

# Materials and Nanotechnology

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## Department Information

- **Program Director:**  
Erik K. Hobbie, Ph.D.
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- **Application Deadline:**  
April 1 for fall semester.
- **Credential Offered:**  
Ph.D.
- **Test Requirement:**  
GRE
- **English Proficiency Requirements:**  
TOEFL iBT 71, IELTS 6; Duolingo 105

## Affiliated Faculty

### Achintya N. Bezbaruah, Ph.D.

University of Nebraska-Lincoln, 2002

Research Interests: Environmental sensors, Recalcitrant and micro pollutants, Contaminant fate and transport, Small community water and wastewater treatment, Environmental management

### Eugene B. Caldon, Ph.D.

Mississippi State University, 2020

Research Interests: Advanced coatings and materials, Corrosion, Electrochemistry, Surface chemistry, Nanocomposites

### Yongki Choi, Ph.D.

City University of New York, 2010

Research Interests: Nano-bio-electronics, Carbon nanotube circuits, Single-molecule electronics, Biomedical applications

### Andrew Croll, Ph.D.

McMaster University, Ontario, 2009

Research Interests: Polymers, Diblock copolymers, Thin films, Pattern formation, Mechanics

### Alan R. Denton, Ph.D.

Cornell University, 1991

Postdoctoral, University of Guelph, 1991-94; Technical University of Vienna, 1994-95, Research Center Julich, 1996-98

Research Interests: Soft condensed matter theory, Computational physics

### Erik K. Hobbie, Ph.D.

University of Minnesota, 1990

Postdoctoral: NRC Fellow, NIST, 1990-1992

Research Interests: Colloidal nanoparticles, Polymers, Complex fluids, Chromatography, Self-assembly, Photoluminescence, Flexible electronics

### Syed M. Iskander, Ph.D.

Virginia Polytechnic Institute and State University, 2019

Postdoctoral, University of Southern California, 2019-2020

Research Interests: Non-recyclable municipal solid waste management, Food waste management, Plastics pollution, Landfilling, and Landfill leachate management

### Long Jiang, Ph.D.

Nanyang Technological University, 2003

Research Interests: Polymer/composite processing, Polymer processing machinery/design, Nanocomposites, Biobased polymers/composites, Functional composites with novel microstructures

### Alan R. Kallmeyer, Ph.D.

University of Iowa, 1995

Research Interests: Theoretical, computational, and experimental solid mechanics, Fatigue and fracture of engineering materials, Composite materials

**Dinesh Katti, Ph.D.**

University of Arizona, 1991

Research Interests: Geotechnical engineering, Constitutive modeling of geologic materials, Expansive soils, Multiscale modeling, Steered molecular dynamics, Computational mechanics, Nanocomposites and biomaterials

**Kalpana Katti, Ph.D.**

University of Washington, 1996

Research Interests: Advanced composites, Nanomaterials, Biomaterials, Biomimetics, Materials characterization/modeling, Analytical electron microscopy, Bone tissue engineering

**Dmitri Kilin, Ph.D.**

Chemnitz University of Technology, Chemnitz, Germany, 2000

Research Interests: Photo-induced dynamic processes of charge transfer, Nonradiative charge carrier relaxation, Surfaces/interfaces of metal/semiconductor nanomaterials for photovoltaic/photocatalytic energy conversion

**Svetlana Kilina, Ph.D.**

University of Washington, 2007

Research Interests: Photoexcitation process on the organic-inorganic interfaces in hybrid nanostructures, Functionalized carbon nanotubes and quantum dots, Non-adiabatic dynamics in hybrid nanostructures, Electron-phonon interactions in ligated quantum dots and functionalized carbon nanotubes, Self-assembly of bio/nanomaterials, Transport in conjugated polymers

**Andrei Kryjevski, Ph.D.**

University of Washington, 2004

Research Interests: First-principles theoretical descriptions of the electronic properties of nanomaterials

**Ivan T. Lima Jr., Ph.D.**

University of Maryland, 2003

Research Interests: Photonics

**Sylvio May, Ph.D.**

Jena, 1996

Research Interests: Physics of lipid membranes, Biophysics

**Keerthi Nawarathna, Ph.D.**

University of Houston, 2005

Research Interests: Lab-on-a-chip technologies, Single-cell genomics, Nanobioengineering, Tissue engineering, Novel imaging techniques for biology, Computation/simulations

