Joint NSRC Workshop on Nanoparticle Science
November 5-6, 2012
Argonne National Laboratory

Posters

Argonne CNM:

1) **Assembly of Directly Ordered High-Anisotropy Nanomagnets,** B. Balamurugan,[1,2*], B. Das, R. Skomski,[1,2] V.R. Shah, X.Z. Li, and D.J. Sellmyer[1,2,] Nebraska Center for Materials and Nanoscience, University of Nebraska, Lincoln, NE 68588.2Department of Physics and Astronomy, University of Nebraska, Lincoln, NE 68588, USA, balamurugan@unl.edu
2) **Investigation of formation and crystallization of the protein-templated magnetic nanoparticles using the *in-situ* liquid cell Scanning Transmission Electron Microscopy.** Sanjay Kashyap, Bram Carlson, Russel E. Gast, and Tanya Prozorov, Ames National Laboratory, Ames, IA, kashyapsanjay@ameslab.gov
3) **Suspensions as Solutions: Nanoparticle Solubility as a Function of Solvent, Ligand and Temperature.** C. M. Sorensen, Depts. of Physics and Chemistry, Kansas State University, sor@phys.ksu.edu.
4) **Equilibrium dynamics of nanoparticle-decorated block copolymers,** Woo-Sik Jang,[1] Kyle Bryson,[2] Suresh Narayanan,[3] Alec Sandy,[3] Thomas P. Russell,[2] and Simon G. Mochrie[1], [1]Department of Physics, Yale University, [2]Polymer Science and Engineering, University of Massachusetts at Amherst, [3]Advanced Photon Source, Argonne National Laboroaty, woo-sik.jang@yale.edu
5) **X-ray scattering studies of voltage-tunable nanoparticle ordering at a liquid/liquid interface,** Mrinal K Bera[1], H. Yu[1], S. Tatur[1], W. Bu[1], D. Amoanu[1], D. Moyano[2], V. Rotello[2], H. Chan[1], P. Kral[1], B. Lin[3], M. Meron[3], P. Vanysek[4] and M. L. Schlossman[1], [1]Univ. of Illinois at Chicago, [1]University of Illinois at Chicago, IL 60607 [2]University of Massachusetts, Amherst, MA 01003, [3]CARS, University of Chicago, Chicago, IL 60637, [4]Northern Illinois University, DeKalb, IL 60115, nayanbera@gmail.com
6) **Synthesis of Palladium nanoparticles supported on Multiwalled Carbon Nanotubes by Gamma Irradiation,** J.V. Rojas, C.H. Castano , Missouri University of Science and Technology, jvr45d@mail.mst.edu
7) **Optical Spectra of Au Nanoparticle Arrays in Grating Templates on a Silver Mirror** E. Palacios[1], A. Chen, R. Miller, E. dePrince III, S. Gray[2], U. Welp[1], V. Vlasko-Vlasov[1], D. Rosenmann[2], [1]Materials Science Division, [2]Center for Nanoscale Materials, Argonne National Lab, epalacios@anl.gov
8) **Networks of Palladium/Gold Nanoparticles as High-Performance Hydrogen Sensors** X. Q. Zeng[1,2], G. Wise[3], Z. L. Xiao[1,3], Y. Ito[3], T. Xu[2], and W. K. Kwok[1,] Materials Science Division, Argonne National Laboratory, Argonne, Illinois 60439, [2]Department of

Chemistry and Biochemistry, Northern Illinois University, [3]Department of Physics, Northern Illinois University, xiaoqiao@anl.gov

9) **Growth characterization of electron-beam-induced silver deposition from liquid precursor**
B. Chen (Illinois Math and Science Academy), J. Park (Northwestern University), L.E. Ocola, D. Gosztola, R. Divan (Center for Nanoscale Materials, Argonne National Lab)

Brookhaven, CFN:

