Curriculum Vitae

HUA ZHOU, Ph. D.

Work Address

Advanced Photon Source
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Professional Experiences

Advanced Photon Source, Argonne National Laboratory
11/2011 – Present *Assistant Physicist*

- Implementing a tunable undulator beamline and developing user scientific programs dedicated for *in-situ* and real-time x-ray studies of advanced materials synthesis, surface/interface phenomena and processes in complex environments (e.g. sputter deposition of epitaxial oxide heterostructures, atomic layer deposition of functional nanostructured oxides, solid/liquid and solid/gas interfaces for electrochemical energy storage and conversion systems)

Chemical Science and Engineering Division, Argonne National Laboratory
01/2010 – 10/2011 *Postdoctoral Research Fellow* (Advisor: Paul Fenter)
Probing carbon electrode - fluid electrolytes interfacial structures and processes underlying electrochemical energy storage systems by synchrotron x-ray interfacial scattering

- Probing and resolving complex structures of graphene-liquid (aqueous, polar organic and ionic liquid electrolytes) interfacial systems by synchrotron x-ray surface diffraction and element specific resonant anomalous x-ray reflectivity techniques combining with phase retrieval direct methods
- Understanding the influence of charged or biased solvophobic surfaces on solvent-solute-substrate interactions and transport properties of fluid electrolytes by integrating x-ray interfacial scattering and theoretical modeling approaches.

National Synchrotron Light Source, Brookhaven National Laboratory
10/2007 – 12/2009 *Research Associate* (Advisor: Ron Pindak)
Atomic structure imaging of complex oxide interfacial systems by synchrotron x-ray surface diffraction and phase retrieval methods

- Atomic scale imaging of heteroepitaxial interfacial structures in high temperature superconductors (HTS) by synchrotron x-ray surface diffraction and coherent x-ray Bragg rod analysis phase retrieval method, and the correlation to transport properties

- Element specific interfacial structure imaging by differential anomalous coherent x-ray Bragg rod analysis phase retrieval method

University of Vermont
06/2003 – 10/2007 *Research Assistant* (Advisor: Randy Headrick)
Investigated thin film growth and surface processes *in-situ* and in real-time by synchrotron x-ray scattering

- Quantitatively determined an ion beam erosion-induced ultra-smoothing by real-time GISAXS and verified with atomistic simulations (2006-2007)
- Measured the effects of a trapped interfacial water layer on the structure of a pentacene monolayer deposited on SiO_2 by x-ray reflectivity at CHESS (2005-2006)
- Discovered an alternative roughening/smoothing evolution at interfaces in sputtered WSi_2/Si multilayers by x-ray reflectivity at NSLS (2005)
- Investigated the mechanisms of ion beam erosion-induced nanopatterning by grazing incidence small angle x-ray scattering (GISAXS) at National Synchrotron Light Source (NSLS) at Brookhaven National Laboratory (2004-2006)
- Studied the growth dynamics of pentacene thin films by real-time x-ray scattering at Cornell High Energy Synchrotron Source (CHESS) (2003-2004)
- Developed a synchrotron beamline compatible UHV surface x-ray system for time-resolved studies of thin film growth and surface processes (2003)

Education

University of Vermont, Burlington, VT
09/2002 – 10/2007 *Ph. D. in Materials Science*, 10/2007
Ph.D. Thesis Title: "Ion-bombardment-induced self-organized nanostructures on sapphire"
Advisor: Randy Headrick
Funding Source: DOE-Office of Basic Energy Science, National Science Foundation
Beijing University of Technology, Beijing, China
09/1997 – 06/2002 *B. S. in Materials Science & Engineering*, 06/2002

Reviews and Books

1. **Hua Zhou** and Dillon D. Fong, "In situ X-ray Scattering of Epitaxial Oxide Thin Films", Book Chapter of Epitaxial Growth of Complex Metal Oxides, Edited by G. Koster, G. Rijnders and M. Huijben, Woodhead Publishing (Elsevier) (2015).

