Highlights presented in person at the Fall 2023 UMC meeting

University of Wisconsin - Madison
Department of Materials Science & Engineering

https://engineering.wisc.edu/departments/materials-science-engineering/

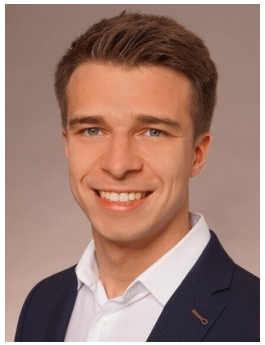
Izabela Szlufarska,
Chair since: July 2020

$18 M NSF Materials Science and Engineering Research Center (MRSEC) awarded

- Continuously funded from 1990's
- Two IRGs: (1) Mobility in glasses and liquids (2) Nonequilibrium magnetic phases in strained membranes
- The center director and 3 out of the 4 IRG leaders are from MS&E department

New faculty

Yuan Ping (w/ tenure)
(Computation, quantum materials)



Sebastian Kube
(Autonomous alloy design)

Hyunseok Oh
(Metallurgy, alloy design)

Highlights of faculty awards in the last year:

- Junior faculty: 4 NSF CAREER awards, Sloan Research Fellowship, DOE BES young investigator award, AVS Young Investigator Award, etc.
- Mid-career and senior: MRS Turnbull Award, AAAS fellowship, TMS Brimacombe Medal, 3 new named professorships, etc.
- ***Spotlight: Hyunseok Oh*** (start date Jan 2023): DOE BES Young Investigator and NSF CAREER awards

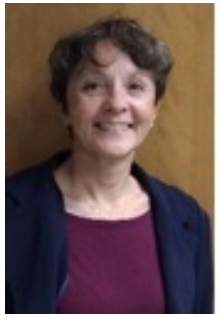
New hires support strategic research areas : quantum materials/semiconductors, AI/computational materials design, and alloy design and additive manufacturing for energy applications.

University of Arizona
Department of Materials Science and Engineering

Head: **Sammy Tin**
since: **8/2021**

- **MSE Professor Pierre Deymier has been awarded $30 Million for the NSF New Frontiers of Sound (NewFoS) Science and Technology Center.**

NewFoS
NEW FRONTIERS OF SOUND



Oana Cazacu
Mechanics of Materials

Brian Kim
Quantum Materials

Benoit Revil-Baudard
Mechanics of Materials

Xiaodong Yan
Semiconductor fabrication

- **UArizona MSE hired four new faculty in FY23**

- **$35.5M awarded to UArizona College of Engineering for Nano/Micro Fab modernization and curriculum development**

PennState College of Earth and Mineral Sciences | Department of Materials Science and Engineering

matse.psu.edu

Susan Sinnott, Department Head since: July 2015

Introducing LionGlass

New glass cuts carbon footprint by nearly half and is 10x more damage resistant

Making glass manufacturing sustainable for the long term.

- Eliminates the use of carbon-containing batch materials.
- Significantly lowers the melting temperature of glass.

LionGlass wins first place at Invent Penn State Tech Tournament

$17.3M

Department Research Expenditures

(2021-22)

MatSE welcomes newest faculty member

Nairiti Sinha,

Assistant Professor

Boise State University
Micron School of Materials Science and Engineering

School Director
Amy Moll
Director since 2021

2022/23 Research Expenditures

- $9.96M in Research Expenditures
- $810K expenditure per T/TT Faculty
- 55% of College of Engineering

Continued Strong Relationship with Micron and local semiconductor industry

- ~25% of alumni have or do work at Micron
- Local desire for semiconductor workforce - Micron building new fab ($15 billion)
- Work with CHIPs Act
- Institute for Microelectronics Education and Research

Professor
Claire Xiong

Something to work on

- Dropping Undergraduate Enrollment
  - 120 in Fall 2018
  - 55 in Fall 2023
  - Graduate Enrollment (70) plateaued

Rutgers University
Materials Science & Engineering
https://mse.rutgers.edu/

RUTGERS School of Engineering

Group members at the Multiscale Materials Modeling conference in Baltimore, Oct. 2022