1) **Correlating Energy Transfer Efficiency with Quantum Rod Composition, Aspect Ratio, and Microstructure in Biotic-Abiotic Nanosystems**, Rabeka Alam, Hyunjoo Han, Mathew M. Maye, Department of Chemistry, Syracuse University, ralam@syr.edu, mmmaye@syr.edu
2) **Enhance the Efficiency of Polymer Electrolyte Membrane Fuel Cell (PEMFC) by Applying a Monolayer of Gold Nanoparticles onto the Membrane**, Cheng Pan, Kenny Kao, Sisi Qin and Miriam H. Rafailovich, Materials Science & Engineering, Stony Brook University, chepan@notes.cc.sunysb.edu
3) **Self-assembly Columnar Structure in Active Layer of Bulk Heterojunction Solar Cell,** Cheng Pan[1], Hongfei Li[1], Bulent Akgun[2], Sushil K. Satijia[2], Dilip Gersappe[1], Yimei Zhu[3] and Miriam H. Rafailovich[1], [1]Department of Materials Science and Engineering, State University of New York at Stony Brook, Stony Brook, New York 11794-2275, [2]Center for Neutron Research, National Institute of Standards and Technology, Gaithersburg, Maryland 2089, [3]Center for Functional Nanomaterials, Brookhaven National Laboratory, Upton, New York 11973-5000 chepan@notes.cc.sunysb.edu
4) **Self-assembly Columnar Structure in Active Layer of Bulk Heterojunction Solar Cell**, Hongfei Li, Materials Science & Engineering Stony Brook University, Hongfei Li lihongfei10@yahoo.com.cn
5) **Development of antibody-encapsulating hydrophobically modified glycol chitosan nanoparticles** Amanda Chin[1], Yizhi Meng[1,2], [1]Department of Materials Science & Engineering, Stony Brook University, New York, USA, [2]Department of Chemical & Molecular Engineering, Stony Brook University, New York, chin.mandy@gmail.com
6) **Ultrafast supercontinuum spectroscopy of multiple exciton states in lead chalcogenide nanorods and nanocrystals**, F. Gesuele[1*], M. Y. Sfeir[2], W.-K. Koh[3], C. B. Murray[3,4], T. F. Heinz[5] and C. W. Wong[1*] [1]Optical Nanostructures Laboratory, Center for Integrated Science and Engineering, Solid-State Science and Engineering, and Mechanical Engineering, Columbia University, New York, NY 10027, [2]Center for Functional Nanomaterials, Brookhaven National Laboratory, Upton, NY 1197, [3]Department of Chemistry, University of Pennsylvania, Philadelphia, PA 19104, [4]Department of Materials Science and Engineering, University of Pennsylvania, Philadelphia, PA , 19104, [5]Departments of Physics and Electrical Engineering, Columbia University, New York, NY 10027, fg2251@columbia.edu cww2104@columbia.edu

7) **A Nano-facet Activator of Catalytic Platinum: Truncated Ditetragonal Gold Prism**, Fang Lu,*,† Yu Zhang,‡ Lihua Zhang,† Yugang Zhang,† Jia X. Wang,‡ Radoslav R. Adzic,‡ Eric A. Stach,† and Oleg Gang*,†,† Center of Functional Nanomaterials (CFN), ‡ Chemistry Department, Brookhaven National Laboratory (BNL), Upton, NY 11973, USA, flu@bnl.gov
8) **Ptychography Experiments for Soft Nano-materials Characterization**, S. Wang[1], D. Shapiro[2], K. Kaznatcheev[1],[1]NSLSII, Brookhaven National Laboratory, Upton NY 11973, USA, [2]ALS, Lawerence Berkeley National Laboratory, Berkeley CA 94720, USA, shellywang@bnl.gov
9) **Structural transformations and rheological response in DNA-functioned nanoparticles assemblies at liquid-air interfaces**, Sunita Srivastava[1], Dmytro Nykypanchuk[1], Masafumi Fukuto[2], Jonathan Halverson[1], Alexei Tkachenko[1], KevinYager[1] and Oleg Gang[1], [1]Center for Functional Nanomaterials, Brookhaven National Laboratory, Upton, NY, 11973, [2]Condensed Matter Physics and Materials Science Department, Brookhaven National Laboratory, Upton, NY, 11973. ssrivastava@bnl.gov