Publications

1. L. Qiao, J. H. Jang, D. J. Singh, Z. Gai, H. Y. Xiao, Apurva Mehta, Z. X. Feng, **H. Zhou**, A. Borisevich, and Michael D. Biegalski, "Dimensionality Control of Octahedral Symmetry-Mismatch and Magnetic Functionality In Epitaxial Correlated Cobaltite Heterostructures", *submitted* to Nature Communications (2015).

2. S. Ryu, C. W. Bark, T. Hernandez, T. R. Paudel, **H. Zhou**, D. D. Fong, Y. Zhang, J. Podkaminer, X. Q. Pan, E. Y. Tsymbal, M. S. Rzchowski, and C. B. Eom, "Global Electronic Reconstruction at the Atomically Smooth, Polar (111)-oriented Oxide Interface", *submitted* to Proceedings of the National Academy of Sciences of the United States of America, (2015).
3. J. M. Lucy, A. J. Hauser, Y. Liu, **H. Zhou**, Y. Choi, D. Haskel, S. G. E. te Velthuis, and F. Y. Yang**, "**Depth-resolved Magnetic and Structural Analysis of Relaxing Epitaxial Sr_2CrReO_6", *submitted* to Physical Review B, (2015).
4. J. Hoffman, B. J. Kirby, J. Kwon, J. W. Freeland, I. Martin, O. G. Heinonen, P. Steadman, **H. Zhou**, C. M. Schlepütz, S. G. E te Velthuis, J. M. Zuo, and A. Bhattacharya, "Oscillatory Non-collinear Magnetism Induced by Interfacial Charge Transfer in Metallic Oxide Superlattices", *submitted to* Nature Physics, (2015).
5. **H. Zhou**, A. Uysal, D. M. Anjos, Y. Cai, P. Fenter, S. H. Overbury, M. Neurock, G. M. Brown, J. McDonough, and Y. Gogotsi, "Defect-Stabilized Non-Covalent Functionalization of Graphene with Quinones", *submitted to* Advanced Materials Interface, (2014).
6. A. Uysal, **H. Zhou**, G. Feng, S. S. Lee, S. Li, P. T. Cummings, P. F. Fulvio, S. Dai, J. McDonough, Y. Gogotsi and P. Fenter, "Interfacial Room Temperature Ionic "Liquids": Connecting Static and Dynamic Structures", Journal of Physics: Condensed Matter 27, 032101(2014).
7. B. B. Nelson-Cheeseman, **H. Zhou**, P. V. Balachandran, G. Fabbris, J. Hoffman, D. Haskel, J. M. Rondinelli, A. Bhattacharya, "Polar cation ordering: A route >to introducing >10% bond strain into layered oxide films", Advanced Functional Materials 24, 6884 (2014). [DOI: 10.1002/adfm.201401077]
8. M. H. Qu, R. Z. Wang, Y. Chen, Y. Zhang, K. Y. Li, **H. Zhou**, and H. Yan, "Enhancing upconversion emission of Er, Yb co-doped highly transparent YF_3 films by synergistic tuning nano-textured morphology and crystallinity", Journal of Luminescence 148, 181 (2014). [DOI: 10.1016/j.jlumin.2013.12.032]
9. S. J. Hao, L. S. Cui, J. Jiang F. M. Guo, X. H. Xiao, D. Q. Jiang, C. Yu, Z. H. Chen, **H. Zhou**, Y. D. Wang, Y. Z. Liu, D. E. Brown, and Y. Ren, "A novel multifunctional NiTi/Ag hierarchical composite", Scientific Reports 4, 5267 (2014). [DOI: 10.1038/srep05267].
10. Z. Luo, H. Huang, **H. Zhou**, Z. Chen, Y. Yang, L. Wu, C. Zhu, H. Wang, M. Yang, S. Hu, H. Wen, X. Zhang, Z. Zhang, L. Chen, D. D. Fong and C. Gao, "Probing Domain Structures of $BiFeO_3$ Epitaxial Films with three-Dimensional Reciprocal Space Mapping", Applied Physical Letters 104, 182901 (2014). [DOI:10.1063/1.4875579]
11. K. Y. Li, L. Y. Liu, R. Z. Wang, S. G. Xiao, **H. Zhou** and H. Yan, "Broadband sensitization of downconversion phosphor YPO_4 by optimizing TiO_2 substitution in host lattice co-doped with Pr^{3+}-Yb^{3+} ion-couple", Journal of Applied Physics 115, 123103 (2014). [DOI: 10.1063/1.4869659]
12. Z. X. Feng, Y. Yacoby, M J. Gadre, Y. L. Lee, W. T. Hong, **H. Zhou**, M. D. Biegalski, H. M. Christen, S. B. Adler, D. Morgan, and Y. Shao-Horn, "Anomalous Interface/Surface Strontium Segregation in $La_{1-x}Sr_xCoO_{3-\delta}/(La_{1-y}Sr_y)_2CoO_{4\pm\delta}$ Heterostructured Thin Films", Journal of Physical Chemistry Letters 5, 1027 (2014).

