

22: 4th Topical Conference on Nanoscale Science and Engineering Forum

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Chair: Lev Gelb

Vice Chair: Janna K Maranas

Session 47 - Molecular Modeling Methods I: Recent advances in Molecular Dynamics

Chair: Jonathan Moore

Vice Chair: Jeffrey R Errington

- 47h [Replica Exchange Molecular Dynamics Modeling of Foldamers](#)
Bamidele Adisa, David Bruce and Jay McAliley

Session 48 - Nanoscale Systems I: Water in Heterogeneous Environments

Chair: Bernhardt L Trout

Vice Chair: J. Ilja Siepmann

- 48a [Molecular Dynamics Simulation of Methane Hydrate Dissociation](#)
Niall J. English

- 48e [Pressure Denaturation of Proteins in Water: Revisiting a Heteropolymer Collapse Model](#)
Pooja Shah, Thomas M. Truskett

Session 53 - Molecular Modeling Methods III: Developments in intermolecular potential models

Chair: Marcus Martin

Vice Chair: Matthew Neurock

- 53e [Transferable Step Potentials for Amines, Primary Amides, Ketones, Thiophenes, Phosphates, and Chlorinated Hydrocarbons](#)
Amanda Sans, F. Suhan Baskaya, Neil H. Gray, Zeynep N. Gerek and J. Richard Elliott

Session 59 - Advances in Biomaterials, Bionanotechnology, Biomimetic Systems and Tissue Engineering: Plenary Session I *

Chair: Nicholas A Peppas

Vice Chair: Angela K Dillow

Session 60 - Advances in Biomaterials, Bionanotechnology, Biomimetic Systems and Tissue Engineering: PlenarySession II *

Chair: Christine E Schmidt

Vice Chair: Angela K Dillow

Session 62 - Intracellular Trafficking of Biomaterials/Bionanotech Devices

Chair: Justin Hanes

Vice Chair: Julia Babensee

- 62d [Real-time Correlation of Intracellular Gene Vector Transport Rates with Biological Location in Live Mesenchymal Stem Cells](#)
J. Suh, Y. An, B. Tang, J.S. Suk and J. Hanes

- 62e [Cellular Uptake and Intracellular Transport of Viral and Non-viral Gene Vectors in Differentiated Neurons Affected in Parkinson's Disease](#)
J.S. Suk, J. Suh and J. Hanes

Session 64 - Nanotechnology for Drug Delivery and Imaging

Chair: Lisa Brannon-Peppas

Vice Chair: Samir Mitragotri

- 64d Tracking the Intracellular Path of Fluorescently Labeled DNA Delivered by PEI Nanocomplexes in Live Cells
Y. An, J. Suh and J. Hanes
- 64g Paclitaxel-loaded biodegradable nanoparticles developed by direct dialysis and electrodynamic atomization methods
Jingwei Xie and Chi-Hwa Wang

Session 65 - Nanostructured Biomaterials

Chair: Jeffrey D Carbeck

Vice Chair: Krishnendu Roy

- 65e Carbohydrate-Centered PAMAM Dendrimers for Growing Liver Cells
Jeremy D. Lease and Tong Yen Wah
- 65f More Efficient Capture of Bacteria on Nanophase Materials
Z. Zhong, and Margaret K. Banks and Thomas J. Webster

Session 66 - Nanofabrication of Biosensing Devices

Chair: Mark E Byrne

Vice Chair: J. Zach Hilt

- 66b A Rapid Antigen Detection Assay Using Photografted Whole Antibodies
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- 66d Biomimetic Polymers in Drug Delivery and Sensing Applications: Effect of Network Molecular Structure on Recognition Properties
J. Zach Hilt, Nicholas A. Peppas and Mark E. Byrne

Session 67 - Bionanotechnology in Cancer and Cardiovascular Disease

Chair: Justin Hanes

Vice Chair: Douglas J Goetz

- 67g A new mutation affecting the ATP pocket of kit receptor in patients with GIST showing acquired resistance to Imatinib: a coupled experimental and modeling investigation
S. Pricl, A. Coslanich, M. Fermeglia, M. Ferrone, M.S. Paneni, E. Tamborini, S. Pilotti, M.A. Pierotti

