quality Characteristics of Converter Refined AISI 1006 Steel: Antonio Augusto Martins¹; Rafaela Batista¹; *Andre Costa E Silva*²; ¹CSN; ²EEIMVR - Universidade Federal Fluminense

Pan American Materials Congress Plenary — Session III

Sponsored by: Third Pan American Materials Congress Organizing Committee

Program Organizer: Marc Meyers, UCSD

Wednesday AM
March 1, 2017

Room: Marina G
Location: Marriott Marquis Hotel

8:30 AM Plenary

Recent Progress in High Entropy Alloy Research: Zhiqiang Fu¹; Benjamin MacDonald¹; Baolong Zheng¹; Weiping Chen²; Yaojun Lin³; Fei Chen³; Lian Zhang³; Yulia Ivanisenko⁴; Yizhang Zhou¹; Horst Hahn³; *Enrique J. Lavernia*⁶; ¹University of California, Irvine; ²South China University of Technology; ³Wuhan University of Technology; ⁴Karlsruhe Institut of Technology; ⁵Karlsruhe Institute of Technology; ⁶University of California Davis

9:10 AM Plenary

High Temperature Solutions through Materials and Processes for Engines under Heavy Thermal Fatigue Conditions: *Salvador Valtierra*¹; ¹Nemak

9:50 AM Break

Pan American Materials Congress: Advanced Biomaterials — Bioinspired, Drug Delivery and Biomimetic Materials

Sponsored by: Third Pan American Materials Congress Organizing Committee

Program Organizers: Carlos Elias, Instituto Militar de Engenharia; Wen Yang, Swiss Federal Institute of Technology in Zurich (ETHZ)

Wednesday AM
March 1, 2017

Room: Mission Hills
Location: Marriott Marquis Hotel

Session Chairs: Wen Yang, Swiss Federal Institute of Technology in Zurich (ETHZ); Po-Yu Chen, National Tsing Hua University

10:10 AM Invited

Bioinspired Phase Transforming Cellular Materials: *Pablo Zavattieri*¹; David Restrepo¹; Yunlan Zhang¹; Nilesh Mankame²; ¹Purdue University; ²General Motors Research & Development

10:40 AM

An Approach to Study Materials-structure Relationships in Bio-inspired Microstructures: Alejandro Gutierrez¹; Lilian Davila¹; ¹University of California, Merced

11:00 AM

Heparin-based Self-assemblies for Controllable Drug Delivery Application: *Lin Ye*¹; ¹Beijing Institute of Technology

11:20 AM

Synthesis and Characterization of Bioinspired Freeze-Cast Alumina With A Zr-Based Bulk Metallic Glass Matrix: *Amy Wat*¹; Jein Lee²; Bernd Gludovatz²; Eun Soo Park²; Robert Ritchie¹; ¹University of California, Berkeley; ²Seoul National University; ³Lawrence Berkeley National Laboratory

11:40 AM

Analysis of Biomimetic Surgical Clip Using Finite Element Modeling for Geometry Improvement and Biomaterials Selection: Thays Brito¹; Bianca dos Santos¹; Leonardo Araújo¹; Luiz de Almeida¹; Marysílvia da Costa¹; ¹Universidade Federal do Rio de Janeiro

12:00 PM Invited

Multiscale Bio-inspired Design of Nanocomposites: *Horacio Espinosa*¹; ¹Northwestern University

12:20 PM

Pangolin Armor: Overlapping, Structure, and Mechanical Properties of the Keratinous Scales: *Wen Yang*¹; Bin Wang²; Vincent Sherman²; Marc Meyers²; ¹Swiss Federal Institute of Technology in Zurich (ETHZ); ²University of California, San Diego

12:40 PM

On the Strain Rate Sensitivity of Keratin Hair Fibers: *Yang Yu*¹; Wen Yang¹; Marc Meyers¹; ¹University of California, San Diego

Pan American Materials Congress: Advanced Manufacturing — Polymer, Composites, and Metals

Sponsored by: Third Pan American Materials Congress Organizing Committee

Program Organizers: Sonia Brühl, UTN - National University of Technology; Ricardo Castro, University of California, Davis; Dachamir Hotza, UFSC

Wednesday AM
March 1, 2017

Room: Marina D
Location: Marriott Marquis Hotel

Session Chair: To Be Announced

10:10 AM

Comparative Mechanical Analysis between Epoxy Composite Reinforced with Random Short Curaua Fibers and Aligned Long Curaua Fibers: *Natália Maciel*¹; Carolina Ribeiro¹; Jordana Ferreira¹; Janaina Vieira¹;

Frederico Margem¹; Carlos Mauricio Vieira¹; Sérgio Monteiro¹; ¹UENF

10:30 AM

Damage Evaluation of Impact by Low-speed on Fiberglass Composite with Laminates Aluminum 2024-T3: *Eduardo Jose Trujillo*¹; ¹Centro de Ingeniería y Desarrollo Industrial

10:50 AM

Numerical Modeling of High-Velocity Impact Welding: *Ali Nassiri*¹; Shunyi Zhang²; Tim Abke³; Brad Kinsey²; Glenn Daehn¹; ¹The Ohio State University; ²University of New Hampshire; ³Honda R&D, North America

11:10 AM

Reducing Radiation Exposure to the Rectum during Prostate Cancer Radiation Therapy using NiTi Shape Memory Alloy: *Hossein Lavvafi*¹; Ayush Tiwari²; Ahmadreza Jahadakar²; Mahbod Pourriahi²; Mohammad Elahinia²; Vijaya Devabhaktuni²; E. Ishmael Parsai³; ¹University of Toledo Medical Center; ²University of Toledo; ³University of Toledo Medical Center

11:30 AM Invited

Selective Laser Sintering of Polyamide/Hydroxyapatite Scaffolds: Frederic Dabbas¹; Steferson Stares¹; Jose Mascheroni²; *Dachamir Hotza*¹; Gean Salmoria¹; ¹UFSC; ²Alkimat

Pan American Materials Congress: Materials for Green Energy — Battery Technologies for Green Energy

Sponsored by: Third Pan American Materials Congress Organizing Committee

Program Organizers: Ramalinga Viswanathan Mangalaraja, University of Concepcion; Hector Calderon, ESFM-IPN; Julie Schoenung, University of California, Irvine; Roberto Arce, SAM - Soc. Argentina de Materiales

Wednesday AM
March 1, 2017

Room: Marina G
Location: Marriott Marquis Hotel

Session Chair: Hector Calderon, ESFM-IPN

10:10 AM

A Novel Air Electrode Using Core-Shell Particles for Metal Hydride/Air Rechargeable Battery: *Hideyuki Sano*¹; Masatsugu Morimitsu¹; ¹Doshisha University

10:30 AM

Effect of Mo6+ Substitution on Microstructure and Lithium Ionic Conductivity of Garnet-Type Li7La3Zr2O12 Solid Electrolytes by Field Assisted Sintering Technology: *Fei Chen*¹; Junyang Li¹; Yanhua Zhang¹; Dunjie Yang¹; Qiang Shen¹; Lianmeng Zhang¹; ¹Wuhan University of Technology

10:50 AM

Development of Air Electrodes Using Different Types of Carbon Materials for Metal Hydride/Air Secondary Battery: *Yusuke Ujino*¹; Masatsugu Morimitsu¹; ¹Doshisha University

11:10 AM

Study of the Influence on the Thermodynamic Properties of Replacing V by Zr in Alloys for Hydrogen Storage: *Daniela Bellon Monsalve*¹; ¹Universidad de Santander

11:30 AM

Cycle Performance of Air Electrode and Metal Hydride/Air Secondary Battery: *Tsukasa Gejo*¹; *Kenji Kawaguchi*¹; Masatsugu Morimitsu¹; ¹Doshisha University

Pan American Materials Congress: Nanocrystalline and Ultra-fine Grain Materials and Bulk Metallic Glasses — Microstructure Evolution

Sponsored by: Third Pan American Materials Congress Organizing Committee

Program Organizers: Terence Langdon, University of Southern California; Megumi Kawasaki, Hanyang University; Roberto Figueiredo, Federal University of Minas Gerais; Jose-Maria Cabrera, Universidad Politecnica de Catalunya

Wednesday AM
March 1, 2017

Room: Marina F
Location: Marriott Marquis Hotel

Session Chairs: Shima Sabbaghianrad, University of Southern California; Laszlo Toth, Université de Lorraine

10:10 AM

Quantitative Modeling of Grain Fragmentation during Severe Plastic Deformation Featuring Grain Size Distribution, Texture, Strain Hardening, and Disorientation Distribution: *Laszlo Toth*¹; ¹Université de Lorraine

10:30 AM

Continuous Dynamic Recovery in Pure Aluminum Deformed to High Strain by Accumulative Press Bonding: *Sajjad Amirkhanlou*¹; Mostafa Ketabchi²; Nader Parvin³; Fernando Carreño⁴; ¹Brunel University London; ²Amirkabir University of Technology; ³Amirkabir University of Technology; ⁴CENIM-CSIC

10:50 AM

Static Recrystallization and Grain Growth of Accumulative Roll Bonded Aluminium Laminates: *Laura Lienschoeff*¹; Paul Chekhonin¹; Juliane Scharnweber¹; Tom Marr²; Tina Hausöl³; Heinz Werner Hoeppe³; *Werner Skrotzki*¹; ¹TU Dresden; ²IFW Dresden; ³Universität Erlangen-Nürnberg

11:10 AM

Evaluation of the Hardening and Softening Effects in Zn-21Al-2Cu with As Cast and Homogenized Microstructure Processed by Equal Channel Angular Pressing: *Esperanza Elizabeth Martinez Flores*¹; *Jose Luis Hernandez Rivera*¹; *Jorge Garcia Rocha*¹; *Jose de Jesus Cruz Rivera*¹; *Gabriel Torres Villaseñor*²; ¹Instituto de Metalurgia-Universidad Autonoma de San Luis Potosi; ²Instituto de Investigaciones en Materiales-Universidad Nacional Autonoma de México

11:30 AM

Microstructure Evolution of Ti-6Al-7Nb with Different Initial Microstructures Processed by High-Pressure Torsion: *Jorge Cubero-Sesin*¹; *Joaquin González-Hernández*¹; *Elena Ulate-Kolitsky*¹; *Stephen Petretti*¹; *Luis Rojas-Morales*¹; *José Vega-Baudrit*²; *Zenji Horita*³; ¹Instituto Tecnológico de Costa Rica; ²Laboratorio Nacional de Nanotecnología (LANOTEC-CeNAT); ³Kyushu University / I2CNER