[DOI: 10.1021/jz500293dl]

13. T. T. Fister, **H. Zhou**, Z. L. Luo, S. S. A. Seo, S. O. Hruszkewycz, D. L. Proffit, J. A. Eastman, P. H. Fuoss, and D. D. Fong, "Octahedral Rotations in Strained $LaAlO_3/SrTiO_3$ (001) Heterostructures", APL Materials 2, 021102 (2014). [DOI:10.1063/1.4865160] (Editor's Suggestion 2014)
14. Z. X. Feng, Y. Yacoby, W. T. Hong, **H. Zhou**, M. D. Biegalski, H. M. Christen, and Y. Shao-Horn, "Revealing the Atomic Structure and Strontium Distribution in Nanometer-Thick $La_{0.8}Sr_{0.2}CoO_{3-\delta}$ Grown on (001)-Oriented $SrTiO_3$", Energy and Environment Science 7, 1166 (2014). [DOI: 10.1039/C3EE43164A]
15. X. B. Meng, J. A. Libera, T. T. Fister, **H. Zhou**, J. K. Hedlund, P. Fenter, and J. W. Elam, "Atomic Layer Deposition of Gallium Sulfide Films using Bis(Dimethylamido)Tetrakis(Dimethylamino) Digallium and Hydrogen Sulfide", Chemistry of Materials 26, 1029 (2013). [DOI: 10.1021/cm4031057]
16. A. Uysal, **H. Zhou**, G. Feng, S. S. Lee, S. Li, P. Fenter, P. T. Cummings, P. F. Fulvio, S. Dai, J. McDonough, and Y. Gogotsi, "Structural Origins of Potential Dependent Hysteresis at the Electrified Graphene/Ionic Liquid Interface", Journal of Physical Chemistry C 118, 569 (2013). [DOI: 10.1021/jp4111025]
17. T. T. Fister, P. H. Fuoss, D. D. Fong, J. A. Eastman, C. M. Folkman, S. O. Hruszkewycz, M. J. Highland, **H. Zhou**, and P. Fenter, "Surface Diffraction on a Psi-circle Diffractometer Using the Chi-axis Geometry", Journal of Applied Crystallography 46, 639 (2013). [DOI:10.1107/S0021889813007693]
18. Z. X. Feng, E. J. Crumlin, W. T. Hong, D. Lee, E. Mutoro, M. D. Biegalski, **H. Zhou**, H. Bluhm, H. M. Christen, and Y. Shao-Horn, "*In Situ* Studies of the Temperature-Dependent Surface Structure and Chemistry of Single-Crystalline (001)-Oriented $La_{0.8}Sr_{0.2}CoO_{3-\delta}$ Perovskite Thin Films", Journal of Physical Chemistry Letters 4, 1512 (2013). [DOI: 10.1021/jz400250t]
19. C. M. Folkman, M. J. Highland, E. Perret, S. K. Kim, T. T. Fister, **H. Zhou**, P. M. Baldo, S. Seifert, J. A. Eastman, P. H. Fuoss, and D. D. Fong, "Modular Instrument Mounting System for Variable Environment *In-operando* X-ray Experiments", Review of Scientific Instruments 84, 025111 (2013). [DOI: 10.1063/1.4791799]
20. Y. Yacoby, **H. Zhou**, R. Pindak, and I. Božović, "Atomic-layer Synthesis and Imaging Uncover Broken Inversion Symmetry in $La_{2-x}Sr_xCuO_4$ Films", Physical Review B 87, 014108 (2013). **[**DOI: 10.1103/PhysRevB.87.014108]
21. **H. Zhou**, M. Rouha, G. Feng, S. S. Lee, H. Docherty, P. Fenter, P. T. Cummings, P. F. Fulvio, S. Dai, J. McDonough, V. Presser, and Yury Gogotsi, "Nanoscale Perturbations of Room Temperature Ionic Liquid Structure at Charged and Uncharged Interfaces", ACS Nano 6, 9818 (2012). [DOI: 10.1021/nn303355b]
22. W. S. Choi, C. M. Rouleau, S. S. A. Seo, Z. L. Luo, **H. Zhou**, T. T. Fister, J. A. Eastman, P. H. Fuoss, D. D. Fong, J. Z. Tischler, G. Eres, M. F. Chisholm, and H. N. Lee, "Atomic Layer Engineering of Perovskite Oxides for Chemically Sharp Heterointerfaces", Advanced Materials 24, 6423 (2012). (Advanced Photon Source Science Highlight 2012) [DOI: 10.1002/adma.201202691]
23. **H. Zhou** and R. Pindak and R Clarke and D. Steinberg and Y. Yacoby, "The Limits of Ultrahigh-resolution X-ray Mapping: Estimating Uncertainties in Thin-film and

