

Name: Honghui Zhou

Research fields of interest and experience:

- Materials characterization by Electron microscopy (SEM/TEM/STEM/EDS/EELS)

My previous research experiences include study of epitaxial heterostructure interface by aberration-corrected scanning transmission electron microscopy (STEM) and epitaxial growth of high temperature superconductor by pulsed laser deposition (PLD)

Instrumentation/core of responsibility within the MRL:

- Electron Microscopy (SEM, TEM, STEM, EDS, EELS)

Other instruments qualified to operate:

- Focused Ion Beam

Education:

North Carolina State University, Raleigh, North Carolina, U.S.A	
Materials Science and Engineering	Ph.D
University of Science and Technology Beijing, Beijing, China	
Surface Science and Corrosion Engineering	M.S.
University of Science and Technology Beijing, Beijing, China	
Surface Science and Corrosion Engineering	B.S.

Appointments (Professional experience):

2012 - present	Research Scientist, Central Research Facilities, Frederick Seitz Materials Research Laboratory, University of Illinois, Urbana, IL
2009 - 2012	Guest Scientist, Electron Microscopy Group (the STEM Group), Oak Ridge National Laboratory, Oak Ridge, TN Post-Doctoral Research Associate, Dept. of Materials Science and Engineering, North Carolina State University, Raleigh, NC
2005 -2009	Post-Doctoral Research Associate. Superconductivity Technology Center, Los Alamos National Laboratory, Los Alamos, NW

Selected publications:

- H. Zhou, M. F. Chisholm, Alok Gupta, S. J. Pennycook, and J. Narayan, “Two-dimensional metamaterials for epitaxial heterostructures”, *Current Opinion in Solid State & Materials Science*, **18**, 46 (2014)
- Aiping Chen , Honghui Zhou , Zhenxing Bi , Yuanyuan Zhu , Zhiping Luo, Adrian Bayraktaroglu , Jamie Phillips , Eun-Mi Choi , Judith L. MacManus-Driscoll, Stephen J. Pennycook , Jagdish Narayan , Quanxi Jia , Xinghang Zhang , and Haiyan Wang, “A New Class of Room-Temperature Multiferroic Thin Films with Bismuth-Based Supercell Structure”, *Adv. Mater.*, **25**, 1028 (2013)
- S.J. Pennycook, H. Zhou, M.F. Chisholm, A.Y. Borisevich, M. Varela, J. Gazquez, T.J. Pennycook, J. Narayan, “Misfit accommodation in oxide thin film heterostructures”, *Acta Materialia*, **61**, 2725 (2013)

- H. Zhou, M. F. Chisholm, Tsung-Han Yang, S. J. Pennycook, and J. Narayan, “Role of interfacial transition layers in VO₂/Al₂O₃ heterostructures”, *Journal of Applied Physics*, **110**, 073515 (2011)
- H. Zhou, M. F. Chisholm, P. Pant, J. Gazquez, S. J. Pennycook, and J. Narayan, “Atomic structure of misfit dislocations in non-polar ZnO/Al₂O₃ heterostructures”, *Applied Physics Letters*, **97**, 121914 (2010)
- R. Aggarwal, H. Zhou, C. Jin, J. Narayan, and R. J. Narayan, “Semipolar r-plane ZnO films on Si (100) substrates: Thin film epitaxy and optical properties”, *Journal of Applied Physics*, **107**, 113530 (2010)
- T.H. Yang, S. Nori, H. Zhou, J. Narayan, “Defect-mediated room temperature ferromagnetism in vanadium dioxide thin films”, *Applied Physics Letters*, **95**, 102506 (2009)
- H. Zhou, B. Maiorov, S. Baily, P.C Dowden, J.A. Kennison, L. Stan, T.G. Holesinger, Q.X. Jia, S.R. Foltyn and L. Civale, “The thickness dependence of self-field critical current density in YBa₂Cu₃O₇ with BaZrO₃ addition”, *Superconductor Science and Technology*, **22**, 085012 (2009)
- B. Maiorov, S.A. Baily, H. Zhou, O. Ugurlu, J.A. Kenisson, T. G. Holesinger, S.R. Foltyn, and L. Civale, “Synergetic combination of different types of defects to maximize pinning landscape using BaZrO₃-doped YBa₂Cu₃O₇”, *Nature Materials*, **8**, 398 (2009)
- H. Zhou, B. Maiorov, S. Baily, H. Wang, J.L. MacManus-Driscoll, T.G. Holesinger, L. Civale, Q.X. Jia and S. R. Foltyn “Improved microstructure and enhanced low-field J_c in (Eu_{0.33}Y_{0.67})Ba₂Cu₃O_{7- δ} ”, *Superconductor Science and Technology*, **21**, 025001 (2008)