11:50 AM

Limit of Grain Refinement after Processing by a Combination of Severe Plastic Deformation Techniques: *Shima Sabbaghianrad*¹; *Seyed Alireza Torbati-Sarraf*¹; *Terence Langdon*¹; ¹University of Southern California

12:10 PM

Influence of SPD in Phase Transformation of Duplex Steels: *Núria Llorca-Isern*¹; *Isabel Lopez*¹; *Jose Maria Cabrera*²; *Mohan Chand*²; *Irene Calliari*³; *Antoni Roca*¹; ¹Universitat de Barcelona; ²Universitat Politècnica de Catalunya; ³Universita degli Studi di Padova

Pan American Materials Congress: Steels — Thermomechanical Processing and Properties

Sponsored by: Third Pan American Materials Congress Organizing Committee

Program Organizers: Omar Garcia-Rincon, TERNIUM Mexico SA de CV; Andre Costa E Silva, EEIMVR - Universidade Federal Fluminense

Wednesday AM
March 1, 2017

Room: Marina E
Location: Marriott Marquis Hotel

Session Chair: To Be Announced

10:10 AM Invited

New Challenges in Thermomechanical Processing: Applications in the Cold Mill: *Yu Gong*¹; *M. Hua*¹; *J. Uusitalo*²; *Anthony DeArdo*¹; ¹University of Pittsburgh; ²University of Oulu

10:40 AM

Microstructural Evolution in Microalloyed Steels during Thermomechanical Rod Rolling: *Lijia Zhao*¹; *Robert Cryderman*¹; *John Speer*¹; ¹Colorado School of Mines

11:00 AM

Modeling Precipitation and Dissolution of Microalloying Carbonitrides in Steels Using Computational Thermodynamics-techniques, Possibilities and Present Challenges: *Andre Costa E Silva*¹; ¹EEIMVR - Universidade Federal Fluminense

11:20 AM

Evolution of Austenite Dislocation Density during Hot Deformation using a Physical Dynamic Recrystallization Model: *Peng Zhou*¹; *Qingxian Ma*¹; ¹Tsinghua University

11:40 AM

The Research on the Relationship between Gas Movement Behaviors and Circulating Flow of the Molten Steel in RH: *Jialiang Xu*¹; *Yanping Bao*¹; *Lihua Zhao*¹; *Min Wang*¹; *Lu Lin*¹; *Yadi Li*¹; *Xingle Fan*¹; ¹University of Science and Technology Beijing

12:00 PM

Influence of a Rapid Heating on the Microstructure and Properties of Press-hardening Steel Sheets: *Anatolii Andreiev*¹; *Mirko Schaper*¹; *Olexandr Grydin*¹; ¹Paderborn University

Pan American Materials Congress Plenary — Session IV

Sponsored by: Third Pan American Materials Congress Organizing Committee

Program Organizer: Marc Meyers, UCSD

Wednesday PM
March 1, 2017

Room: Marina G
Location: Marriott Marquis Hotel

2:00 PM Plenary

What Do Snakes Have to Say About Tribology? Biomimetics Applied to Friction and Wear Studies: *Alejandro Toro*¹; ¹National University of Colombia

2:40 PM Plenary

Toward a Federation of American Materials Societies: The European Experience: *Pedro D. Portella*¹; ¹Federal Institute of Testing and Materials BAM

3:20 PM Break

Pan American Materials Congress: Advanced Biomaterials — Scaffolds and Nanobiomaterials

Sponsored by: Third Pan American Materials Congress Organizing Committee

Program Organizers: Carlos Elias, Instituto Militar de Engenharia; Wen Yang, Swiss Federal Institute of Technology in Zurich (ETHZ)

Wednesday PM
March 1, 2017

Room: Mission Hills
Location: Marriott Marquis Hotel

Session Chairs: Carlos Schvezov, Instituto de Materiales de Misiones - IMAM; Horacio Espinosa, Northwestern University

3:40 PM Invited

Synthesis of Fish Scale Extracted Hydroxyapatite and Chitosan Composite Scaffolds by Freeze Casting for Biomedical and Environmental Applications: Wen-Kuang Liu¹; Bor-Shuang Liaw¹; Haw-Kai Chang¹; *Po-Yu Chen*¹; ¹National Tsing Hua University

4:10 PM

Chemical Composition Effect of Sol-gel Derived Bioactive Glass Over Bioactivity Behavior: *Lindsey Quintero*¹; Diana Escobar¹; ¹Universidad de Antioquia

4:30 PM

Injectability Evaluation of Bone-graft Substitutes Based on Carrageenan and Hydroxyapatite Nanorods: *Jazmin González Ocampo*¹; Claudia Ossa Orozco¹; ¹University of Antioquia

4:50 PM

Comparative Analysis of Neural Cell Behaviour on Carbon Nanofiller Reinforced Polymeric Substrates: *Pallavi Gupta*¹; Murali Kumaraswamy¹; Partha Roy¹; Debrupa Lahiri¹; ¹IIT Roorkee

5:10 PM

Comparative Spectroscopic Studies on the Interaction of Nickel Selenide Quantum Dots with Serum Albumins: *Selvaraj Naveenraj*¹; Ramalinga Mangalaraja¹; Thangaraj Pandiyarajan¹; Sambandam Anandan²; ¹University of Concepcion; ²National Institute of Technology Trichy

Pan American Materials Congress: Materials for Infrastructure — Session I

Sponsored by: Third Pan American Materials Congress Organizing Committee

Program Organizers: Henry Colorado, Universidad de Antioquia; Oliverio Rodriguez, Centro de Investigacion en Química Aplicada

Wednesday PM
March 1, 2017

Room: Pacific 21
Location: Marriott Marquis Hotel

Session Chair: Oliverio Rodriguez, Centro de Investigacion en Química Aplicada

3:40 PM Invited

Porous Asphalt Mixtures With 100% Siderurgic Aggregates: *Marta Skaf*¹; Vanesa Ortega-López¹; Angel Aragón¹; José San-José²; Javier González²; ¹University of Burgos; ²UPV/EHU

4:10 PM

Physical and Mechanical Properties of Bricks with Added Industrial Waste: *Alejandro Martinez*¹; ¹Universidad de Santander

4:30 PM

Portland Cement Paste Blended With Pulverized Coconut Fibers: *Yailuth Loaiza Lopera*¹; Henry Colorado Lopera¹; ¹Universidad de Antioquia

4:50 PM

Fiber Reinforced Concrete Manufactured with Electric Arc Furnace Slag: *Vanesa Ortega-López*¹; José Fuente-Alonso¹; Amaia Santamaria²; Marta Skaf¹; Juan Manso¹; ¹University of Burgos; ²UPV/EHU

5:10 PM

Performance of Hydraulic Mixes Manufactured with Electric Arc Furnace Slag Aggregates: *Amaia Santamaria*¹; Vanesa Ortega-Lopez²; Marta Skaf²; Ignacio Marcos¹; José-Tomás San José¹; Javier González¹; ¹University of Basque Country; ²University of Burgos

Pan American Materials Congress: Materials for Oil and Gas Industry — Next Generation of Metallic and Non-metallic Materials Design, Manufacture and Processing

Sponsored by: Third Pan American Materials Congress Organizing Committee

Program Organizers: Lorenzo Martinez Gomez, Instituto de Ciencias Fisicas UNAM; Adriana Rocha, Federal University of Rio de Janeiro

Wednesday PM
March 1, 2017

Room: Marina G
Location: Marriott Marquis Hotel

Session Chairs: Lorenzo Martinez Gomez, UNAM; Adriana Rocha, UFRJ

3:40 PM Introductory Comments Invited 1

3:45 PM

Design and Thermo-mechanical Processing of Steel Grade APIX70 PSL2 for Use in Line-pipe at Oil&Gas Industry: *Adriana Berlanga*¹; ¹Ternium

4:05 PM

Materials for Facilities Liquefied Petroleum Gas as NFPA: *Diego Venegas*¹; ¹Universidad de Concepción

4:25 PM

Dynamic Transformation and Retransformation during the Simulated Plate Rolling of an X70 Pipeline Steel: *Samuel Rodrigues*¹; Clodualdo Aranas Jr.²; Fulvio Siciliano³; John Jonas²; ¹McGill University and Federal Institute of Education, Science and Technology of Maranhão-IFMA; ²McGill University; ³Dynamic Systems Inc.

4:45 PM

High Temperature In-Situ X-ray Analysis of a Lean Duplex Stainless Steel: *Adriana Rocha*¹; Andrea Pedroza¹; Gabriela Pereira¹; ¹LNDC/COPPE/UFRJ

Pan American Materials Congress: Materials for Transportation and Lightweighting — Aluminum Processing

Sponsored by: Third Pan American Materials Congress Organizing Committee

Program Organizers: Mary Wells, University of Waterloo; Rafael Colás, Universidad Autónoma de Nuevo León; Fernand Marquis, San Diego State University; Ramalinga Viswanathan Mangalaraja, University of Concepcion; Marta Lopez, University of Concepcion; Elvi Dalgaard, Pratt & Whitney Canada; Patricia Zambrano, Universidad Autonoma de Nuevo Leon

Wednesday PM
March 1, 2017

Room: Marina D
Location: Marriott Marquis Hotel

Session Chair: Mary Wells, University of Waterloo

3:40 PM Introductory Comments

3:45 PM

The Role of Light Weight Materials in Energy Efficiency in the Transportation Industry: *Fernand Marquis*¹; ¹San Diego State University

4:05 PM

Current Lightweight Design Trends in Mobile IT Products: *Mesut Varlioglu*¹; Chalam Kashyap¹; Jack Hui He¹; ¹HP Inc.

