Symposium 23: Advances in Biomineralized Ceramics, Bioceramics, and Bioinspired Designs
Thursday, June 6, 2013

Mineralization Processes, Self-assembly and Organic/Inorganic Structures

8:30 AM-12:00 PM
Room: Bayside/Strand
Session Chair(s): Laurie Gower, Wen Yang

8:30 AM
(PACRIM10-S23-001-2013) Biology Enabled Materials Assembly and Synthesis (Invited Speaker)
Candan Tamerler*, University of Washington, USA

9:00 AM
(PACRIM10-S23-002-2013) Using Polymers to Repair Carious Lesions in Dentin (Invited Speaker)
Stefan Habelitz*, Kuniko Saeki, University of California, USA; Yung-Ching Chien, Lawrence Berkeley National Laboratory, USA; Laurie Gower, University of Florida, USA; James J DeYoreo, Lawrence Berkeley National Laboratory, USA; Grayson W Marshall, University of California, USA

9:30 AM
(PACRIM10-S23-003-2013) Physical Controls on Matrix Mineralization (Invited Speaker)
Jinhui Tao*, Mike Nielsen, Jim De Yoreo, Lawrence Berkeley National Lab, USA

10:00 AM
Break

10:20 AM
(PACRIM10-S23-004-2013) NMR investigation of biomimetic collagen-apatite models
Yan Wang, Thierry Azais, Guillaume Laurent, UPMC/CNRS/Collège de France, France; Franck Fayon, CEMHTI CNRS, France; Nadine Nassif, Florence Babonneau*, UPMC/CNRS/Collège de France, France

10:40 AM
(PACRIM10-S23-005-2013) Multifunctional role of NCPs and their mimics in HA/collagen nanocomposites (Invited Speaker)
Douglas E. Rodriguez*, University of Florida, USA

11:10 AM
(PACRIM10-S23-006-2013) The formation of hierarchical structures from amorphous calcium carbonate and inorganic additives (Invited Speaker)
Jong Seto*, Helmut Coelfen, Universitaet Konstanz, Germany

11:40 AM
(PACRIM10-S23-007-2013) Use of biomineralization media in biomimetic synthesis of bone substitutes (Invited Speaker)
A. Cuneyt Tas*, University of Illinois, USA

Bioinspired and Biomimetic Ceramics and Composites and New Materials

1:20 PM-5:30 PM
Room: Bayside/Strand
Session Chair(s): Po-Yu Chen, Ekaterina Novitskaya

1:20 PM
(PACRIM10-S23-008-2013) Bio-Inspired Micro-Channeled Hydroxyapatite Components by Sequential Freeze Drying and Free Pressureless Spark-Plasma Sintering (Invited Speaker)
Eugene Olevsky*, Yen-Shan Lin, San Diego State
1:50 PM
(PACRIM10-S23-009-2013) Functional ceramic composites by magnetic field aligned freeze casting and subsequent polymer infiltration
Michael Porter*, Marc A Meyers, Joanna McKittrick, University of California San Diego, USA

2:10 PM
(PACRIM10-S23-010-2013) Biologically-Inspired Synthesis of Nanostructured Zinc Oxide (Invited Speaker)
Wenting Hou, UC Riverside, USA; Michael Nielsen, Lawrence Berkeley National Labs, USA; Louis Lancaster, UC Riverside, USA; Dongsheng Li, James DeYoreo, Lawrence Berkeley National Labs, USA; David Kisailus*, UC Riverside, USA

2:40 PM
(PACRIM10-S23-011-2013) Multifunctional Glass Microspheres for Medical Applications (Invited Speaker)
Delbert E Day*, Missouri University of Science and Technology, USA

3:10 PM
Break

3:30 PM
(PACRIM10-S23-012-2013) Infiltrated mullite-cordierite / epoxy co-continuous composites
James Zimmermann*, Manuela Ocampo, Patrick Tepesch, Corning, USA

3:50 PM
Valentina Naglieri*, Bernd Gludovatz, Amy Wat, Antoni P Tomsia, Lawrence Berkeley National Laboratory, USA; Robert O Ritchie, UC Berkeley, USA