Interface Structures Determined by Phase Retrieval Methods", Journal of Physics D: Applied Physics 45, 195302 (2012). [DOI: 10.1088/0022-3727/45/19/195302]

24. **H. Zhou**, P. Ganesh, V. Presser, M. C. F. Wander, P. Fenter, P. R. C. Kent, D. E. Jiang, A. A. Chialvo, J. McDonough, K. L. Shuford and Y. Gogotsi, "Understanding Controls on Interfacial Wetting at Epitaxial Graphene: Experiment and Theory", Physical Review B 85, 035406 (2012). [DOI: 10.1103/PhysRevB.85.035406]
25. C. W. Bark and D. A. Felker and Y. Wang and Y, Zhang and H. W. Jang and C. M. Folkman and J. W. Park and S. H. Baek and **H. Zhou** and D. D. Fong and X. Q. Pan and E. Y. Tsymbal and M. S. Rzchowski and C. B. Eom "Tailoring a Two-dimensional Electron Gas at the $LaAlO_3/SrTiO_3$ (001) Interface by Epitaxial Strain", Proceedings of the National Academy of Sciences of the United States of America 108, 4720 (2011). [DOI: 10.1073/pnas.1014849108]
26. R. L. Headrick and **H. Zhou** and B. R. Wang and Y. P. Wang and G. P. Carpenter and A. C. Mayer and M. Lloyd and G. Malliaras and A. Kazimirov and J. E. Anthony, "Growth of macroscopic-area single crystal polyacene thin films on arbitrary substrates", arXiv:1107.3277 (2011).
27. L. Zhou and Y. P. Wang and **H. Zhou** and M. H. Li and R. L. Headrick and K. MacArthur and B. Shi and R. Conley and A. T. Macrander, "Pressure-dependent transition from atoms to nanoparticles in magnetron sputtering: Effect on WSi2 film roughness and stress", Physical Review B 82, 075408 (2010). (Editor's Suggestion 2010) [DOI: 10.1103/PhysRevB.82.075408]
28. **H. Zhou** and Y. Yacoby and R. Pindak and V. Butko and G. Logvenov and I. Bozovic, "Anomalous expansion of the copper − apical oxygen distance in superconducting cuprate bilayers", Proceedings of the National Academy of Sciences of the United States of America 107, 8103 (2010). (Brookhaven National Lab Science Highlight 2010, Advanced Photon Source Annual Report Highlight, and NSLS User Meeting Best Poster Award) [DOI: 10.1073/pnas.0914702107]
29. R. L. Headrick and **H. Zhou**, "Ripple formation and smoothening on insulating surfaces", Journal of Physics: Condensed Matter 21, 224005 (2009). [DOI: 10.1088/0953-8984/21/22/224005]
30. **H. Zhou** and L. Zhou and R. L. Headrick and G. Özaydin and K. F. Ludwig Jr., "Mechanisms of ultra-smoothing of oxide surfaces induced by ion-beam erosion", Physical Review B 78, 165404 (2008). [DOI: 10.1103/PhysRevB.78.165404]
31. G. Özaydin and K. F. Ludwig Jr. and **H. Zhou** and R. L. Headrick, "Effects of Mo seeding on the formation of Si nanodots during low-energy ion bombardment", Journal of Vacuum Science and Technology B 26, 551 (2008). [DOI: 10.1116/1.2870222]
32. G. Özaydin and K. F. Ludwig Jr. and **H. Zhou** and L. Zhou and R. L. Headrick, "Transition behavior of surface morphology evolution of Si(100) during low-energy normal-incidence Ar+ ion bombardment", Journal of Applied Physics 103, 033512 (2008). [DOI: 10.1063/1.2837101]
33. G. Ozaydin and A. S. Ozcan and Y. Y. Wang and K. F. Ludwig and **H. Zhou** and R. L. Headrick, "Real-time X-ray studies of the growth of Mo-seeded Si nanodots by low-energy ion bombardment", Nuclear Instruments and Methods in Physics