4:25 PM

Effect of the Thermal Processing History on the Age Hardening Behaviour of 7000 Series Aluminum Alloys: *Atekeh Abolhasani*¹; Tirdad Niknejad¹; Kaab Omer¹; Shahrzad Esmaili¹; Mary Wells¹; Michael Worswick¹; ¹University of Waterloo

4:45 PM

Microstructures, Precipitation Sequence, and Hardening of Al-Mg-Zn Alloys with High Mg:Zn Ratio: *Yangyang Fan*¹; Diran Apelian¹; ¹Worcester Polytechnic Institute

5:05 PM

Metallurgical Bond Formation During Multimaterial Metal Casting: *Carl Soderhjelm*¹; Diran Apelian¹; ¹Worcester Polytechnic Institute

5:25 PM

Synthesis of Energetic Composites in Ti-Al-B-C System by Adiabatic Explosive Compaction: *Mikheil Chikhradze*¹; Fernand Marquis²; ¹G.Tsulukidze Mining Institute/ F.Tavadze Institute of Metallurgy and Materials Science/Georgian Technical University; ²San Diego State University

Pan American Materials Congress: Minerals Extraction and Processing — Waste Treatment and Processing

Sponsored by: Third Pan American Materials Congress Organizing Committee

Program Organizers: Mery Gómez Marroquín, Asociación Peruana de Metalurgia Materiales y Minerales-APMMM; Mark Schlesinger, Missouri University of Science and Technology; Alejandro Valdivieso, U.A. of San Luis Potosi; Carlos Sampaio, UFRGS

Wednesday PM
March 1, 2017

Room: Marina E
Location: Marriott Marquis Hotel

Session Chair: To Be Announced

3:40 PM

Comparative Study of Gas Reduction of Pure Zinc Ferrite and Zinc Ferrite Contained into Electric Arc Furnace Dusts: *Mery Gómez-Marroquín*¹; Jose Carlos D'Abreu²; ¹Universidad Nacional de Ingeniería; ²Pontificia Universidade Católica do Rio de Janeiro

4:00 PM

Biotechnological Recycling of Precious Metals Sourced from Post-consumer Products: Norizo Saito¹; Toshiyuki Nomura¹; *Yasuhiro Konishi*¹; ¹Osaka Prefecture University

4:20 PM

Extraction of Gold from Sands and Slimes Tailings Dump from Mazowe Mine, Zimbabwe: *Alain Bantshi*¹; ¹Baldmin Projects

4:40 PM

Reduction Kinetics and Characterization Study of Synthetic Magnetite Micro Fines: Saikat Kuila¹; *Ritayan Chatterjee*¹; Dinabandhu Ghosh¹; ¹Jadavpur University

5:00 PM

Novel Adsorbent from Iron Ore Concentration Tailings for Toxic Cationic Dye Removal from Water: Yongmei Wang¹; *Alejandro Lopez-Valdivieso*²; Teng Zhang³; Teza Mwamulima³; Changsheng Peng³; ¹College of Environmental Science and Engineering, Ocean University of China; Instituto de Metalurgia, Universidad Autónoma de San Luis Potosi; ²Instituto de Metalurgia, Universidad Autónoma de San Luis Potosi; ³College of Environmental Science and Engineering, Ocean University of China

5:20 PM

Removal of Heavy Metals from Water with Nano-Sheet Molybdenite as Adsorbent: Feifei Jia¹; *Shaoxian Song*¹; ¹Wuhan University of Technology

Pan American Materials Congress: Nanocrystalline and Ultra-fine Grain Materials and Bulk Metallic Glasses — Superplasticity, Wear, Corrosion, Magnetic, Electric and Functional Properties

Sponsored by: Third Pan American Materials Congress Organizing Committee

Program Organizers: Terence Langdon, University of Southern California; Megumi Kawasaki, Hanyang University; Roberto Figueiredo, Federal University of Minas Gerais; Jose-Maria Cabrera, Universidad Politecnica de Catalunya

Wednesday PM
March 1, 2017

Room: Marina F
Location: Marriott Marquis Hotel

Session Chairs: Roberto Figueiredo, Universidade Federal de Minas Gerais; Kaveh Edalati, Kyushu University

3:40 PM

Achieving Superplasticity in a Bi-Sn Alloy Processed by Equal-channel Angular Pressing: Fariba Naghdi¹; Roberto Figueiredo²; *Terence Langdon*³; ¹University of Southampton; ²Universidade Federal de Minas Gerais; ³University of Southern California

4:00 PM

Formation of Ultrafine-Grained Structure in NiTi alloys by ECAP-“Conform”: *Egor Prokofiev*¹; Ivan Lomakin¹; Dmitry Gunderov²; Ruslan Valiev¹; ¹Saint Petersburg State University; ²Ufa State Aviation Technical University

4:20 PM

Evaluation of the Effect of Grain Refinement by Severe Plastic Deformation on Biocompatibility and Corrosion Rate of Pure Magnesium: Claudio Silva¹; Ana Celeste Oliveira¹; Cíntia Costa¹; *Roberto Figueiredo*¹; Maria de Fátima Leite¹; Marivalda Magalhães¹; Vanessa Lins¹; Terence Langdon²; ¹Federal University of Minas Gerais; ²University of Southampton

4:40 PM

Wear Resistance of an Ultrafine-grained Cu-Zr Alloy Processed by High-pressure Torsion: *Jitraporn Wongsan-Ngam*¹; Jianwei Li²; Jie Xu²; Terence Langdon³; ¹King Mongkut's Institute of Technology Ladkrabang; ²Harbin Institute of Technology; ³University of Southern California

5:00 PM

Wear Resistance and Electroconductivity of Copper and CuCrZr Alloy Subjected to Severe Plastic Deformation: *Alexander Zhilyaev*¹; Anna Morozova²; Jose Maria Cabrera³; Rustam Kaibyshev²; ¹Fundació CTM Centre Tecnològic; ²Belgorod State University; ³Universitat Politècnica de Catalunya

5:20 PM

High-Pressure Torsion of Ceramics with Functional Properties: *Kaveh Edalati*¹; Hadi Razavi-Khosroshahi²; Masayoshi Fujii²; Zenji Horita¹; ¹Kyushu University; ²Nagoya Institute of Technology

5:40 PM

Nanostructured Al-Mg-Si Alloys for Electrical Conductors: *Ilchat Sabirov*¹; Ruslan Valiev²; Georgiy Raab²; Alexandr Arutyunyan³; Maxim Murashkin²; ¹IMDEA Materials Institute; ²Ufa State Aviation Technical University; ³Saint Petersburg State University

Pan American Materials Congress: Advanced Biomaterials — Antibacterial and Nanostructured Materials

Sponsored by: Third Pan American Materials Congress Organizing Committee

Program Organizers: Carlos Elias, Instituto Militar de Engenharia; Wen Yang, Swiss Federal Institute of Technology in Zurich (ETHZ)

Thursday AM
March 2, 2017

Room: Mission Hills
Location: Marriott Marquis Hotel

Session Chairs: Xiaodong Li, University of Virginia; Pablo Zavattieri, Purdue University

8:30 AM Invited

Carboxyl-functionalized Zinc Oxide Nanoparticles and Its Antiproliferative Effect in Cervical Cell Lines: Lisbeth Almeida-Ramón¹; Mayra Alvarez-Lemus¹; Erick De la Cruz Hernández¹; Rosendo López-González¹; Gilberto Torres-Torres¹; Socorro Oros-Ruiz²; Patricia Quintana-Owen³; ¹Juarez Autonomous University of Tabasco; ²Autonomous Metropolitan University-Iztapalapa; ³CINVESTAV-Merida

9:00 AM

Investigation on Passive Film Structure and Antibacterial Property of 316L Stainless Steel by Cu-added Nitric Acid Passivation Treatment: Jin-Long Zhao¹; Da-Ke Xu¹; Xin-Rui Zhang¹; *Chunguang Yang*¹; Ke Yang¹; ¹Institute of Metal Research, Chinese Academy of Sciences

9:20 AM

An Experimental Study on 304L Cu-bearing Antibacterial Stainless Steel for Its Integrated Performance Optimization as a Versatile Biomaterial: *M. Babar Shahzad*¹; Tong Xi¹; *Chunguang Yang*¹; Ke Yang¹; ¹Institute of Metal Research, Chinese Academy of Sciences

9:40 AM

Effects of Dialium Guineense Based Zinc Nanoparticle Material on the Inhibition of Microbes Inducing Microbiologically Influenced Corrosion: *Joshua Okeniyi*¹; Gbadebo John¹; Taiwo Owoeye¹; Elizabeth Okeniyi¹; Deborah Akinlabu¹; Olugbenga Taiwo¹; Olufisayo Awotoye¹; Ojo Ige¹; Yemisi Obafemi¹; ¹Covenant University, Ota, Nigeria

10:00 AM

Evaluation of Doped SiO₂-TiO₂ Nanoparticles as Possible Agents in Photodynamic Therapy: *Rosendo López González*¹; Mayra Alvarez Lemus¹; Jose de la Rosa Vázquez²; Erick De la Cruz Hernández¹; Dora Frías Marquez¹; ¹Juarez Autonomous University of Tabasco; ²ESIME

10:20 AM Break

10:35 AM Invited

Laser Based 3d Printing of Biomaterials: *Roger Narayan*¹; ¹UNC/NCSU Joint Department of Biomedical Engineering

11:00 AM Invited

Nature's Multiscale Design and Additive Manufacturing: *Xiaodong Li*¹; ¹University of Virginia

11:25 AM

Miniaturization of Medical Implants Made from Nanostructured Metals: *Alexander Polyakov*¹; Irina Semenova²; Georgy Raab²; Evgeny Parfenov²; Ruslan Valiev¹; ¹Laboratory for Mechanics of Bulk Nanomaterials, Saint Petersburg State University; ²Ufa State Aviation Technical University

11:50 AM

Mechanical Properties and Biocompatibility of Nanostructured Titanium: *Carlos Elias*¹; Daniel Fernandes¹; Jochen Roestel²; ¹Instituto Militar de Engenharia; ²Conexao Sistemas e Protese

Pan American Materials Congress: Materials for Oil and Gas Industry — Welding Technology, Corrosion Protection, Non-Destructive Evaluation, and Structural Integrity

Sponsored by: Third Pan American Materials Congress Organizing Committee

Program Organizers: Lorenzo Martinez Gomez, Instituto de Ciencias Fisicas UNAM; Adriana Rocha, Federal University of Rio de Janeiro

Thursday AM
March 2, 2017

Room: Marina G
Location: Marriott Marquis Hotel

Session Chairs: Lorenzo Gomez, UNAM; Adriana Rocha, UFRJ

8:30 AM

Effect of Heat Input on the Microstructure and Toughness of Welded API Pipelines: *Fernando Guzmán*¹; Moisés Hinojosa¹; Eduardo Frías²; Elisa Schaeffer¹; ¹UANL, FIME; ²Tubacero

8:50 AM

The Corrosion Behavior of Newly Developed API X120 Pipeline Steel in H2S and Moderate Temperature Environments: *Paul Okonkwo*¹; R. Shakoore¹; A Mohamed²; ¹Qatar University; ²Department of Metallurgical and Materials Engineering, Faculty of Petroleum and Mining Engineering

9:10 AM

Adsorption of Organosulfur Compounds on Doped Boron Nitride Nanostructures: *Francisco Villanueva*¹; Jose Rivera¹; Pedro Navarro Santos¹; ¹Universidad Michoacana de San Nicolas de Hidalgo