Session 70 - Advances in Biomaterials, Bionanotechnology, Biomimetic Systems and Tissue Engineering: Tutorial Session I

Chair: Surya K Mallapragada

Vice Chair: Christopher S Brazel

- 70a Manipulating Cellular Response Through Polymer Chemistry and Morphology
Molly S. Shoichet, Paul Dalton, Jeffrey M. Karp, Ying Luo and Tina Yu
- 70d Theory and Applications of Intelligent Biomaterials
Nicholas A Peppas

Session 73 - Advances in Biomaterials, Bionanotechnology, Biomimetic Systems and Tissue Engineering: Tutorial Session II

Chair: Antonios G Mikos

Vice Chair: Thomas J Webster

- 73a The future of intelligent therapeutics
Nicholas A Peppas, Nicole M Bergmann and E. Hunter Lauten

Session 76 - Nanotechnology in Bioengineering

Chair: Christina Chan

Vice Chair: Krishnendu Roy

- 76c Functionalized ZnSe Quantum Dots as Luminescent Tags in High-Throughput Biological Assays
Jun Wang, Stelios Andreadis and T.J. Mountzaris
- 76e Self-assembly of Pure Nanotubes from a Single-Chain Diacetylene Amine Salt
Sang Beom Lee, Richard Koepsel, Donna B. Stoltz, Heidi E. Warriner and Alan J. Russell
- 76f Selective Primary Hepatocyte Adhesion on Polyelectrolyte Multilayer : Template for Patterned Cell Co-Culture
Srivatsan Kidambi, Ilsoon Lee, Christina Chan
- 76g Towards Single-Walled Carbon Nanotubes as an Integrated Component of Conductive Biomaterials: The Effect of Production Contaminants on *in vitro* Cell Viability and Metabolic Activity
Aditya Nimmagadda and Peter S. McFetridge

Session 80 - Biological Materials for Patterning and Assembly of Nanomaterials

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Vice Chair: Mark E Byrne

- 80b Topography of self-assembled zein structures on hydrophilic and hydrophobic surfaces
Qin Wang and Graciela W. Padua
- 80c *E. coli* Biosynthesis of Cadmium Sulfide Nanocrystals
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Vice Chair: Balaji Narasimhan

- 81a Osteoblasts Alignment on Nanophase Materials
Dongwoo Khang and Thomas J. Webster
- 81b Inverted Colloidal Crystals as Tissue Engineering Scaffolds
Jungwoo Lee and Nicholas Kotov
- 81f Self-assembly of phage semiconductor nanowires
Rozamond Y. Sweeney, Angela M. Belcher, Brent L. Iverson and George Georgiou
- 81g CdTe and Au quantum-dot bioconjugated super-molecules: light emission and energy transport
Jaebeom Lee, Alexander O. Govorov, John Dulka and Nicholas A. Kotov

Session 154 - Thermodynamics on the Nanoscale I *

Chair: Mikhail A Anisimov

Vice Chair: Hank Ashbaugh

Session 157 - Thermodynamics on the Nanoscale II *

Chair: Hank Ashbaugh

Vice Chair: Mikhail A Anisimov

Session 171 - Nanoparticle Synthesis and Stabilization I

Chair: Darrell Velegol

Vice Chair: Nickolas Kotov

- 171a Facile Synthesis and Colloidal Stabilization of Metal Nanoparticles in Aqueous Amphiphilic Block Copolymer Solutions
Toshio Sakai and Paschalidis Alexandridis

Session 174 - Nanoparticle Synthesis and Stabilization II *

Chair: Darrell Velegol
Vice Chair: Nickolas Kotov

Session 176 - Applications of Nanostructured Fluids

Chair: Raj Wallajapet
Vice Chair: Paschalis Alexandridis

- 176g Removal of Arsenic from Water Using Amphiphilic Molecules and Ultrafiltration Membranes
Erdogan Ergican and Hatice Gecol

Session 197 - Current Trends in Nanoscience in Chemical Engineering: Making the Transition From Materials and Phenomena to New Technologies

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- 197g Batch and continuous hydrothermal synthesis of LiFePO₄ micro- and nanoparticles
Jaewon Lee, Chunbao Xu and Amyn S. Teja

