MTE Faculty and Areas of Research

Dr. Klaus van Benthem, Professor
Ph.D. Max-Planck-Institute for Metals Research
Interface Science, Ceramic processing, Wetting & dewetting of thin films, atomic resolution electron microscopy

Dr. Luke Brewer, Professor
Ph.D. Northwestern University
Cold spray additive manufacturing, friction stir welding, EBSD and related microscopy

Dr. Rachel Cook, Assistant Professor
Ph.D. Missouri University of Science and Technology
Traditional Ceramics, Cement Chemistry, Thermokinetics, Novel Eco-friendly and CO2-Efficient Building Materials

Dr. Steve Daniewicz, Professor and Department Head
Ph.D. Ohio State University
Metal Fatigue, Fracture Mechanics, Welding

Dr. Greg Kubacki, Assistant Professor
Ph.D. Clemson University
Corrosion Science, Additive Manufacturing, Structural Alloys, Biomedical Alloys, Environmental Factors

Dr. Nilesh Kumar, Assistant Professor
Ph.D. Missouri University of Science and Technology
Mechanical behavior of metallic alloys, high entropy alloys

Dr. Tianjiao Lei, Assistant Professor
Ph.D. University of Michigan - Ann Arbor
Grain boundary segregation, nano-defect engineering, nanocrystalline materials, metallic glasses

Dr. Charles Monroe, Associate Professor
Ph.D. University of Iowa
Metal Casting, Forging, Solidification, Process Simulation Design for Manufacture

Dr. Laurentiu Nastac, Associate Professor
Ph.D. University of Alabama
Casting and solidification, microstructure modeling, ultrasonic processing of alloys and nanocomposites

Dr. Ramana G. Reddy, ACIPCO Endowed Professor
Ph.D. University of Utah
Thermodynamics, Transport Phenomena, Fuel Cells, Ionic liquids, molten metal chemistry, composite processing

Dr. Evan Schwind, Assistant Professor
Ph.D. Missouri University of Science and Technology
Ceramic Processing, Materials for Extreme Environments, Mechanical Behavior of Brittle Materials, Material Properties at Extreme Temperatures

Dr. Gregory B. Thompson, University Research Professor,
Ph.D. Ohio State University
Structure-property relationships, phase transformations, analytical microscopy, low dimensional metal alloys, UHTCs

Dr. Xin Wang, Assistant Professor
Ph.D. University of California, Irvine
Structural Alloys, Mechanical behavior, Transmission Electron Microscopy, Defect mechanisms, Additive Manufacturing

Dr. Mark L. Weaver, Professor
Ph.D. University of Florida
Heat-resistant materials, mechanical properties, electron microscopy, tribology

Dr. Qiaofu Zhang, Assistant Professor
Ph.D. The Ohio State University
ICME, Materials Design, Additive Manufacturing, Materials Informatics, Structural Materials

THE UNIVERSITY OF ALABAMA
ENGINEERING

Department of Metallurgical and Materials Engineering

Description of Graduate Programs

Doctor of Philosophy in Metallurgical Engineering (Ph.D.)

Doctor of Philosophy in Materials Science (Ph.D.)

Master of Science in Metallurgical Engineering (M.S.)

MTE Degree Programs

The Department of Metallurgical and Materials Engineering (MTE) offers bachelor's, master's and doctorate degrees.

Selected Graduate Courses

MTE 519 – Casting and Solidification Processing
MTE 539 – Metallurgy of Welding
MTE 549 – Powder Metallurgy
MTE 556 – Adv. Mechanical Behavior of Materials
MTE 562 – Metallurgical Thermodynamics
MTE 579 – Advanced Physical Metallurgy
MTE 583 – Advanced Structure of Metals
MTE 587 – Corrosion Science and Engineering
MTE 655 – Electron Microscopy of Materials
MTE 680 – Advanced Phase Diagrams
MTE 691 – Ceramic Materials Processing

Laboratory Facilities

The MTE laboratories include facilities for:

- Metal casting solidification processing
- Materials synthesis and corrosion
- Physical and Mechanical testing
- Plasma processing of materials
- Chemical metallurgy and processing
- X-ray diffraction, SEM, TEM
- High temperature materials processing
- Rare earth and ceramic materials
- Preparation &Characterization of thin Films
- Joining of advanced materials
- Additive Manufacturing

Engineering Quad at the University of Alabama - North Engineering Research Center (NERC).

Research Opportunities

Students pursuing postgraduate degrees in The Department of Metallurgical and Materials Engineering (MTE) are expected to engage in research activities appropriate to their disciplinary focus area. Faculty in the department teach and conducts research in the major areas of metallurgical engineering and materials science. The MTE research facilities are located in the NERC building.

Qualified and energetic graduate students are employed as research assistants to assist faculty in the completion of various research projects. Stipends are paid for these activities, and the student's involvement usually leads to the completion of his or her thesis or dissertation. Opportunities are also available for students to teach undergraduate courses as teaching assistantships.

MTE Student Activities

Students participate in the MTE Student Chapter which is affiliated with Materials Advantage, American Foundry Society (AFS) and the Foundry Educational Foundation (FEF). Materials Advantage consists of four materials related professional societies: American Ceramic Society (ACerS), Association for Iron and Steel Technology (AIST), ASM International and The Minerals, Metals, and Materials Society (TMS). The MTE student chapter provides students with career and professional development.

Admissions

Applications for admission for graduate study should be submitted to the Graduate School of The University of Alabama. Application forms may be obtained via the Internet, (http://graduate.ua.edu/), or by writing to the address listed below.

For additional information concerning Graduate research & teaching fellowships, please contact metallurgical and materials engineering department.

For additional information, contact:

MTE Graduate Program Director
Dr. Ramana Reddy
E-mail : rreddy@eng.ua.edu
Department of Metallurgical and Materials Engineering
The University of Alabama
Box 870202
Tuscaloosa, AL 35487-0202
U.S.A.
Tel: (205)348-1739
http://mte.eng.ua.edu