9:30 AM

Evaluation of Non-Destructive Techniques (Thermography, Ultrasound and Eddy Current) for Detection of Failures in Metallic Substrates with Composite Anticorrosive Coatings: Marcella Grosso¹; Priscila de Almeida¹; Clara Johanna Pacheco¹; Iane Soares¹; João Marcos Rebello¹; Sergio Soares²; Isabel Cristina Margarit-Mattos¹; *Gabriela Pereira*¹; ¹UFRJ; ²Petrobras

9:50 AM Break

10:05 AM

A Study on the Mechanisms Responsible for Dynamic Strain Aging Phenomenon in Inconel 718 Superalloy: *Monica Rezende*¹; Sinaia Gabriel¹; Leonardo Araújo¹; Jean Dille¹; Luiz Henrique de Almeida¹; ¹UFRJ

10:25 AM

Structural Integrity of Pipelines: *Anibal Di Luch*¹; Nicolas Oyarzabal²; ¹Comision Nacional de Energia Atomica; ²Instituto Tecnológico de Buenos Aires

10:45 AM Panel Discussion

Pan American Materials Congress: Materials for Transportation and Lightweighting — Composite Materials I

Sponsored by: Third Pan American Materials Congress Organizing Committee

Program Organizers: Mary Wells, University of Waterloo; Rafael Colás, Universidad Autónoma de Nuevo León; Fernand Marquis, San Diego State University; Ramalinga Viswanathan Mangalaraja, University of Concepcion; Marta Lopez, University of Concepcion; Elvi Dalgaard, Pratt & Whitney Canada; Patricia Zambrano, Universidad Autonoma de Nuevo Leon

Thursday AM
March 2, 2017

Room: Marina D
Location: Marriott Marquis Hotel

Session Chair: Elvi Dalgaard, Pratt and Whitney Canada

8:30 AM

Izod Impact Tests in Polyester Matrix Composites Reinforced with Figue Fabric: Artur Camposo Pereira¹; *Foluke Salgado de Assis*¹; Sergio Neves Monteiro¹; Henry Colorado²; ¹Instituto Militar de Engenharia; ²Universidad

de Antioquia

8:50 AM

Nanodiamond: A Potential Reinforcement for Epoxy Composites: Ankita Bisht¹; *Pallavi Gupta*¹; Debrupa Lahiri¹; ¹Indian Institute of Technology Roorkee

9:10 AM

Tailored Carbide Powder Morphologies: Synthesis, Sintering, and Mechanisms of Formation: *Tianqi Ren*¹; Olivia Graeve¹; ¹University of California, San Diego

9:30 AM

Nano-Additive Reinforcement of Thermoplastic Microballoon Epoxy Syntactic Foams: *Kerrick Dando*¹; David Salem¹; ¹CAPE Lab, SDSM&T

9:50 AM

Advantages of Hot Compression in the Manufacture of AlB4C Composites: *Lucio Vazquez*¹; Dulce Velázquez¹; Ángel Muñoz¹; David Luna¹; Gilberto Torres¹; Elizabeth Garfias¹; Manuel Vite¹; ¹Universidad Autonoma Metropolitana

Pan American Materials Congress: Minerals Extraction and Processing — Hydrometallurgical Processing

Sponsored by: Third Pan American Materials Congress Organizing Committee

Program Organizers: Mery Gómez Marroquín, Asociación Peruana de Metalurgia Materiales y Minerales-APMMM; Mark Schlesinger, Missouri University of Science and Technology; Alejandro Valdivieso, U.A. of San Luis Potosi; Carlos Sampaio, UFRGS

Thursday AM
March 2, 2017

Room: Marina E
Location: Marriott Marquis Hotel

Session Chair: To Be Announced

8:30 AM

Investigating the Dissolution Characteristics of Strontium Sulfide: *Ibrahim Göksel Hizli*¹; Aysegül Bilen²; Rasit Sezer³; Emre Yilmaz²; Selim Ertürk²; Cüneyt Arslan²; ¹Istanbul University; ²Istanbul Technical University; ³Karadeniz Technical University

8:50 AM

Dissolution Thermodynamics of Smithsonite in Alkaline Iminodiacetate Aqueous Solution: Dou Aichun¹; *YU Lei*¹; ¹Jiangsu University, China

9:10 AM

Preparation of High Grade Industrial Copper Compound from a Nigerian Malachite Mineral by Hydrometallurgical Process: *Alafara Baba*¹; Ruth Sanni¹; Abdulrahman Abubakar¹; Rafiu Bale¹; Folahan Adekola¹; Abdulganiyu Alabi¹; ¹University of Ilorin, Nigeria.

9:30 AM

Pressure Leaching of Hemimorphite in Ammonium Chloride Solution: *Duoqiang Zhao*¹; Shenghai Yang¹; Hao Li¹; Yongming Chen¹; Jing He¹; Chaobo Tang¹; ¹Central South University

9:50 AM

Gold Recovery from Waste Solutions of PCB Gold Plating Process using Hydro Cyclone Reactor for Demonstration Study: *Mooki Bae*¹; Soo-kyung Kim²; Jae-chun Lee²; ¹Korea University of Science and Technology; ²Korea Institute of Geoscience and Mineral Resources

10:10 AM Break

10:20 AM

Leaching of Spent Ni-Mo Hydrodesulphurization (HDS) Catalyst in Oxalic Acid Solutions: *Sedat Ilhan*¹; ¹Istanbul University

10:40 AM

Working Experience with the New WOX Plant to Treat Zinc Waelzoxide at ZGH Boleslaw SA, Poland: *Angel Selke*¹; Leszek Stencel²; Mirosław Fatyga²; Bogdan Pieczonka²; Lukasz Zieba²; ¹Ingenium GmbH; ²ZGH Boleslaw SA

11:00 AM

Synthesis of AgCN Nanowire Membranes in Aqueous Solutions from Silver Dicyanide Ions: Armando López-Miranda¹; Gonzalo Viramontes-Gamboa¹; *Alejandro López Valdivieso*²; ¹Universidad Michoacana de San Nicolás de Hidalgo; ²Universidad Autónoma de San Luis Potosí

11:20 AM

Study on Leaching Valuable Elements from Bayan Obo Tailings: *Bo Zhang*¹; Xiangxin Xue¹; He Yang¹; Xiaowei Huang¹; Jianxin Han¹; ¹Northwestern University

Pan American Materials Congress: Nanocrystalline and Ultra-fine Grain Materials and Bulk Metallic Glasses — Additional Topics in SPD Processing and Mechanical Properties

Sponsored by: Third Pan American Materials Congress Organizing Committee

Program Organizers: Terence Langdon, University of Southern California; Megumi Kawasaki, Hanyang University; Roberto Figueiredo, Federal University of Minas Gerais; Jose-Maria Cabrera, Universidad Politecnica de Catalunya

Thursday AM
March 2, 2017

Room: Marina F
Location: Marriott Marquis Hotel

Session Chairs: María Teresa Pérez Prado, IMDEA Materials Institute; Andrea Bachmaier, Erich Schmid Institute of Materials Science

8:30 AM

Effect of Annealing of ZK60 Magnesium Alloy after Processing by High-pressure Torsion: *Seyed Alireza Torbati Sarraf*¹; Shima Sabbaghianrad¹; Terence G. Langdon¹; ¹University of Southern California

8:50 AM

Severe Plastic Deformation as a Tool to Tune Magnetic Properties: Carmen M. Cepeda-Jimenez¹; Juan Ignacio Beltrán¹; Antonio Hernando²; Miguel Angel Garcia³; Félix Ynduráin⁴; Alexander Zhilyaev⁵; *Maria Teresa Pérez Prado*¹; ¹IMDEA Materials Institute; ²Instituto de Magnetismo "Salvador Velayos", UCM, ADIF, CSIC; ³Instituto de Cerámica y Vidrio, CSIC; ⁴Universidad Autónoma de Madrid; ⁵Fundació CTM Centre Tecnològic

9:10 AM

Investigation of Crystallographic Texture and Stored Energy after Cross Accumulative Roll-bonding of Fe-36Ni (Invar) Alloy: *Hiba Azzeddine*¹; Kamel Tirsatine²; Thierry Baudin³; Marie-Hélène Mathon⁴; Anne-Laure Helbert⁵; François Brisset⁶; Djamel Bradai²; ¹University of M'sila; ²USTHB; ³Université Paris-Saclay; ⁴Laboratoire Léon Brillouin

9:30 AM

Microstructure and Mechanical Behavior of UFG Mg-2Zn-2Gd: *Sunkulp Goel*¹; Y Wang¹; A Srinivasan²; R Jayaganthan³; Jing Tao Wang¹; ¹Nanjing University of Science and Technology; ²CSIR – National Institute for Interdisciplinary Science and Technology (NIIST); ³Indian Institute of Technology, Madras

9:50 AM Break

10:10 AM

Microstructural Evolution of TWIP Steels during ECAP: *Jessica Calvo*¹; Wang Lei¹; José Antonio Benito¹; José Maria Cabera¹; ¹Universitat Politècnica de Catalunya (UPC)

10:30 AM

Current-assisted-extrusion of Structural Amorphous Metals: Insight into Microstructure Formation and Mechanical Properties: *Ekaterina Novitskaya*¹; Sebastian Diaz de la Torre²; Tzipatly Esquivel-Castro²; Guillermo Dieguez-Trejo²; Olivia Graeve¹; ¹University of California, San Diego; ²Instituto Politecnico Nacional

10:50 AM

Effect of Annealing on Microstructure and Magnetic Properties of Nanocrystalline Metastable Cu-Co Solid Solutions: *Andrea Bachmaier*¹; Stefan Hartl¹; Jörg Schmauch²; Hisham Aboulfadl³; Andreas Verch⁴; Heinz Krenn⁵; Reinhard Pippan¹; ¹Erich Schmid Institute, Austrian Academy of Sciences; ²Experimentalphysik, Saarland University; ³Chair of Functional Materials, Saarland University; ⁴INM-Leibniz Institute for New Materials; ⁵Institute of Physics, Karl-Franzens University Graz

11:10 AM

Mechanical Behavior and Adiabatic Shear Localization of Ultrafine-grained Titanium: *Ze Zhou Li*¹; Bingfeng Wang²; Shiteng Zhao¹; Ruslan Z. Valiev³; Kenneth S. Vecchio¹; Marc A. Meyers¹; ¹University of California, San Diego; ²Central South University; ³Institute of Physics of Advanced Materials