Session 201 - Transport Processes in Nanophase and Nanoscale Systems *

Chair: Marc-Olivier Coppens
Vice Chair: Joel Plawsky

Session 281 - Nano Energetic Materials

Chair: Jan A Puszynski
Vice Chair: Hendrik J Viljoen

- 281b Effect of Aluminum Nanopowder Characteristics on Preparation and Performance of Al-Metal Oxide Nanoenergetic Mixtures
Christopher J Bulian, Tyler T Kerr, Jacek J Swiatkiewicz, Jan A Puszynski
- 281d A Study in Mechano-Chemistry: Pressure Induced Reactions and Nonequilibrium Phenomenon
Alexander Gordopolov, Hendrik J. Viljoen
- 281e In-Situ Polymer Grafting on Ultrafine Metal Powders
Charles DUBOIS, Patrick BROUSSEAU, Cedric ROY, Pierre LAFLEUR
- 281f Nanofuel/Oxidizers For Energetic Compositions
Randall J. Cramer

Session 286 - Gas Phase Synthesis of Nano-particles I

Chair: George Fotou
Vice Chair: Karsten Wegner

- 286f Generation of Aluminum Nanoparticles Using an Atmospheric Pressure Plasma Torch
John C. Weigle, Claudia C. Luhrs, C.-K. Chen, W. Lee Perry, Joseph T. Mang, Gabriel P. Lopez, Jonathan Phillips

Session 290 - Multicomponent Structured Particles

Chair: Sotiris Pratsinis
Vice Chair: George Fotou

- 290b Radiopaque flame-made Ta₂O₅/SiO₂ nanoparticles with controlled refractive index and transparency
Heiko Schulza (speaker), Lutz Mädler, Sotiris E. Pratsinisa, Peter Burtscherb, Norbert Mosznerb
- 290c Fluidization Behavior and Conformal Coating of Nanoparticles in Fluidized Beds by ALD
Luis F. Hakim, Julie L. Portman, Michelle D. Casper, Alan W. Weimer

Session 291 - Gas Phase Synthesis of Nano-particles II

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- 291e Formation of Nanoparticles in Flames Measurement by Particle Mass Spectrometry and Numerical Simulation
H.-R. Paur, H. Mätzing, H. Seifert

- 291g Effect of Annealing on the Mechanical Properties of Porous Titania Nanoparticle Agglomerate Films
O. A. Ogunsola, S. H. Ehrman

Session 360 - Nanoparticle Assemblies and Superlattices *

Chair: Yangchuan Xing

Vice Chair: Michael Z Hu

Session 365 - Liquid-Phase Synthesis of Nanoparticles *

Chair: Michael T Harris

Vice Chair: Michael S Wong

Session 430 - Operation of Micro-and Nano-systems

Chair: Vipin Gopal

Vice Chair: Claire Adjiman

- 430b Optimal Design and Operation of Micro Power Generation Processes
Benoit Chachuat, Alexander Mitsos and Paul I. Barton

- 430d Thermo-fluid Design Approach to Microreactors with Uniform Temperature and Residence Time Distribution
Osamu Tonomura, Masaru Noda, Manabu Kano and Shinji Hasebe

- 430g Evaluation of operational process parameters for nanoparticle precipitation in microemulsions using a Monte-Carlo Simulation approach
Andreas Voigt, Dendy Adityawarman and Kai Sundmacher

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- 558g Preparation of High Surface Area VOHPO₄·0.5H₂O with the Alkoxide Method
Juan M. Salazar, Keith L. Hohn

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Vice Chair: Michael S Strano

- 566a Nanotechnology for the Enhancement of Human Health
James R. Baker, Jr. M.D.