Research Section B--Beam Interactions with Materials and Atoms 264, 47 (2007). [DOI: 10.1016/j.nimb.2007.08.010]

34. Z. C. Xu and Y. T. Zhang and R. L. Headrick and **H. Zhou** and L. Zhou and T. Fukamachi, "Self-organized growth of microsized Ge wires on Si (111) surfaces", Physical Review B 75, 233310 (2007). [DOI: 10.1103/PhysRevB.75.233310]
35. **H. Zhou** and Y. P. Wang and L. Zhou and R. L. Headrick and A. S. Özcan and Y. Y. Wang and G. Özaydin and K. F. Ludwig Jr, "Wavelength tunability of ion-bombardment-induced ripples on sapphire investigated with small-angle x-ray scattering and atomic force microscopy", Physical Review B 75, 155416 (2007). (Brookhaven National Lab-National Synchrotron Light Source Science Highlight 2007) [DOI: 10.1103/PhysRevB.75.155416]
36. Y. P. Wang and **H. Zhou** and L. Zhou and R. L. Headrick and A. Macrander and A. S. Özcan and K. F. Ludwig Jr., "Interface roughness evolution in sputtered WSi_2/Si multilayers", Journal of Applied Physics 101, 023503 (2007). [DOI: 10.1063/1.2422713]
37. Y. Y. Wang and A. S. Ozcan and G. Ozaydin and K. F. Ludwig and A. Bhattacharyya and T. D. Moustakes and **H. Zhou** and R. L. Headrick and D. P. Siddons, "Real-time synchrotron x-ray studies of low- and high-temperature nitridation of c-plane sapphire", Physics Review B 74, 235304 (2006). [DOI: 10.1103/PhysRevB.74.235304]
38. S. T. Wo and B. R. Wang and **H. Zhou** and Y. P. Wang and J. Bessette and R. L. Headrick and A. C. Mayer and G. G. Malliaras and A. Kazimirov, " Structure of a pentacene monolayer deposited on SiO_2: Role of trapped interfacial water", Journal of Applied Physics 100, 093504 (2006). [DOI: 10.1063/1.2364565]
39. R. Z. Wang and **H. Zhou** and X. M. Song and B. Wang and H. Wang and H. Yan, "Effects of phase formation on electron field emission from BN films", Journal of Crystal Growth 291, 18 (2006). [DOI: 10.1016/j.jcrysgro.2006.02.024]
40. A. C. Mayer and R. Ruiz and **H. Zhou** and R. L. Headrick and A. Kazimirov and G. G. Malliaras, "Growth dynamics of pentacene thin films: Real-time synchrotron x-ray scattering study", Physical Review B 73, 205307 (2006). [DOI: 10.1103/PhysRevB.73.205307]
41. G. Özaydin and A. S. Özcan and Y. Y. Wang and K. F. Ludwig Jr. and **H. Zhou** and R. L. headrick and D. P. Siddons, "Real-time x-ray studies of Mo-seeded Si nanodot formation during ion bombardment", Applied Physics Letters 87, 163104 (2005). [DOI: 10.1063/1.2099521]
42. Q. Zhao and J. C. Li and **H. Zhou** and H. Wang and B. Wang and H. Yan, "Parameters determining crystallinity in beta-SiC thin films prepared by catalytic chemical vapor deposition", Journal of Crystal Growth 260, 176 (2004). [DOI: 10.1016/j.jcrysgro.2003.08.026]
43. B. Wang and R. Z. Wang and **H. Zhou** and X. H. Yan and J. X. Cao and H. Wang and H. Yan, "Field emission mechanism from nanocrystalline cubic boron nitride films", Microelectronics Journal 35, 371 (2004). [DOI: 10.1016/S0026-2692(03)00248-9]
44. R. Z. Wang and B. Wang and H. Wang and **H. Zhou** and A. P. Huang and M. K. Zhu and H. Yan and X. H. Yan, "Band bending mechanism for field emission in wide-band