Lisa Klein, Department Chair,
Chair since: July, 2020

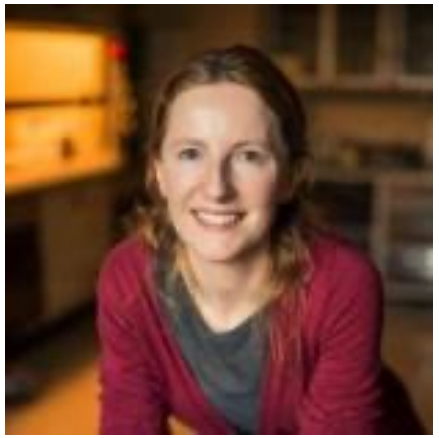
← Ryan Sills received an NSF CAREER Award ($622,248; 5 years): To reconcile theoretical inconsistencies to better understand and predict fractures of metals.

Koray Akdogan, Undergraduate Director, is leading our installation of Materials Genome Toolkit Award from ASM, including ThermoCalc™, DICTRA Multicomponent Diffusion Code, PRISMA precipitation simulator and other databases. →

ASM MATERIALS EDUCATION FOUNDATION

Dunbar Birnie is the Renewable Energy Lead of the Rutgers Climate and Energy Institute, with $1.6M from DOE under the "FARMS" Program and $2.9M NJ State Appropriation to Build Pilot Agrivoltaics Arrays. →

Rutgers Agrivoltaics Program
New Jersey Agricultural Experiment Station

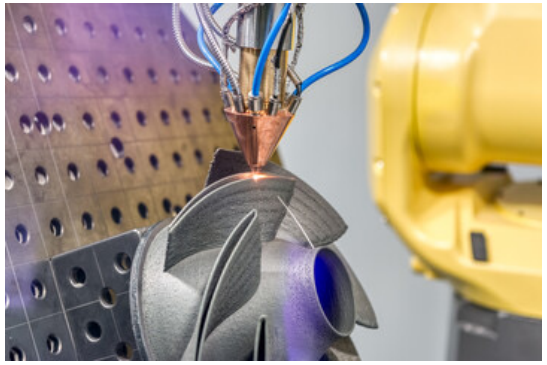


← Deirdre O'Carroll is the Rutgers Lead in an NSF ENGINE on PHOTONICS. In addition, the Economic Development Authority has formed NJPhotonics, a consortium of companies and universities that support the considerable Photonics presence in NJ.

University of Utah
Department of Materials Science and Engineering
https://mse.utah.edu/

Michael L. Free,
Chair since: Jan, 2022

- **Extensive outreach**
  - **High school visits - 26 high schools involved**
  - **Fall open house with 136 high school students attending**
  - **Working with school district to set up a concurrent enrollment class with hands-on preparation of different materials**
- **Curriculum upgrades**
  - **Preliminary approvals to add biomedical and energy materials areas of emphasis options to materials science and engineering B.S. degree**
  - **Streamlined areas of emphasis for metallurgical engineering B. S. degree**
- **Working to build an Additive Manufacturing Center led by Dr. Zak Fang**
- **Two active faculty searches (one MSE, and one MET E)**



New Jersey Institute of Technology
Otto H. York Department of Chemical and Materials Engineering

Lisa Axe,
Chair
Since: 2016

Murat Guvendiren,
Director, Materials Engineering Program
Since: July 2022

New BS Materials Engineering Program: First cohort Fall 2022
PhD and MS Materials Engineering programs began in 2018

New online graduate certificate program (Spring 2023):

- Data Science for Chemical and Materials Engineers

New MTEN Labs – $500K instructional equipment already purchased
– $2.3M for renovations

Curriculum Changes:

- Hands-on laboratory component in every semester beginning in 1st Year – 2nd Semester
- Research Thesis Option (4-semester research project (12 credits))
- Minor in MTEN

Materials Engineering Distinguished Lecture Series (Since 2018)

Prof. Shu Yang (UPENN) / Prof. Mark Hersam (Northwestern), Prof. Michael Wong (Rice), Prof. Alberto Salleo (Stanford)