4:20 PM
(PACRIM10-S23-014-2013) Vapor Deposition Polymerization as an Alternative Method to Enhance the Mechanical Performance of Bio-Inspired Scaffolds
Pei-Chun Chou*, National Tsing Hua University, Taiwan; Michael M Porter, Joanna McKittrick, University of California, San Diego, USA; Po-Yu Chen, National Tsing Hua University, Taiwan

4:40 PM
(PACRIM10-S23-015-2013) Bioinspired Materials Derived from Natural Species (Invited Speaker)
Tongxiang Fan*, Xingmei Guo, Di Zhang, Shanghai Jiaotong University, China

5:10 PM
(PACRIM10-S23-016-2013) Comparative evaluation of the crystallization behavior and biocompatibility of fluorapatite-mullite glass-ceramics
Sahar Mollazadeh Beidokhti, Iran University of Science and Technology, Islamic Republic of Iran; Abbas Youssefi*, Par-e- Tavous Research Center, Islamic Republic of Iran; Bijan Eftekhari Yekta, Jafar Javadpour, Iran University of Science and Technology, Islamic Republic of Iran; Tahere Sadat Jafarzade Kashi, Tehran University of Medical Science, Islamic Republic of Iran; Morteza Mehrju, Mohhamad Ali Shokrgozar, National Cell Bank of Iran- Pasteur Institute of Iran, Islamic Republic of Iran

Friday, June 7, 2013

Natural Ceramics and Composites

8:30 AM-12:20 PM
Room: Bayside/Strand
Session Chair(s): Joanna McKittrick, Eugene Olevsky
8:30 AM
(PACRIM10-S23-017-2013) Structure and fracture resistance of armored fish scales (Invited Speaker)
Marc Meyers*, Wen Yang, University of California, San Diego, USA; Bernd Gludovatz, Elizabeth Zimmermann, Robert Ritchie, University of California, Berkeley, USA

9:00 AM
Wen Yang*, James Kiang, Michael Porter, Marc Meyers, Joanna McKittrick, University of California, San Diego, USA

9:30 AM
(PACRIM10-S23-019-2013) Mechanical and Functional Design of Natural Dermal Armors
Chang-Yu Sun*, Hao-Jen Fang, Pei-Chun Chou, Po-Yu Chen, National Tsing Hua University, Taiwan

9:50 AM
(PACRIM10-S23-020-2013) Comparison of the prehensility of the tail of Alligator Pipefish and Bay Pipefish
Zherrina Manilay*, Vanessa Nguyen, Ana Bertha Castro-Ceseña, Michael M Porter, Ekaterina Novitskaya, Joanna McKittrick, University of California, San Diego, USA

10:10 AM
Break

10:30 AM
Yao-Tien Ku, National Tsing Hua University, Taiwan; Wen-Guang Liu, National Tsing Hua University, Taiwan; Yueh-Ying Chou, National Tsing Hua University, Taiwan; Yi-Hsin Lee, Chuan-Chin Chiao, National Tsing Hua University, Taiwan; Po-Yu Chen*, National Tsing Hua University, Taiwan

10:50 AM
(PACRIM10-S23-022-2013) Reinforcing structures in avian wing bones
Ekaterina Novitskaya*, James Kiang, Hannah Walsh, Marc A Meyers, Joanna McKittrick, University of California, San Diego, USA

11:10 AM
James C Weaver*, Harvard University, USA

11:40 AM
(PACRIM10-S23-024-2013) Role of structural components on the microcracking of human dentin
Felipe Eltit*, Vincent Ebacher, Rizhi Wang, UBC, Canada

12:00 PM
(PACRIM10-S23-025-2013) Shear Fracture of Human Cortical Bone
Tengteng (Toni) Tang*, Vincent Ebacher, UBC, Canada; Pierre Guy, Center for Hip Health and Mobility, Canada; Peter Cripton, UBC, Canada; Heather McKay, Center for Hip Health and Mobility, Canada; Rizhi Wang, UBC, Canada