gap semiconductors", Applied Physics Letters 81, 2782 (2002). [DOI: 10.1063/1.1511809]

45. **H. Zhou** and R. Z. Wang and A. P. Wang and M. Wang and H. Wang and B. Wang and H. Yan, "Dependence of oriented BN films on Si(100) substrate temperature", Journal of Crystal Growth 241, 261 (2002). [DOI: 10.1016/S0022-0248(02)01240-X]
46. B. Wang and M. Wang and R. H. Wang and A. P. Huang and **H. Zhou** and Y. J. Zou and H. Yan and S. P. Wong, "The growth of AlN films composed of silkworm-shape grains and the orientation mechanism", Materials Letters 53, 367 (2002). [DOI: 10.1016/S0167-577X(01)00509-2]
47. B. Wang and **H. Zhou** and X. H. Li and R. Z. Wang and H. Wang and H. Yan, "Temperature effects on formation of c-BN films by magnetron sputtering", Frontiers of Solid State Chemistry 447-452 (2002). [DOI: 10.1142/9789812776846_0062]
48. **H. Zhou** and X. H. Li and A. P. Huang and R. Z. Wang and H. Wang and B. Wang and H. Yan, "Effects of substrate surface electric field on growth of cubic boron nitride films", Rare Metal Materials and Engineering 30, 643 Suppl. S (2001).

Invited Talks/Presentations

1. "Deciphering How Oxides Heterostructures Meet at Interfaces: Atomic Mapping by Phasing Coherent Bragg Rods", 2014 MRS Spring meeting Symposium J7.02, April 24th, 2014
2. "Atomic Mapping by Phasing Coherent Bragg Rods: Exploring Wonderlands at Interfaces", X-ray science lecture in Department of Materials Science and Engineering at University of Wisconsin at Madison, Oct. 14th, 2012
3. "Atomic Mapping by Phase Retrieving Coherent Bragg Rods: Deciphering How Complex Oxides Meet at Interfaces", 2012 Oxides Workshop: Future directions for emergent discoveries at oxide interfaces by design, July. 10th, 2012
4. "Deciphering Subtlety at Interface: Insights from Surface/Interface X-ray Scattering", Advanced Photon Source, Argonne National Laboratory, Feb. 24th, 2011
5. "Imaging Interfacial Structures by Phasing Coherent Bragg Rod: Total and Element-Specific Structure Factors", National Synchrotron Light Source User Seminar, Nov. 20th, 2009
6. "Imaging Interfacial Structures by Interface Scattering/Diffraction and Phase Retrieval Direct Methods", Materials Science and Engineering Department, John Hopkins University, Sep.22nd, 2009
7. "Probing Energetic Surface Processes by Real-time Surface Scattering and Atomic Imaging of Epitaxial Interface Systems by Surface Diffraction", Condense Matter Physics and Materials Science Seminar, Brookhaven National Laboratory, Sep. 1st, 2009.
8. "Atomic Imaging of Epitaxial Interface Systems by Surface Diffraction and Probing Energetic Surface Processes by Real-time Surface Scattering", Advanced Photon Source XSD Seminar, Argonne National Laboratory, Aug. 17th, 2009
9. "Direct Structural Imaging by Synchrotron X-ray Diffraction-based Fourier-Phase-Retrieval Methods", ShangHai Synchrotron Radiation Facility Science