11:30 AM

Dynamic Tensile Failure of Nanocrystalline Tantalum: *Eric Hahn*¹; ¹University of California, San Diego

Pan American Materials Congress: Advanced Biomaterials — Implants, Bone Graft and Drug Delivery

Sponsored by: Third Pan American Materials Congress Organizing Committee

Program Organizers: Carlos Elias, Instituto Militar de Engenharia; Wen Yang, Swiss Federal Institute of Technology in Zurich (ETHZ)

Thursday PM
March 2, 2017

Room: Mission Hills
Location: Marriott Marquis Hotel

Session Chairs: Mayara Alvarez-Lemus, Juarez Autonomous University of Tabasco; Ke Yang, Institute of Metal Research, Chinese Academy of Sciences

2:00 PM

In Vivo Study on New Coronary Stents Made of Nickel-free High-nitrogen Stainless Steel: Qingchuan Wang¹; Shanshan Chen¹; Hui Yang¹; Bingchun Zhang¹; *Ke Yang*¹; ¹Institute of Metal Research, Chinese Academy of Sciences

2:20 PM

Effect of Rapid Solidification on the Microstructure of a Biomaterial Co-Cr-Mo-C Alloy: Hugo Lopez¹; *Hamid-Reza Erfanian-Naziftoosi*¹; ¹University of Wisconsin-Milwaukee

2:40 PM

Influence of Time and Temperature of Acid Treatment in the Morphology and Roughness of Osseointegrable Implants: *Ariel do Lago*¹; Beatriz Torres¹; Carlos Elias¹; ¹Instituto Militar de Engenharia

3:00 PM

Optical Properties of CeO₂@ZnO Core@shell Nanostructures Synthesized by Solvothermal Method: *Saeed Farhang*¹; Felipe Sanhueza¹; Pandiyarajan Thangaraj¹; Mangalaraja Ramalinga Viswanathan¹; ¹Concepcion University

3:20 PM Break

3:40 PM

Investigation of Properties in Glass-ceramics Based on Li₂O-SiO₂ System during Li₂SiO₃-Li₂Si₂O₅ Transformation: *Bruno Simba*¹; Marcos Ribeiro¹; Claudinei Santos²; Paulo Suzuki³; Luis Hein¹; Manuel Alves²; ¹Unesp-FEG - Universidade Paulista-Faculdade de Engenharia de Guaratinguetá; ²UERJ-FAT - Universidade do Estado do Rio de Janeiro-Faculdade de Tecnologia; ³USP-EEL - Universidade de São Paulo-Escola de Engenharia de Lorena

4:00 PM

Structure and Toughening Mechanism of Carp Fish Scales: *Haocheng Quan*¹; Wen Yang²; Robert Ritchie³; Marc Meyers¹; ¹UCSD; ²ETH-Zurich; ³Lawrence Berkeley National Laboratory

4:20 PM

Synthesis and Characterization of Ni_{0.5}Zn_{0.5}Fe₂O₄@mSiO₂ Core Shell Nanocarrier for Drug Delivery Applications: Mohd Qasim¹; Khushnuma

Asgar¹; *Dibakar Das*¹; ¹University of Hyderabad

4:40 PM

Zirconium Alloys for Orthopaedic & Dental Implants: A Review: *Afrin Mehjabeen*¹; Ma Qian¹; ¹RMIT

Pan American Materials Congress: Materials for Infrastructure — Session II

Sponsored by: Third Pan American Materials Congress Organizing Committee

Program Organizers: Henry Colorado, Universidad de Antioquia; Oliverio Rodriguez, Centro de Investigacion en Química Aplicada

Thursday PM
March 2, 2017

Room: Palomar
Location: Marriott Marquis Hotel

Session Chair: Henry Colorado, Universidad de Antioquia

2:00 PM Invited

Jigs, Hydro-cyclones and Sensor-based Sorting to Value Recycled Aggregates: *Régis Paranhos*¹; Carlos Sampaio²; Bogdan Cazacliu³; Raul Neto¹; Maria Liendo¹; ¹Unipampa; ²UFRGS; ³IFSTTAR

2:30 PM

Effect of C5H11NO2S on Reinforcing-steel Corrosion in Concrete Immersed in Industrial/Microbial Simulating-environment: *Joshua Okeniyi*¹; Abiodun Abioye¹; Zechariah Adikpewun¹; Adeola Otesanya¹; Michael Eleshin¹; Olugbenga Omotosho¹; Olanrewaju GAbriel¹; Oluyori Adeoye¹; ¹Covenant University

2:50 PM

Development of Co-B-SiC Coatings for Use on Aeronautical and Automobile Industries: *Alma Martínez*¹; Gabriel Trejo¹; ¹CIDETEQ

3:10 PM Invited

Colombian Natural Fibers for Structural Materials: Henry Colorado¹; *Juan M Velez*²; ¹Universidad de Antioquia; ²Universidad Nacional de Colombia

3:40 PM Break

4:00 PM

Anticorrosion and Adsorption Mechanism of Rhizophora Mangle L Leaf-extract on Steel-reinforcement in 3.5% NaCl-immersed Concrete: *Joshua Okeniyi*¹; Olugbenga Omotosho¹; Cleophas Loto¹; Abimbola Popoola²; ¹Covenant University, Ota, Nigeria; ²Tshwane University of Technology, Pretoria

4:20 PM

Cassia Fistula Leaf-extract Effect on Corrosion-inhibition of Stainless-steel in 0.5 M HCl: *Olugbenga Omotosho*¹; Joshua Okeniyi¹; Cleophas Loto¹; Abimbola Popoola²; Omokolade Ajibola¹; Adebajji Ogbiye¹; ¹Covenant University, Ota; ²Tshwane University of Technology, Pretoria, South Africa

Pan American Materials Congress: Materials for Transportation and Lightweighting — Composite Materials II

Sponsored by: Third Pan American Materials Congress Organizing Committee

Program Organizers: Mary Wells, University of Waterloo; Rafael Colás, Universidad Autónoma de Nuevo León; Fernand Marquis, San Diego State University; Ramalinga Viswanathan Mangalaraja, University of Concepcion; Marta Lopez, University of Concepcion; Elvi Dalgaard, Pratt & Whitney Canada; Patricia Zambrano, Universidad Autonoma de Nuevo Leon

Thursday PM
March 2, 2017

Room: Marina D
Location: Marriott Marquis Hotel

Session Chair: To Be Announced

2:00 PM

An Improved Silicon Carbide Monofilament for the Reinforcement of Metal Matrix Composites: *Michael Rix*¹; ¹TISICS

2:20 PM

Effect of Al₂O₃ Volume Percentage on the Mechanical Properties and Strengthening Effect in Al Alloy Nano Composites Fabricated by Ultrasound Assisted Solidification Technique: *Neeraj Srivastava*¹; G.P. Chaudhari¹; ¹Indian Institute of Technology Roorkee

2:40 PM

Effect of Annealing on the Electrical Properties of PA6/MWNT/CU Composites: *Saeed Doagou Rad*¹; A Islam¹; J. Jensen¹; ¹Technical University of Denmark

3:00 PM

Experimental and Density Functional Theory Studies of SmMn₂O₅ Mullite-type Oxide as NO Oxidation Catalyst: *Sampreetha Thampy*¹; Yongping Zheng¹; Sean Dillon¹; Kui Tan¹; Ka Xiong²; Yun-Ju Lee¹; Yves Chabal¹; Kyeongjae Cho³; Julia Hsu¹; ¹University of Texas at Dallas; ²Dongguan Innovative New Materials Co. Ltd.; ³University of Texas at Dallas and Dongguan Innovative New Materials Co. Ltd

3:20 PM Break

3:40 PM

Investigation on Mechanical Properties of SiC, Al₂O₃ and B₄C Micro Particulates Reinforced in Aluminium Matrix Composite: *Gopal Kumaresan*¹; K Kalaichelvan¹; A Rajadurai¹; ¹Production Technology, MIT Campus, Anna University.

4:00 PM

Nanocomposites Mechanical and Tribological Properties using Graphene Coated Ceramic Nanoparticles for Light Weight Applications: Ahmed Ghazaly¹; Mohamed Shokeir¹; Sandy El-Moghazi¹; Ahmed Fathy¹; Mohamed Emara²; *Hanadi Salem*¹; ¹American University in Cairo; ²Canadian College

Pan American Materials Congress: Materials for Transportation and Lightweighting — Joining

Sponsored by: Third Pan American Materials Congress Organizing Committee

Program Organizers: Mary Wells, University of Waterloo; Rafael Colás, Universidad Autónoma de Nuevo León; Fernand Marquis, San Diego State University; Ramalinga Viswanathan Mangalaraja, University of Concepcion; Marta Lopez, University of Concepcion; Elvi Dalgaard, Pratt & Whitney Canada; Patricia Zambrano, Universidad Autonoma de Nuevo Leon

Thursday PM
March 2, 2017

Room: Marina G
Location: Marriott Marquis Hotel

Session Chair: To Be Announced

2:00 PM

Joining of Sandwich Materials – Concepts for Local Force Transmission into Innovative Vehicle Structures: *Carmen Scholz*¹; Sebastian Wagner²; Gundolf Kopp¹; Horst Friedrich¹; ¹German Aerospace Center; ²NMI Natural and Medical Sciences Institute at the University of Tübingen

2:20 PM

Influence of Robotic GMAW Welding Parameters on the Mechanical Properties of Thick Structural Steel Plates: *Manuel Vazquez Esteban*¹; Argelia Miranda Pérez²; Rolando Praga Alejo²; Gladys Pérez Medina¹; ¹Corporación Mexicana de Investigación en Materiales; ²Universidad Autonoma de Coahuila

2:40 PM

Joining Dissimilar Materials across Varying Length Scales by Impact Welding: *Anupam Vivek*¹; Taeseon Lee¹; Glenn Daehn¹; ¹Ohio State University

3:00 PM

Evaluation of Distortion in Pulse Spray Welding Joints of Hsla A572 Steel for Heavy Agricultural Equipment: *Estuardo Raymundo Rivera Sanchez*¹; Gladys Yerania Perez Medina¹; Eduardo Hurtado Delgado¹; Leonardo Carrasco Gonzalez¹; Argelia Fabiola Miranda Perez¹; ¹COMIMSA

3:20 PM Break

3:40 PM

Comparison of the Single Pulse and the Second Pulse Current on the Fusion Zone Microstructure and Mechanical Properties of the TRIP Steel Welds: *Miguel Fernando Delgado Pamanes*¹; Sergio Rodríguez²; Victor Hugo Hernandez²; Simitrio Ignacio Ruiz²; ¹IPN - UPIIZ; ²UAZ