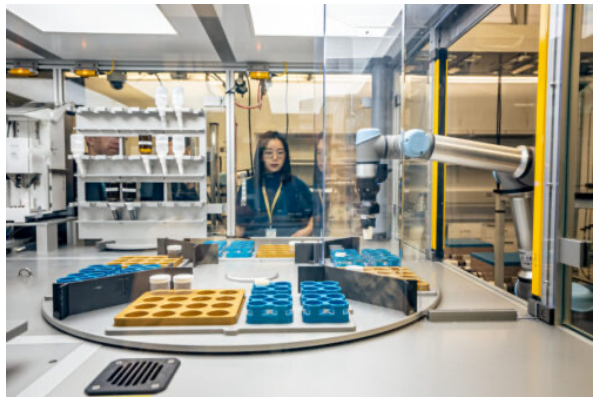
Recruitment Activities:

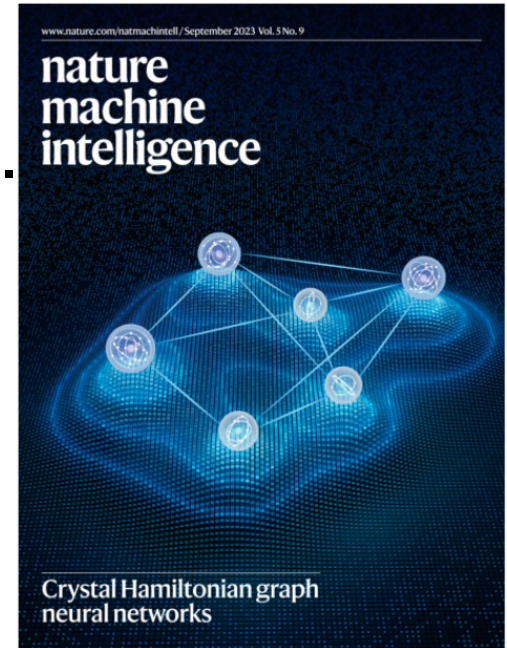
- Workshop for High School Teachers – 3D Printing and Data Science (twice a year)
- CME-Bergen Community College Summer Program (13 students - 7 CME faculty)
- Five-Part Webinar Series / Live Q&A Panel / 1-week Summer Program (10th Graders)

University of California, Berkeley
Department of Materials Science and Engineering

Chair: **Junqiao Wu**
since: **July 2023**

- **Highlights since March 2023**
  - Prof. Mark Asta winning the 2023 David Turnbull Lectureship, MRS
  - Prof. Robert Ritchie elected a Foreign Fellow of the Academy of Athens, Greece
  - Profs. Omar Yaghi (chemistry), Jeffrey Long (chemistry), Ali Javey (EE), Sayeef Salahuddin (EE) appointed "0%" in MSE
  - Prof. Gerbrand Ceder co-leads a new consortium in LBNL to make batteries for electric vehicles more sustainable; directs automated lab (A-Lab) where robots operate instruments and artificial intelligence makes decisions to find new materials
  - New Master of Engineering in Semiconductor Technology
  - International summer school in materials science, 2024
- **Junior faculty position in Berkeley MSE on "Descriptive structural materials".** Apply at: https://aprecruit.berkeley.edu/JPF04116





Northwestern University
Department of Materials Science and Engineering

Mark C. Hersam
Chair since 9/2023
- Joined NU MSE faculty in 2000
- MRSEC Director since 2013

Research News and New Senior Faculty:

Northwestern
MRSEC
Materials Research Science and Engineering Center

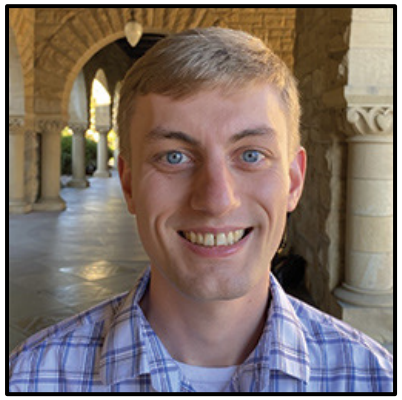
NU-MRSEC Awarded for 2023-2029
- IRG-1: Bioprogrammable Materials
- IRG-2: Hybrid Ion/Electron Conductors

Prof. Chris Schuh, NAE
- Structural materials
- Dean of Engineering

Prof. Jonathan Rivnay
- Bioelectronic materials
- NU-MRSEC IRG-2 Leader

Emerging Research Directions from New Junior Faculty:

Cécile Chazot, Asst. Prof.
(Arrived January 2023)
- Polymer fiber recycling
- Dye-free structural color



David Barton, Asst. Prof.
(Arriving January 2024)
- Nanophotonic materials
- Energy-efficient computing

Jennifer Fowlie, Asst. Prof.
(Arriving September 2024)
- Electronic material synthesis
- Quantum information science

Junior Faculty Search
(Target Arrival: FY25)
- Soft functional materials
- Medical biomaterials

The University of Tennessee
Dept. Materials Science and Engineering

Veerle Keppens , DH since 2016

MRSEC : Center for Advanced Materials and Manufacturing (CAMM)

IRG1: is dedicated to accelerating the understanding and design of quantum materials and systems

IRG2: developing materials that can withstand extreme temperatures and pressure

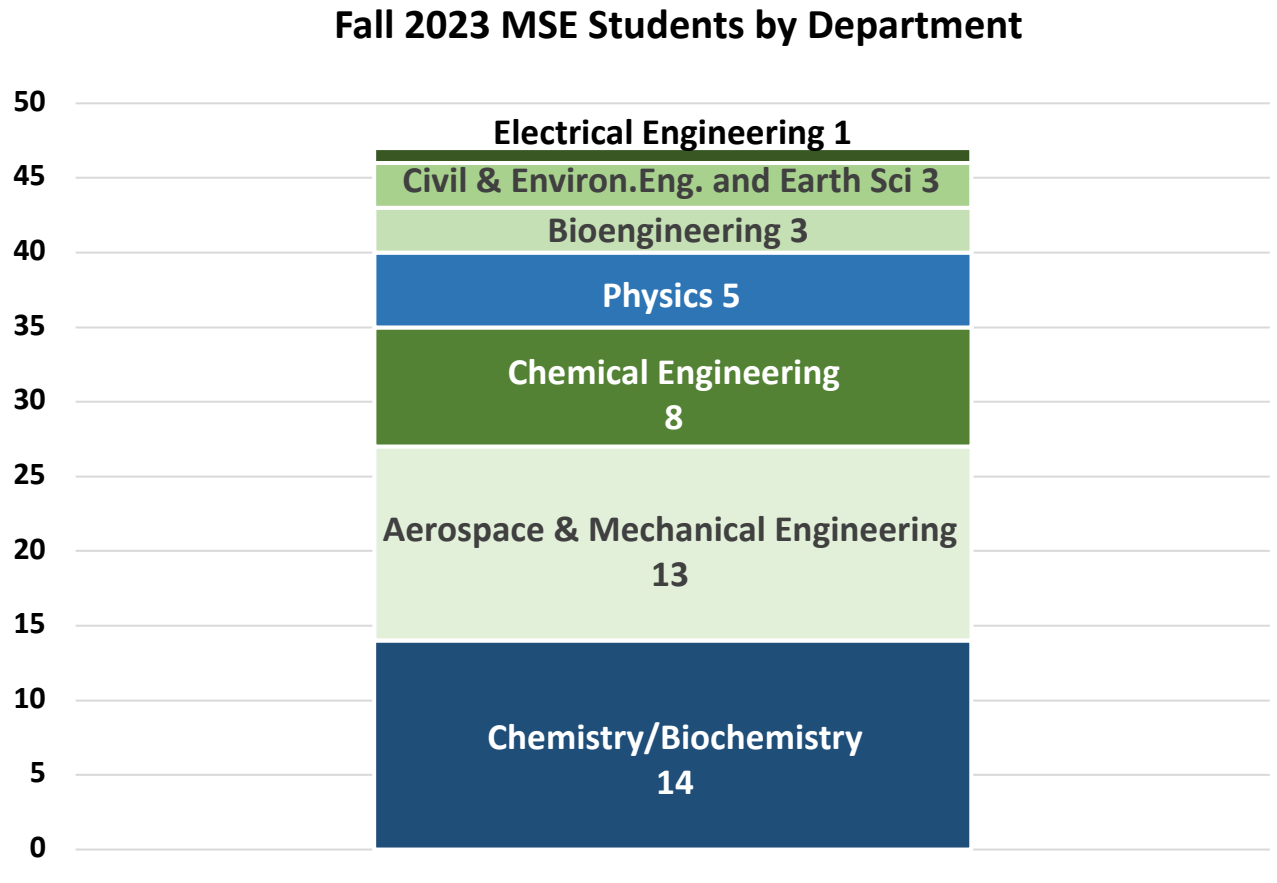