Seminar, China, Jan. 12th, 2009

10. "Atomic scale imaging of ultrathin HTS cuprate epitaxial films using COBRA", National Synchrotron Light Source User Science Seminar, Oct. 3rd, 2008

Conference and Workshop Presentations

1. "In-situ Probing Structures of Electrolytes at Graphene Surfaces: Coupling Synchrotron X-Ray Interface Scattering with Molecular Modeling", *presentation in Materials Research Society Fall meeting* (VV 10.25), Boston MA, Nov. 2012.
2. "Molecular Layering of Imidazolium-based Ionic Liquids at Graphene Surfaces: Interfacial Densification and Overscreening", *oral presentation in Materials Research Society spring meeting* (BBB 2.9), San Francisco CA, April 2012.
3. "Atomic Probing Structures of Electrolytes at Graphene Surface: Insights from X-ray Scattering and Molecular Dynamics", *oral presentation in American Physical Society annual meeting (H39.00013)*, Boston MA, March 2012.
4. "How water meets graphene", *oral presentation in American Physical Society annual meeting (V41.00006)*, Dallas TX, March 2011.
5. "Anomalous expansion of the copper to apical oxygen distance in interfacial high-temperature superconducting cuprate bilayer films", *oral presentation in Materials Research Society Fall meeting (W6.3)*, San Francisco CA, Apr. 2009.
6. "Quantitative determination of smoothing mechanisms of self-organized sputter ripple patterning on sapphire", *oral presentation in Materials Research Society Fall meeting (KK1.8)*, Boston MA, Nov. 2007.
7. "Ion-irradiation-induced surface ripples on sapphire", *oral presentation in Materials Research Society Fall meeting (N6.5)*, Boston MA, Nov. 2006.
8. "Wavelength tunability of ion-bombardment-induced ripples on sapphire", *oral presentation in American Physical Society annual meeting (D12.011)*, Baltimore MD, March 2006.
9. "In-situ grazing incidence small angle x-ray scattering study of tunable nanoripples on ion-etched sapphire surfaces**",** *oral presentation in Materials Research Society spring meeting (Q5.6)*, San Francisco CA, March 2005.
10. "In-situ study of Co pattern formation by synchrotron x-ray scattering and atomic force microscopy", *oral presentation in American Physical Society annual meeting (B32.012)*, Montreal Canada, March 2004.

Recognition and Honors

Research Recognition

NSLS/CFN Poster Session Award Winner 2009

Awarding institution: Brookhaven National Laboratory

Graduate Recognition

Graduate Research Fellowship 2003

Awarding institution: NSF Vermont EPSCoR

Undergraduate Recognition

Summa Cum Laude 2002

Awarding institution: Beijing University of Technology

SONY Award for Merits 2000

Awarding institution: SONY Inc.

Professional Memberships

Full Member of the American Physical Society (APS)
Full Member of the Materials Research Society (MRS)

Peer Reviews

Reviewers for peer-review based academic journals including *Proceedings of the National Academy of Sciences of the United States of America, Physical Review Letters, Physical Review B, APL Materials, Applied Physics Letters, Journal of Applied Physics, AIP-Advances, Applied Surface Science, Journal of Physics: Condense Matter, Journal of Physics D: Applied Physics, Journal of Synchrotron Radiation, Semiconductor Science and Technology, Superconductor Science and Technology, Physica Scripta*

Funding Reviews

Reviewers for Condensed Matter Physics Panel of Division of Material Research at National Science Foundation

Collaborators

Professor Yizhak Yacoby, Hebrew Universiy of Jerusalem
Professor Venkatraman Gopalan, Penn State University
Professor Chang-Beom Eom, University of Wisconsin at Madison
Professor Karl Ludwig, Boston University
Professor Sung S. Ambrose Seo, University of Kentucky
Professor James Rondinelli, Drexel University
Dr. Dillon Fong, Argonne National Laboratory
Dr. Anand Bhattacharya, Argonne National Laboratory
Dr. Ivan Bozovic, Brookhaven National Laboratory
Dr. Ho Nyung Lee, Oak Ridge National Laboratory
Dr. Zhenlin Luo, University of Science and Technology of China
Dr. Chen Gao, University of Science and Technology of China