4:00 PM

Vaporizing Foil Actuator Welding as a Solution for Joining Automotive Steel and Aluminum Alloys: *Anupam Vivek*¹; Bert Liu¹; Glenn Daehn¹; ¹Ohio State University

4:20 PM

Study of the Discontinuities Generated by GMAW Process Applied in AISI 1018 Steel using NDT-phased Array and their Microstructural Correlation.: *Luis Aguilar-Pérez*¹; Gladys Pérez-Medina¹; Argelia Miranda-Pérez¹; Rolando Praga-Alejo²; ¹Corporación Mexicana de Investigación en Materiales; ²Universidad Autónoma de Coahuila

Pan American Materials Congress: Minerals Extraction and Processing — Ore Processing

Sponsored by: Third Pan American Materials Congress Organizing Committee

Program Organizers: Mery Gómez Marroquín, Asociación Peruana de Metalurgia Materiales y Minerales-APMMM; Mark Schlesinger, Missouri University of Science and Technology; Alejandro Valdivieso, U.A. of San Luis Potosi; Carlos Sampaio, UFRGS

Thursday PM Room: Marina E
March 2, 2017 Location: Marriott Marquis Hotel

Session Chair: To Be Announced

2:00 PM

Preparation Conditions and Performance of Nano/Amorphous Hybrid Oxide Coated Titanium Anode for Oxygen Evolution in Electrowinning: *Masafumi Yasuno*¹; Masatsugu Morimitsu¹; Doshisha University

2:20 PM

Process of Improving the Flotation Using Ultrasonic Bombardment: *Erivelto Souza*¹; Orimar Reis²; Denise Pereira³; Luís Borges²; Jeísa Rodrigues⁴; ¹UFSJ; ²IFMG-OP; ³QTEC; ⁴UFOP/DEMIN

2:40 PM

Preliminary Analysis of the Application of Sensor Based Sorting on a Limestone Mine in the Region Caçapava do Sul, Brazil: *Régis Paranhos*¹; *Evandro Santos*²; Carlos Petter³; Aaron Young³; Moacir Veras³; ¹Unipampa; ²Dagoberto Barcelos SA; ³UFRGS

3:00 PM

The Compact Flowsheet for Ore Comminution and Processing: *George Mover*¹; Volodymyr Golovan¹; ¹Black Iron Inc.

Pan American Materials Congress: Nanocrystalline and Ultra-fine Grain Materials and Bulk Metallic Glasses — Phase, Interface and Crystalline Defects Evolution during SPD

Sponsored by: Third Pan American Materials Congress Organizing Committee

Program Organizers: Terence Langdon, University of Southern California; Megumi Kawasaki, Hanyang University; Roberto Figueiredo, Federal University of Minas Gerais; Jose-Maria Cabrera, Universidad Politecnica de Catalunya

Thursday PM Room: Marina F
March 2, 2017 Location: Marriott Marquis Hotel

Session Chairs: Ruslan Valiev, Ufa State Aviation Technical University; Gerhard Wilde, University of Muenster

2:00 PM

Ultrafine Grain Structure and Thermal Stability of Al-Fe Alloys Processed by Severe Plastic Deformation: *Amandine Duchaussoy*¹; *Xavier Sauvage*¹; Kaveh Edalati²; Zenji Horita²; Gilles Renou³; Alexis Deschamps³; Frédéric De Geuser³; ¹Normandy University; ²WPI, International Institute for Carbon-Neutral Energy Research; ³Univ. Grenoble Alpes, SIMAP

2:20 PM

Grain Boundary Structure and Diffusivity of Severely Strained Metals and Alloys: *Gerhard Wilde*¹; ¹University of Muenster

2:40 PM

Insights into Deformation Induced Grain Boundary Migration in Ultrafine-grained Metals: *Oliver Renk*¹; Pradipta Ghosh¹; Reinhard Pippan¹; ¹Erich Schmid Institute of Materials Science

3:00 PM

A High Resolution X-ray Diffraction Line Profile Analysis of Mg-Ce and Mg-Nd Alloys after HPT Processing: *Hiba Azzeddine*¹; Yousf Islem Bourezg²; Zdeneck Matej³; Yi Huang⁴; *Djamel Brada*²; Terence G. Langdon⁴; ¹University of M'sila; ²USTHB; ³Max IV Laboratory; ⁴University

of Southampton

3:20 PM Break

3:40 PM

Interface Phenomena in SPD-processed Nanomaterials: *Ruslan Valiev*¹; Maxim Murashkin²; Dmitry Gunderov²; ¹Laboratory for Mechanics of Bulk Nanomaterials, Saint Petersburg State University; ²Ufa State Aviation Technical University

4:00 PM

Outstanding Mechanical Properties of High-Pressure Torsion Processed Multiscale Clad Layer of Twinning Induced Plasticity Steel and Interstitial Free Steel: *Hyoung Seop Kim*¹; ¹POSTECH

4:20 PM

Bulk Nano Lamellar Materials by Severe Plastic Deformation: *Fan Liu*¹; Sunkulp Goel¹; Yue Wang¹; Ya Ming Zhu¹; Hao Yuan¹; *Jing Tao Wang*¹; ¹Nanjing University of Science and Technology

4:40 PM

Thermal Stability of Defect Structure and Phase Composition in Ultrafine-grained 316L Stainless Steel Processed by High-pressure Torsion: *Moustafa El-Tahawy*¹; Jeno Gubicza¹; Yi Huang²; Hyelim Choi³; Heeman Choe³; János Lábár⁴; Terence Langdon²; ¹Eötvös Loránd University; ²University of Southampton; ³Kookmin University; ⁴Centre for Energy Research, Hungarian Academy of Sciences

5:00 PM

Mechanical Properties of Laminated Titanium-Aluminum-Composites Processed by Accumulative Roll Bonding: *Christopher Schunk*¹; Heinz Werner Höppel¹; Mathias Göken¹; ¹Friedrich-Alexander Universität Erlangen-Nürnberg

Pan American Materials Congress: Nanocrystalline and Ultra-fine Grain Materials and Bulk Metallic Glasses — Student Session

Sponsored by: Third Pan American Materials Congress Organizing Committee

Program Organizers: Terence Langdon, University of Southern California; Megumi Kawasaki, Hanyang University; Roberto Figueiredo, Federal University of Minas Gerais; Jose-Maria Cabrera, Universidad Politecnica de Catalunya

Thursday PM Room: Balboa
March 2, 2017 Location: Marriott Marquis Hotel

Session Chairs: Jose-Maria Cabrera, Universidad Politecnica de Catalunya; Yi Huang, University of Southampton

2:00 PM

Microstructural Changes and Mechanical Behavior of AA6061 Al Alloy Severely Deformed at Cryogenic Temperatures: *Danielle Magalhães*¹; Andrea Kliauga¹; Vitor Sordi¹; Maurizio Ferrante¹; ¹Federal University of São Carlos

2:20 PM

Examining the Microhardness Evolution and Thermal Stability of an Al-Mg-Sc Alloy Processed by High-pressure Torsion at a High Temperature: *Pedro Henrique Pereira*¹; Yi Huang¹; Terence Langdon¹; ¹Materials Research Group, Faculty of Engineering and the Environment, University of Southampton

2:40 PM

Deformation-induced Formation of Supersaturated Solid Solutions in the Cu-Ag System: *Karoline Kormout*¹; Pradipta Ghosh¹; Verena Maier-Kiener²; Reinhard Pippan¹; ¹Erich Schmid Institute of Materials Science, Austrian Academy of Sciences; ²Department Physical Metallurgy and Materials Testing

3:00 PM

Nanomechanical Behavior of Precipitation-hardened Nanocrystalline High-entropy Alloy: *Dong-Hyun Lee*¹; Moo-Young Seok¹; Zhaoping Lu²; Jin-Yoo Suh³; Upadrasta Ramamurthy⁴; Megumi Kawasaki¹; Terence

Langdon⁵; Jae-il Jang¹; ¹Hanyang University; ²University of Science and Technology Beijing; ³Korea Institute of Science and Technology; ⁴Indian Institute of Science; ⁵University of Southern California

3:20 PM

Defect Structure and Hardness in Ultrafine-grained Ni-Mo Alloys Processed by High Pressure Torsion: *Garima Kapoor¹*; Yi Huang²; Terence Langdon²; V. Sarma³; Jenő Gubicza¹; ¹Eotvos Lorand University; ²University of Southampton, Southampton; ³Indian Institute of Technology Madras

3:40 PM Break

4:00 PM

Wear Properties of Various Bulk Hybrid Materials Processed by High-pressure Torsion: *Jae-Kyung Han¹*; Han-Joo Lee¹; Daekuen Han¹; Byungmin Ahn²; Megumi Kawasaki¹; Terence Langdon³; ¹Hanyang University; ²Ajou University; ³University of Southern California

4:40 PM

Fatigue Behavior of Friction Stir Processed Ultrafine Grained 5024 Al Alloy: *Shivakant Shukla¹*; Mageshwari Komarasamy¹; Rajiv Mishra¹; ¹University of North Texas

4:20 PM

Creep Deformation in Bulk Metallic Glasses: A Review: *Kamia Smith¹*; Michael Kassner¹; ¹University of Southern California

5:00 PM

Shock Compression Behavior of Ti-Based Monolithic Bulk Metallic Glass and its Composite: Rene Diaz¹; Manny Gonzales¹; Greg Kennedy¹; David Scripka¹; Ali Khosravani¹; Surya Kalidindi¹; Douglas Hofmann²; Naresh Thadhani¹; ¹Georgia Institute of Technology; ²NASA Jet Propulsion Laboratory

Pan American Materials Congress: Advanced Biomaterials — Poster Session

Sponsored by: Third Pan American Materials Congress Organizing Committee

Program Organizers: Carlos Elias, Instituto Militar de Engenharia; Wen Yang, Swiss Federal Institute of Technology in Zurich (ETHZ)

Tuesday PM
February 28, 2017

Room: Poster Area
Location: Marriott Marquis Hotel

Session Chair: Carlos Elias, Instituto militar de Engenharia

PAN-1: Control of Shell Thickness on CeO₂-ZnO Core-shell by Surfactant Assisted Co-precipitation Methods: *Felipe Sanhueza¹*; Ramalinga Mangalaraja¹; Stephano Morales¹; Saeed Farhang¹; Elizabeth Elgueta¹; ¹University of Concepcion

PAN-2: Elastic Modulus of Ternary Titanium Alloys for Biomedical Applications: *Marcos da Silva¹*; Raul Araújo¹; Pedro Kuroda¹; Carlos Grandini¹; ¹Unesp/Bauru