Faculty Update

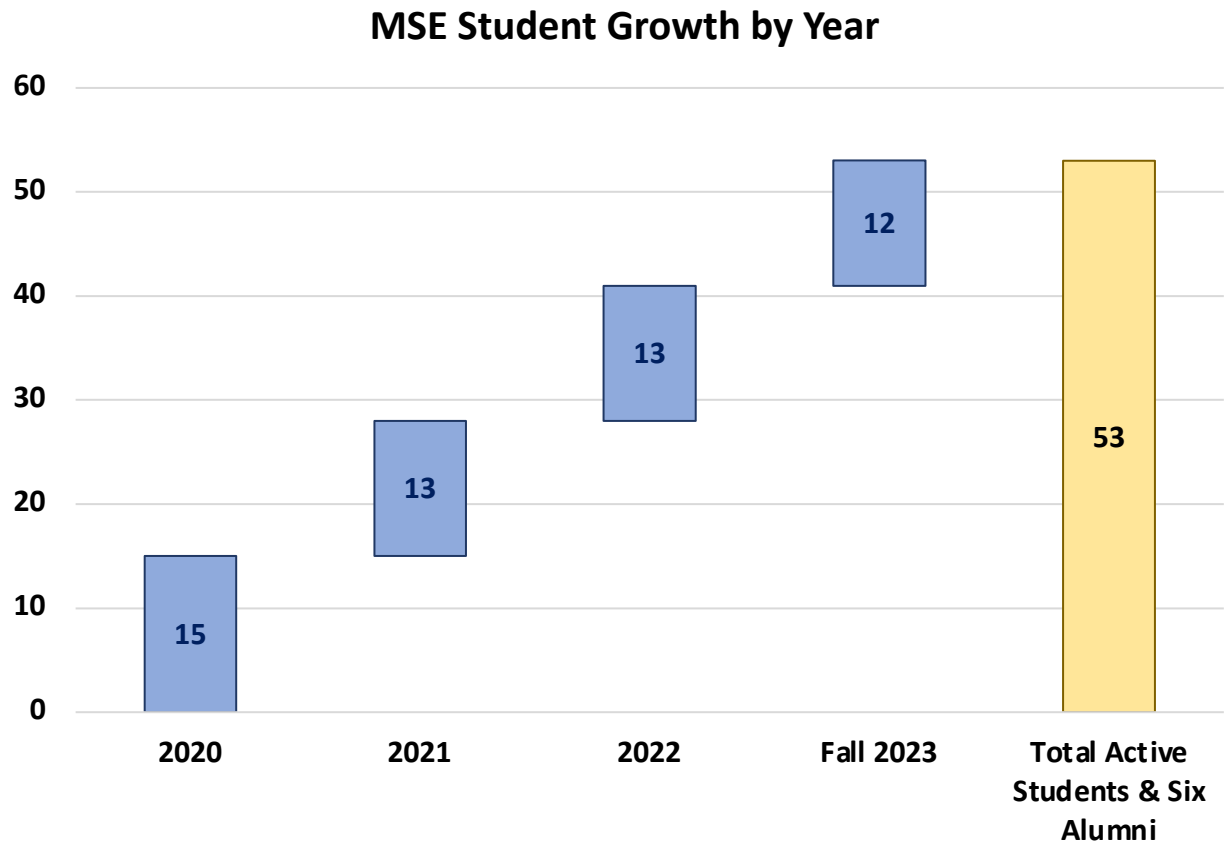
Sergei Kalinin received the Medard W. Welch Award from the AVS

University of Notre Dame
Interdisciplinary Materials Science and Engineering Program

UNIVERSITY OF NOTRE DAME | THE GRADUATE SCHOOL
Materials Science and Engineering

- Program launched in the Spring of 2020
- Program Director: Alan Seabaugh, Frank M. Freimann Professor, Electrical Engineering
- Program includes interdisciplinary research and cross-departmental courses across seven departments/programs in the Colleges of Engineering and Science
- Fall semester 2023: 47 students pursuing MSE PhD





University of Delaware
Department of Materials Science and Engineering
mseg.udel.edu

Chair: Joshua Zide
Since: 07/2022

Welcome to new MSE faculty members (+ hiring more!)