**Selvakumar Prakash Parthiban, Ph.D.**

Nagoya University, 2012

Research Interests: Biomaterials, Regenerative medicine, Tissue-engineered vascular grafts, Microvasculature, Decellularized extracellular matrix, Bioceramics, Cancer and vascular biology

**Xiaoning Qi, Ph.D.**

North Dakota State University, 2009

Research Interests: Corrosion characterization and prevention, Coating design and formulation, Sustainable coatings, Nanocomposites

**Mohiuddin Quadir, Ph.D.**

Freie University of Berlin, 2010

Research Interests: High performance delivery technologies, Biosynthetic interfaces for medical coatings, Synthesis of new polymers from bio-based resources

**Seth C. Rasmussen, Ph.D.**

Clemson University, 1994

Postdoctoral, University of Oregon, 1995-1999

Research Area: Inorganic/organic materials chemistry, Chemical history

**Bakhtiyor Rasulev, Ph.D.**

Uzbek Academy of Science, 2002

Postdoctoral, Drew University, 2002; Jackson State University, 2004-2007

Research Area: Structure-property studies of materials, Cheminformatics for materials, Modeling of nanomaterials interactions with biosystems, Nano-descriptors, Development of predictive structure-activity/toxicity models

**Jing Shi, Ph.D.**

Purdue University, 2004

Research Interests: Microelectronics packaging, Direct-write material deposition, Laser processing for electronics, RFID applications, Modeling of manufacturing processes, Computer integrated manufacturing

**Mukund P. Sibi, Ph.D.**

City University of New York, 1980

Postdoctoral, Dartmouth College, 1980-1982; University of Waterloo, 1982-1985

Research Interests: Synthetic organic chemistry, Natural products

**Xiangqing (Annie) Tangpong, Ph.D.**

Carnegie Mellon University, 2006

Research Area: Vibrations, dynamics and friction, friction-vibration interaction, friction damping in rotating structures, damping in nanocomposites and biomaterials

**Chad A. Ulven, Ph.D.**

University of Alabama at Birmingham, 2005

Research Interests: Advanced composites materials, Green materials processing, Nondestructive evaluation, Characterization of advanced materials under extreme conditions

**Jessica Vold, Ph.D.**

North Dakota State University, 2015

Research Interests: Additive manufacturing of materials, Polymer composites, Materials characterization, Entrepreneurship

**Andriy Voronov, Ph.D.**

Lviv Polytechnical Institute, 1994

Postdoctoral, Institute Charles Sadron, CNRS, 1997

Research Interests: Polymer synthesis and characterization

**Alexander J. Wagner, Ph.D.**

University of Oxford, 1997

Postdoctoral MIT, 1998-2000, Edinburgh, 2000-2002

Research Interests: Computational soft matter, Phase separation, Diffusion, Interface physics

**Danling Wang, Ph.D.**

University of Washington, 2013

Research Interests: Chemiresistive sensors, Semiconducting nanomaterials, Optical spectroscopy, Electronic devices, Microfabrication

**Dean Webster, Ph.D.**

Virginia Polytechnic Institute and State University 1984

Research Interests: Synthesis of high performance polymers, Polymerization reactions, Crosslinking chemistry, Quantitative structure-property relationship

**Xiangfa Wu, Ph.D.**

University of Nebraska-Lincoln, 2003

Beijing Institute of Technology, 1998

Research Interests: Nanofabrication/nanomaterials, Advanced functional composites, Fracture/impact mechanics

**Wenjie Xia, Ph.D.**

Northwestern University, 2016

Research Interests: Multiscale modeling, Mechanics of materials, Polymers and composites, Soft matter, Bioinspired materials, Mechanobiology

**Qifeng Zhang, Ph.D.**

Peking University, 2001

Postdoctoral, University of Washington, 2006-2008

Research Interests: Electronic materials, Nanomaterials: synthesis, characterization and device application, Nanotechnology, Materials/devices/technology for energy conversion and storage, Solar cells, Lithium ion batteries, Photocatalysis