PAN-5: Injectable Bone Substitute of Fibroin and Nanohydroxyapatite: *Maritza Buitrago¹*; Claudia Ossa¹; ¹Universidad de Antioquia

PAN-6: Metal-vitreous Biocide Coating: *Felipe Santos¹*; Sonia Mello-Castanho¹; Antonio da Silva¹; José Bartolomé²; Maria Teresa Prieto²; Elisa Fernandez-Garcia³; Claudinei Santos⁴; ¹IPEN - USP; ²CSIC - UAM; ³CINN - University of Oviedo; ⁴UERJ/FAT

PAN-7: Nature's Technical Ceramic: The Avian Eggshell: Eric Hahn¹; Andrei Pissarenko¹; Vincent Sherman¹; Daniel Fernandes²; Marc Meyers¹; ¹University of California, San Diego; ²Biomaterials Laboratory, Military Institute of Engineering, Rio de Janeiro, Brazil

PAN-8: Preparation and Characterization of Biodegradable Polymer Blend Reinforced with Bio-hydroxyapatite Nanoparticle: *Pedro Reis¹*; Esperidiana Moura¹; Felipe Lourenço²; Maria José Oliveira¹; ¹Instituto de Pesquisas Energéticas e Nucleares; ²Faculdade de Ciências Farmacêuticas

PAN-9: Selective Laser Sintering of Co-Cr-Mo Alloy for Dental Applications: *Claudinei Santos¹*; Alexandre Habibe¹; Paula Silva²; Bruno

Simba¹; ¹UERJ; ²USP-EEL

PAN-10: Surface Characterisation of Anodised Zirconium with Proved Bioactivity: *Andrea Gomez Sanchez¹*; Maria Katunar¹; Silvia Cere¹; ¹INTEMA - CONICET

PAN-11: Wear of TiO₂ Nanofilm Synthetized on Ti6Al4V and 316 Stainless Steel: Jonathan M. Schuster¹; Mario Rosenberger¹; *Carlos Schvezov¹*; ¹IMAM (UNaM-Conicet)

Pan American Materials Congress: Advanced Manufacturing — Poster Session

Sponsored by: Third Pan American Materials Congress Organizing Committee

Program Organizers: Sonia Brühl, UTN - National University of Technology; Ricardo Castro, University of California, Davis; Dachamir Hotza, UFSC

Tuesday PM
February 28, 2017

Room: Poster Area
Location: Marriott Marquis Hotel

PAN-12: Influence of Dendritic Morphology on the Strain Field of Dendritic Solidification Structures: Alejandro Moreno¹; Mario Rosenberger²; *Carlos Schvezov²*; ¹Facultad de Ciencias Exactas Químicas y Naturales - Universidad Nacional de Misiones; ²Instituto de Materiales de Misiones

PAN-13: Microhardness Assessment of 316L Stainless Steel Fabricated by Laser Engineered Net Shaping: *Katherine Acord¹*; Thale Smith²; Julie Schoenung¹; ¹University of California, Irvine; ²University of California, Davis

Pan American Materials Congress: Materials for Green Energy — Poster Session

Sponsored by: Third Pan American Materials Congress Organizing Committee

Program Organizers: Ramalinga Viswanathan Mangalaraja, University of Concepcion; Hector Calderon, ESFM-IPN; Julie Schoenung, University of California, Irvine; Roberto Arce, SAM - Soc. Argentina de Materiales

Tuesday PM
February 28, 2017

Room: Poster Area
Location: Marriott Marquis Hotel

PAN-14: Extrusion and Flash Sintering of Nickel Oxide-Samarium Doped Ceria (NIO-SDC) Nanostructure Composite Microtubular Anodes for Solid Oxide Fuel Cells: *Ramalinga Viswanathan Mangalaraja¹*; Jonathan Usaba¹; Hernán Valle¹; Jorge Durango¹; Marta Lopez¹; Chan Siew Hwa²; ¹University of Concepcion; ²Nanyang Technological University

PAN-15: Green Extract of Mate Tea as Corrosion Inhibitor of Copper and Aluminum: Ana Derna¹; Claudia Méndez²; Liliana Gassa³; *Alicia Ares⁴*; ¹FCEQyN-UNaM; ²IMAM (CONICET-UNaM); ³INIFTA; ⁴CONICET/FCEQyN-UNaM

PAN-16: Heat Capacity and Thermal Expansion of Solar Salts Determined by Thermal Analysis Techniques: *Ekkehard Post¹*; ¹NETZSCH Geraetebau GmbH

PAN-17: Influence of Organic Solvent on Pt Nanoparticles Synthesis on MWCNT for ORR: *Carolina Silva Carrillo¹*; Edgar Reynoso-Soto¹; Rosa-Maria Felix Navarro¹; Balter Trujillo-Navarrete¹; Jose Chavez-Carvayar²; Francisco Paraguay-Delgado³; Gabriel Alonso-Nuñez⁴; ¹Instituto Tecnológico de Tijuana; ²Instituto de Investigación En Materiales, Universidad Nacional Autónoma de México; ³Centro de Investigación de Materiales Avanzados; ⁴Centro de Nanociencia Y Nanotecnología, Universidad Autónoma de México

PAN-18: One-pot "Green" Synthesis of Nitrogen Doped Porous Titania Nanospheres for Photocatalytic Degradation of Direct Blue-71: *Nalandhiran Pugazhenthiran¹*; Panneerselvam Sathishkumar²; Ramalinga

Mangalaraja¹; Sambandam Anandan³; Sepperumal Murugesan⁴; ¹University of Concepcion; ² University of Concepcion; ³National Institute of Technology - Trichy; ⁴Madurai Kamaraj University

PAN-19: Plasmon-enhanced Solar Fuel Production with Gold-metal Oxide Hybrid Nanomaterials: *Christian Engelbrekt*¹; Matt Law²; Jingdong Zhang¹; ¹Technical University of Denmark; ²University of California Irvine

PAN-20: Platinum Salts Synthesis as Precursors to Get Heterogeneous Catalysts for Biofuels Production: *Adriana Martínez*¹; Sherly Acosta²; Jonathan Sierra²; Carlos Guerrero²; ¹Universidad Nacional de Colombia ; ²Universidad Nacional de Colombia

PAN-21: Structural and Magnetic Properties of Nano Cobalt Ferrites for Green Refrigeration Technology: *Prabhakaran Thandapani*¹; Mangalaraja R.V²; ¹ University of Concepcion; ²University of Concepcion

PAN-22: Structural and Optical Properties of Graphene-based Nano-architectures Decorated with (Ag, Cu) Metal Nanoparticles: *Udayabhaskar Rednam*¹; Mangalaraja R. V.¹; Pandiyarajan Thangaraj¹; Karthikeyan B²; ¹University of Concepcion; ²National Institute of Technology, Trichy

PAN-23: Synthesis of Mesoporous TiO₂ for Photo-anode in Dye-synthesized Solar Cell: *Victor Gonzalez*¹; Edgar Reynoso¹; Balter Trujillo¹; Rosa Felix¹; ¹Instituto Tecnológico de Tijuana

PAN-24: Tape Casting and Flash Sintering of Nickel Oxide-Gadolinium Doped Ceria (NIO-GDC) Nanostructure Composite Anode for Solid Oxide Fuel Cells: *Jonathan Usuba*¹; Mangalaraja Ramalinga Viswanathan¹; Miguel Niño¹; Jorge Durango¹; Marta Lopez¹; Chan Siew Hwa²; ¹Universidad de Concepción; ²Nanyang Technological University

Pan American Materials Congress: Materials for Infrastructure — Poster Session

*Sponsored by:*Third Pan American Materials Congress Organizing Committee

Program Organizers: Henry Colorado, Universidad de Antioquia; Oliverio Rodriguez, Centro de Investigacion en Química Aplicada

Tuesday PM
February 28, 2017

Room: Poster Area
Location: Marriott Marquis Hotel

PAN-25: Calcium Aluminate Cements Under High Temperature Oxidation Environment: *John Zapata*¹; Henry Colorado¹; Maryory Gómez¹; ¹Universidad de Antioquia

PAN-26: Carbonation Study in Calcium Aluminate Cement Pastes: *Jose Vanegas*¹; Henry Colorado¹; John Zapata²; ¹CCComposites Lab, Universidad de Antioquia (UdeA); ²GISI. Institución Universitaria de Envigado (IUE)

Pan American Materials Congress: Materials for Oil and Gas Industry — Poster Session

*Sponsored by:*Third Pan American Materials Congress Organizing Committee

Program Organizers: Lorenzo Martinez Gomez, Instituto de Ciencias Fisicas UNAM; Adriana Rocha, Federal University of Rio de Janeiro

Tuesday PM
February 28, 2017

Room: Poster Area
Location: Marriott Marquis Hotel

PAN-27: Blends of PVDF with Its Processing Waste: Study of the Mechanical Properties of the Blends Thermally Aged: *Leilane Cirilo*¹; Marysilvia Costa¹; ¹Programa de Engenharia Metalurgica e de Materiais - COPPE/UFRJ

Pan American Materials Congress: Materials for Transportation and Lightweighting — Poster Session

*Sponsored by:*Third Pan American Materials Congress Organizing Committee

Program Organizers: Mary Wells, University of Waterloo; Rafael Colás, Universidad Autónoma de Nuevo León; Fernand Marquis, San Diego State University; Ramalinga Viswanathan Mangalaraja, University of Concepcion; Marta Lopez, University of Concepcion; Elvi Dalgaard, Pratt & Whitney Canada; Patricia Zambrano, Universidad Autonoma de Nuevo Leon

Tuesday PM
February 28, 2017

Room: Poster Area
Location: Marriott Marquis Hotel

PAN-28: Analysis of Coir Fiber Porosity: Fernanda da Luz¹; *Sérgio Monteiro*¹; ¹Military Institute of Engineering, IME

PAN-29: Ballistic Performance in Multilayer Armor with Epoxy Composite Reinforced with Malva Fibers: Lucio Nascimento¹; Luis Henrique Leme Louro¹; Sérgio Neves Monteiro¹; Alaelson Vieira Gomes¹; Édio Pereira Lima Júnior¹; Rubens Marçal¹; *Fábio Braga*¹; ¹Instituto Militar de Engenharia

PAN-30: Curaua Non-woven Fabric Composite for Ceramic Multilayered Armors: A Lightweight, Natural, and Low Cost Alternative for Kevlar™: *Fábio Braga*¹; Augusto Cabral¹; Édio Lima Jr.¹; Sergio Monteiro¹; Foluke de Assis¹; ¹Military Institute of Engineering (IME)