- 566b Virus-Based Genetic Toolkit for the Directed Synthesis of Magnetic and Semiconducting Nanowires
Angela M. Belcher, Chuanbin Mao, Daniel J. Solis, Brian D. Reiss, Stephen T. Kottmann, Rozamond Y. Sweeney, George Georgiou, Brent Iverson

- 566c Functionalization of Carbon Nanotubes
James M. Tour

- 566d Evolution of Bio-assisted Molecular Electronics In Dupont
Timothy Gierke

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Vice Chair: Gil U Lee

Session 568 - Nanotechnology for Biotechnology and Pharmaceuticals Industries

Chair: Henry Y Wang

Vice Chair: Shuichi Takayama

- 568f [Highly Stable Core-Surface-Crosslinked Micelles as Drug Carriers for Cancer Chemotherapy](#)
Peisheng Xu, Huadong Tang, Shiyan Li, Jun Ren, Van Kirk, Edward., Murdoch, William. J., Maciej Radosz, Youqing Shen

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- 569a [Fluidic Self-Assembly of Nanowires](#)
Zhiyong Gu, Yiming Chen, David H. Gracias

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Chair: Sharon C Glotzer

Vice Chair: Clare McCabe

Session 571 - Issues in Carbon Nanotubes I: Synthesis of Carbon Nanotubes and Nanotube-based Materials

Chair: Daniel E Resasco

Vice Chair: Michael S Strano

- 571f [Synthesis, Characterization and Stability of Fe-MCM-41 for Production of Carbon Nanotubes by Acetylene Pyrolysis](#)
Placidus Amama, Sangyun Lim, Dragos Ciuparu, Yanhui Yang, Lisa Pfefferle, Gary Haller

Session 572 - Nanofabrication and Nanoscale Processing II

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- 572b [Sub-50 nm Imprint Lithography for Wafer-Scale Nano-Manufacturing](#)
V. N. Truskett, F. Xu, I. McMackin, J. Choi, P. Schumaker, D. Babbs, E. Thompson, S. V. Sreenivasan, M. Watts, N. Schumaker
- 572f [Conductive Copper Patterns by an Additive, Solventless, Contact Printing Technique](#)
Kimberly Felmet, Yangming Sun, Yueh-Lin Loo

Session 573 - Issues in Carbon Nanotubes II: Characterization, Functionalization and Applications *

Chair: Michael S Strano

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Session 574 - Nanoscale Structure in Polymers I: Self-organization of Polymers at Surfaces and Interfaces *

Chair: Carson Meredith

Vice Chair: Sanat Kumar

Session 575 - Self and Directed Assembly at the Nanoscale I *

Chair: Hank Ashbaugh

Vice Chair: Kristen A Fichthorn

Session 576 - Issues in Carbon Nanotubes III: Adsorption and Transport

Chair: Karl Johnson
Vice Chair: Daniel E Resasco

- 576h [Characterization of Single-Walled Carbon Nanotubes for Environmental Implications](#)
Sandeep Agnihotri, Massoud Rostam-Abadi, Mark. J. Rood

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Vice Chair: Yossef A Elabd

- 577b [Texture Formation in Multiphase Polymer-Liquid Crystal Materials](#)
Susanta K. Das, Alejandro D. Rey

- 577f [Preparation of Poly\(vinyl alcohol\)/TiO₂ Nanofibers by Electrospinning](#)
Yu-Hsun Nien, Po-Jung Lin, Lih-Yun Wu, Tzy-Harn Liou, Pey -I Wey

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- 578ai [Patterned films of ITO nanoparticles fabricated by Ink-jet method](#)
Kaori Eguchi, Hideshi Sasakura and Yukio Yamaguchi

- 578aq [Melting and Structural Evolution of Palladium and Graphite-supported Palladium Nanoclusters: A Molecular Dynamics Simulation Study](#)
Ling Miao, Venkat R. Bhethanabotla and Babu Joseph

- 578b [Computer simulation of polymer-organoclay nanocomposites for packaging applications: from binding energy to interlayer spacing predictions](#)
S. Pricl, A. Coslanich, M. Fermeglia, M. Ferrone, M.S. Paneni, G. Scocchi, L. Incarnato and G. Russo

- 578c [Molecular modeling of hydrogen storage in carbon nanotubes: a combined molecular dynamics/ab initio orbital study](#)
S. Pricl, A. Coslanich, M. Fermeglia, M. Ferrone, M.S. Paneni and F. Romanel

- 578g [Selective growth of RuO₂ nanorods and influence of thermal heating on their field emission properties](#)
Dah-Shyang Tsai, Chih-Sung Hsieh and Ginny Wang

- 578k [Composite Nanoparticles for Defectivity Reduction during CMP](#)
Silvia Armini, Valentina Terzieva and Karen Maex