Oak Ridge CNMS

1) **Sensitization of Eu3+ Luminescence in Eu:YPO4 Nanocrystals**, Jiangchao Chen, Cuikun Lin, Qingguo Meng, P. Stanley May, Mary T. Berry , University of South Dakota, Vermillion, SD 57069 Jiangchao.Chen@coyotes.usd.edu
2) **Core-Shell CoCu Nanoparticles for $NaBH_4$ hydrolysis**, Cun Wen, Jason Hattrick-Simpers, Jochen Lauterbach, University of South Carolina, Columbia, SC, wencun6@gmail.com
3) **An ultrafast optical spectroscopic study of exciton dynamics in single-crystal CuPc nanostructures.** Ying-Zhong Ma[1], Kai Xiao[2], and Robert W. Shaw[1]
[1]Chemical Sciences Division and [2]Center for Nanophase Materials Sciences
Oak Ridge National Laboratory, Oak Ridge, TN 37831 may1@ornl.gov
4) **Bandgap Narrowing in TiO2 by Non-compensated Codoping: Nanoscale effects**
Gyula Eres[1], Murari Regmi[1], Alex Puretzky[2], Christopher Rouleau[2], Mina Yoon[2], David Geohegan[2], Zhenyu Zhang[3], Hanno Weitering[4], Norman Mannella[4] and Gerd Duscher[5]
[1]Materials Science and Technology Division and [2]Center for Nanophase Materials Sciences, Oak Ridge National Laboratory, Oak Ridge, TN 37831
[3]ICQD/HFNL, University of Science and Technology of China, Hefei, Anhui, 230026, People's Republic of China
[4]Dept. of Physics and Astronomy, and the [5]Dept. of Materials Science and Engineering, University of Tennessee, Knoxville, 37996 eresg@ornl.gov
5) **Understanding the metal-directed growth of semiconducting organic nanocrystals**
Kai Xiao[1], Mina Yoon[1], Yingzhong Ma, Adam Rondinone[1], Edward A Payzant[1], and David B Geohegan[1]

[1]Center for Nanophase Materials Sciences and [2]Chemical Sciences Division
Oak Ridge National Laboratory, Oak Ridge, TN 37831 xiaok@ornl.gov

6) **Nonequilibrium Laser Synthesis of Nanomaterials: Revealing The Role of Nanoscale Building Blocks with Time-Resolved, in situ Diagnostics**
Christopher Rouleau[1], Alex Puretzky[1], David B. Geohegan[1], Mina Yoon[1], Gyula Eres[2], Murari Regmi[2], Karren More[2], and Gerd Duscher[3]
[1]Center for Nanophase Materials Sciences and [2]Materials Science and Technology Division, Oak Ridge National Laboratory, Oak Ridge, TN 37831
[3]Dept. of Materials Science and Engineering, University of Tennessee, Knoxville, 37996
rouleaucm@ornl.gov

Sandia and Los Alamos (CINT)

1) **Shape-controlled synthesis and tailoring the surface porosity of Iron Oxide nano structures**, Bharathi Subramaniasiva Bharathi. , University of Texas, San Antonio, Subramaniasiva@utsa.edu
2) **Water dispersible and colloidally stable single-core iron oxide nanoparticles for biomedical detection**, Andrew D. Price[1], Erika C. Vreeland[2], Todd C. Monson[1], Debbie M. Lovato[3], Richard S. Larson[3], Edward R. Flynn[4], Dale L. Huber[1]. (1) Sandia National Laboratories, (2) Department of Chemical Engineering, University of New Mexico, (3) Department of Pathology, University of New Mexico, (4) Senior Scientific, LLC, Albuquerque, NM. adprice@sandia.gov
3) **Molecular Dynamics Simulations of Evaporation-Induced Nanoparticle Assembly,** Shengfeng Cheng and Gary S. Grest, Sandia National Laboratories, Albuquerque, NM, sncheng@sandia.gov
4) **Effects of Functional Groups and Ionization on the Structure of Alkanethiol-coated Gold Nanoparticles**, Dan S. Bolintineanu, J. Matthew D. Lane, and Gary S. Grest, Sandia National Laboratories, Albuquerque, NM, dsbolin@sandia.gov

Lawrence Berkeley (Molecular Foundry)

1) **In situ TEM investigations of oriented attachment and branched nanowire growth**, Dongsheng Li, Lawrence Berkeley Laboratory, DongshengLi@lbl.gov