PAN-31: Effect of Porosity and Bimodal Microstructure of Ti-based Alloy Foams Consolidated by Hot Pressing: *Christopher Salvo*¹; Claudio Aguilar²; Sheila Lascano²; R.V. Mangalaraja¹; ¹University of Concepcion; ²Universidad Técnica Federico Santa Maria

PAN-32: Heat Treatment of Reaction Bonded Composites: Evgeni Ionash¹; *Helen Dilman*¹; Shmulik Hayun¹; Nachum Frage¹; ¹Ben Gurion University of Negev

PAN-33: Influence of Carbon Nanotube and Graphene on Mechanical and Damping Characteristics of Epoxy Matrix Composite- A Comparative Analysis: Ankita Bisht¹; *Pallavi Gupta*¹; Debrupa Lahiri¹; ¹Indian Institute of Technology Roorkee

PAN-34: Izod Impact Tests in Polyester Matrix Composites Reinforced with Jute Fabric: Foluke de Assis¹; Sergio Monteiro¹; Artur Pereira¹; *Fábio Braga*¹; ¹Military Institute of Engineering

PAN-35: Processing and Characterization of the Electromagnetic Wave Absorption Potential of Glass Fiberreinforced Thermoset Polymer Matrix Composites: *Tugce Atuntop*¹; ¹Middle East Technical University

PAN-36: Tensile and Impact Properties of Two Fiber Configurations for Curaua Reinforced Composites: *Fábio Braga*¹; Noan Simonassi¹; Augusto Cabral¹; Sergio Monteiro¹; Foluke de Assis¹; ¹Military Institute of Engineering (IME)

PAN-37: The Effect of Ni on the Structural, Hardness and Magnetic Properties of Cu₉₀-xCo₁₀Nix – 7.5% SmCo₅ Composite Alloys Prepared by Powder Metallurgy Route: *Marta Lopez*¹; Mangalaraja Ramalinga Viswanathan¹; Christopher Salvo¹; Felipe Sanhueza¹; Jose Jiménez²; ¹University of Concepcion; ²Centro Nacional de Investigaciones Metalúrgicas, CENIM-CSIC

PAN-38: Thermo-mechanical Properties of Copolymer/Clay Nanocomposites: A Comparative Study of Production Method by In-situ and Solution Mixture: *Oscar Hernández Guerrero*¹; Mireya Hernández Vargas²; Rubén Castillo Pérez²; Bernardo Campillo Illanes²; ¹UAEM; ²Universidad Nacional Autónoma de México

PAN-39: Thermo-Mechanical Behavior of Nanostructure Polyacrylic Polymer Based on Al₂O₃ and Bentonite Nanoparticles: *Ruben Castillo-Pérez*¹; Mireya Hernández-Vargas¹; Oscar Hernández-Guerrero²; Bernardo Campillo-Illanes¹; Osvaldo Flores-Cedillo¹; ¹Universidad Nacional

Autónoma de México; ²Universidad Autónoma del Estado de Morelos

PAN-40: Thermo-Mechanical Properties of Waterborne Acrylate Hybrid Nanocomposites: *Mireya Lizbeth Hernandez-Vargas*¹; Rubén Castillo-Perez¹; Oscar Hernández-Guerrero²; Bernardo Fabián Campillo-Illanes¹; Osvaldo Flores-Cedillo¹; ¹Universidad Nacional Autónoma de México; ²Universidad Autónoma del Estado de Morelos

PAN-41: Ultra High Molecular Weight Polyethylene Reinforced with Ceramics Nanoparticles: *Édio Lima Júnior*¹; Sergio Monteiro¹; Ricardo Weber¹; Alaelson Vieira¹; ¹Military Institute of Engineering

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PAN-44: Electrochemical Preparation of Ti5Si3/TiC Composite from Titanium-rich Slag in Molten CaCl₂: *Shangshu Li*¹; Xingli Zou¹; Xiongqiang Lu¹; Kai Zheng¹; Xin Li¹; Yinshuai Wang¹; ¹Shanghai University

PAN-45: Kinetic Study on the Leaching of Vanadium-bearing Converter Slag with Dilute Sulfuric Acid: Junyi Xiang¹; Qingyun Huang²; Xuwei Lv¹; Chenguang Bai¹; ¹School of Materials Science and Engineering, Chongqing University; ²School of Materials and Metallurgical Engineering, Chongqing University of Science and Technology

PAN-46: Leaching of Celestite Concentrate in HCl Media with BaCl₂-NaCl Addition: *Emre Yilmaz*¹; Aysegul Bilen¹; Rasit Sezer¹; Selim Erturk¹; Ibrahim Hizli²; Cuneyt Arslan¹; ¹Istanbul Technical University; ²Istanbul University

PAN-47: Mechanical Activation Strengthen the Leaching of Oxide-sulphide Zinc Ore: *Kun Yang*¹; Shiwei Li¹; Chao¹; Libo Zhang¹; Jinhui Peng¹; ¹Kunming University of Science and Technology

PAN-48: Production of Strontianite from Celestite Ore in Carbonate Media: *Ibrahim Hizli*¹; Aysegul Bilen²; Rasit Sezer³; Selim Erturk²; Cuneyt Arslan²; ¹Istanbul University; ²Istanbul Technical University- ATUM; ³Karadeniz Technical University

PAN-49: Recovery of Zinc from Oxide-sulfide Zinc Ore through Oxidation and Chelation: *Kun Yang*¹; Libo Zhang¹; Chao Lv¹; Shiwei Li¹; Jinhui Peng¹; ¹Kunming University of Science and Technology

PAN-50: The Direct Leaching of Micro-disseminated Gold Concentrate by Bromide Process and the Characterization of Leaching Products: Chao Li¹; *Hongxu Li*¹; Qiankun Jing¹; ¹University of Science and Technology Beijing

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PAN-52: Direct Influence of Recovery Behaviour on Mechanical Properties in Oxygen-free Copper Processed Using Different SPD Techniques: HPT and ECAP: *Meshal Alawadhi*¹; Yi Huang¹; Terence Langdon¹; ¹University of Southampton

PAN-53: Wear Behavior of 2024 and 5083 Aluminum Alloys Processed by ECAP: M. Orozco Sandoval¹; L. Guerra Fuentes²; R. Deaquino Lara³; M. A. L. Hernandez Rodriguez²; *E. Garcia-Sanchez*²; ¹UANL; ²Universidad Autónoma de Nuevo León -Facultad de Ingeniería Mecánica y Eléctrica; ³Cinvestav Unidad Saltillo

PAN-54: Fatigue Response of ARMCO Iron after Deformation by Equal Channel Angular Pressing: Jairo-Alberto Muñoz-Bolaños¹; *Oscar-Fabian Higuera-Cobos*²; Jose-Maria Cabrera¹; ¹Universidad Politecnica de Catalunya; ²Universidad del Atlántico

PAN-55: Hardness Evolution of AZ80 Magnesium Alloy Processed by HPT at Different Temperatures: *Saad Alsubaie*¹; Yi Huang¹; Terence Langdon¹; ¹University of Southampton

PAN-56: Investigation on Activation Volume and Strain-rate Sensitivity in Ultrafine-grained Tantalum: *Yue Wang*¹; Ying Liu¹; Jing Tao Wang¹; ¹Nanjing University of Science and Technology

PAN-57: Microstructural Characterization of a Asymmetric Accumulative Roll Bonded (AARB) AA1050 Aluminum: Renan de Godoi¹; Felipe Almeida¹; Vitor Sordi¹; *Andrea Madeira Kliauga*¹; ¹UFSCar

PAN-58: Microstructure and Dynamic Mechanical Response of AA6061-T6 Processed by ECAP: *Carlos Arturo Reyes Ruiz*¹; Chedly Braham²; Jose Maria Cabrera Marrero³; Nicolas Ranc²; Veronique Favier²; Gonzalo González¹; ¹Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México; ²Laboratoire Procédés et Ingénierie Mécanique et Matériaux, CNRS UMR 8006, ENSAM-CNAM; ³Universidad Politécnica de Cataluña

PAN-59: Microstructure and Properties of Equal Channel Angular Extruded and Recrystallized OFHC Copper: *Abhinav Srivastava*¹; Jason Springs¹; Zach Levin¹; Robert Barber²; Karl Hartwig¹; ¹Texas A&M University; ²Shear Form Inc.

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PAN-60: Effect of Titanium Sulfide Precipitates on Grain Size in Low Carbon Steel: *Yuan Wu*¹; ¹Shanghai University

PAN-61: Hydrogen Gaseous Embrittling Effect over Mechanical Properties of a Heat Treated Experimental Microalloyed Steel with Different Cooling Rates: *Julio Villalobos*¹; Edgar Lopez²; Octavio Vazquez³; Sergio Serna¹; Bernardo Campillo⁴; ¹CIICAP; ²Universidad del Istmo, Campus Tehuantepec; ³Instituto Tecnológico de Morelia; ⁴ICF-UNAM, FQ-UNAM

PAN-62: Influence of Oxide Size and Composition on MnS Formation in Continuous Casting Slab of Low Carbon Steel: *Fangjie Li*¹; ¹Shanghai University

PAN-63: Kinetic Study of the Austenite Decomposition during Continuous Cooling in a Welding Steel: Octavio Vázquez-Gómez¹; *Edgar López-Martínez*²; Alexis Gallegos-Pérez³; Heber Santoyo-Avilés⁴; Héctor Vergara-Hernández⁵; Bernardo Campillo⁵; ¹Instituto Tecnológico de Morelia - CONACyT; ²Universidad del Istmo; ³Instituto Tecnológico de Morelia; ⁴Ternium México; ⁵Universidad Nacional Autónoma de México

PAN-64: Study of Ductile Austempered Iron Alloyed with V, Mo AND Cr: *Fatima Alicia de la Rosa Castañeda*¹; ¹IPN - UPIIZ

PAN-66: Tempering Response of Bainitic and Martensitic Microstructures: *Igor Vieira*¹; Emmanuel De Moor¹; ¹Colorado School of Mines

PAN-67: Using CCT and TTT Diagrams Obtained by Simulation for Developing AHSS: *Jose Pacheco*¹; Jose Cruz²; Pedro Garnica³; Jose Lopez³; José Gutierrez⁴; Jose Quezada¹; ¹DICIM UASLP; ²Facultad de Ingeniería UASLP; ³Instituto Tecnológico de Morelia; ⁴Instituto de Metalurgia UASLP

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