- 578s [Surface modification of titania nanoparticles by an evaporation-condensation process in a flow chamber](#)
Seonmin Kim and Sheryl Ehrman

Session 579 - Nanoelectronic Materials

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- 579b [Understanding the Assembly of Conjugated Dithiol Molecules on GaAs](#)
Dmitry Krapchetrov, Hong Ma, Daniel A. Fischer, Alex Jen and Yueh-Lin (Lynn) Loo

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- 580d [Nucleation Effects of Nanoparticles on Microcellular Polystyrene Foams](#)
Jiong Shen, Changchun Zeng and L. James Lee

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- 581f [Equilibrium Microstructure of Complex Fluids](#)
YoChan Kim, Charles A. Petty and André Bénard

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Vice Chair: Michael S Strano

- 582g [Direct Synthesis of Carbon Nanotubes on Organic Polymer Substrates](#)
Eun-Hwa Hong, Beom-Jin Yoon, Dae-Sup Shim and Kun-Hong Lee

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Vice Chair: Venkat R Bhethanabotia

Session 584 - Self and Directed Assembly at the Nanoscale III

Chair: Hank Ashbaugh
Vice Chair: Kristen A Fichthorn

- 584f [Permanently Linked Rigid Superparamagnetic Chains](#)
Harpreet Singh, Paul E. Laibinis and T. Alan Hatton

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- 587b [Hydrogen Production from Simulated Gasoline using Nickel-Based Catalysts](#)
Andrew Tadd, Ben Gould and Johannes Schwank

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- 589d [Molecular dynamics simulation of thermal and mechanical properties of polyimide-carbon-nanotube composites](#)
Dewei Qi and Jeffrey Hinkley

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- 590d [Self-Organization of Monolayer of Polystyrene Spheres Assisted with Silica Nanoparticles by Wet Coating](#)
Hideshi Sasakura, Masahiro Fujita and Yukio Yamaguchi

- 590f [Continuous hydrothermal synthesis of polymer-coated Fe₂O₃ and CoFe₂O₄ nanoparticles](#)
Chunbao Xu and Amyn S. Teja

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- 591a [Carbon Nanotubes As A Premium Catalyst Support Material](#)
Jun Ma

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Chair: Michael S Wong
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Session 593 - Nanowires I

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Vice Chair: Eray S Aydil

- 593f [Direct synthesis, characterization and modification of SiC nanowires](#)
Kijung Yong, Yonghwan Ryu and Youngjo Tak
- 593g [Bioconjugation between CdTe nanowires and Au nanoparticles: Fluorescence enhancement](#)
J. B. Lee, A. O. Govorov, J. Dulka and N. A. Kotov

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- 594f [Lateral Force Microscopy Study of the Friction between Silica Surfaces in Electrolyte Solutions](#)
Bogdan C. Donose, Ivan U. Vakarelski and Ko Higashitani

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- 595h [Small-Scale Pattern Size Control during Metal Electropolishing](#)
Weidong Guo and Duane T. Johnson

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- 596b [A Microfluidic Chip for Bio-Bar-Code-Based Detection of Proteins](#)
Edgar D. Goluch, Jwa-Min Nam, Thomas N. Chiesl, Kashan A. Shaikh, Kee Suk Ryu, Annelise E. Barron, Chad A. Mirkin, and Chang Liu

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- 597b [Nano-templated Silsesquioxanes for Electrical/Optical Applications](#)
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- 597e [Monitoring sintering of nanoparticle clusters by X-ray microtomography](#)
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- 597f [Intermediate Processing of Polymer-Silica Hybrid Nanoparticles using X-ray Microtomography](#)
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- 599a [Metal Cluster Deposition on Genetically Engineered Tobacco Mosaic Virus Biotemplates](#)
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- 599b [A Novel Route to Fabricate Au-Te Nanocables](#)
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- 599d [Molecular Dynamics Simulations for Melting of Palladium Nanoclusters and Nanowires](#)
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- 599g [Synthesis and Characterization of Titania Nanostructures](#)
P. Katta, L. Khatri, R.D. Ramsier and G.G. Chase

* These papers were unavailable at the time of publication.