Chelsea Davis
Associate Professor
Surface and interfacial mechanics of soft matter

Srikanth Pilla
Professor/Director of Center for Composite Materials
Sustainable and lightweight functional materials

Ulf Schiller
Associate Professor
Multiscale simulation techniques and data-driven approaches for soft matter

Electronic, Photonic, and Quantum Materials

Polymers and Soft Matter

Milestones:
1) First graduating class of undergraduates (16 excellent students) in 2023
2) >100 PhD students across the department (5.5:1 PhD/faculty ratio)
3) MRSEC, EFRC, and other research centers remain strong and vibrant

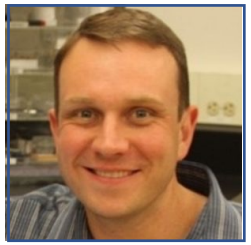
Colorado School of Mines
Metallurgical and Materials Engineering Department
https://metallurgy.mines.edu/
Materials Science Program: https://materials.mines.edu

21 tenure/tenure track faculty; 2 teaching faculty
~50 BS degrees/year; ~120 graduate students

Ivar Reimanis
Head since Jan 2022

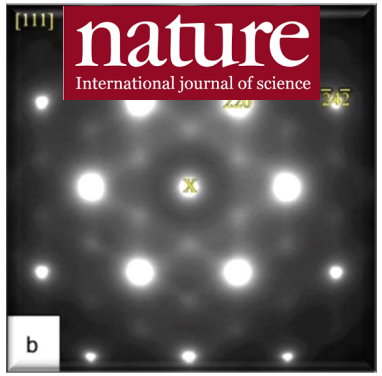
Recent News

Launched New Bachelor of Science Degree: Ceramic Engineering



Brian Gorman
ACerS 2023 Outstanding Educator Award

ACerS -CGIF Teachers Camp
October 14, 2023



Explaining diffuse intensities in FCC diffraction patterns 2023

4,000 sq ft of brand new materials and manufacturing space

Jonah Klemm-Toole
NSF CAREER Awardee

Geoff Brennecka
World Academy of Ceramics

Worcester Polytechnic Institute
Materials and Manufacturing Engineering Program
Mechanical and Materials Engineering Department

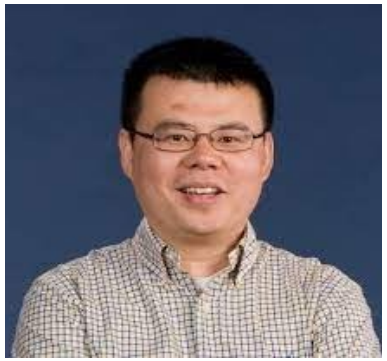
Department Head:
Robert Hyers
since: Jan. 2023

- **12 core faculty members in the Materials and Manufacturing Engineering Program, 8 research faculty, $8.8 million new research funding in FY23, 47 PhD students, 58 Masters students in this graduate only program.**

- **New hire: Professor Thomas Christiansen** joined WPI in July 2023 as the Director of the Center for Heat Treating Excellence (CHTE) from Technical University of Denmark

Program Director:
Jianyu Liang
since: Sept. 2023

- **Faculty and student awards:**



Professor Yan Wang, received the Bayh-Dole Coalition's inaugural "Faces of American Innovation" in 2023

Assistant Professor Danielle Cote received the ASM Bradley Stoughton Award for Early Career Teachers at IMAT 2023

PhD student Haoxing You won the 2023 HTS Bodycote Best Paper Award

Texas State University
Materials Science, Engineering, and Commercialization Program
msec.txstate.edu

Director: **Sean Kerwin**
since: Sept. 2022

Snapshot

PhD Program currently only accepting MS grads -> Ave time to degree 3.6 years

Begin admitting students with BS in Fall 2024

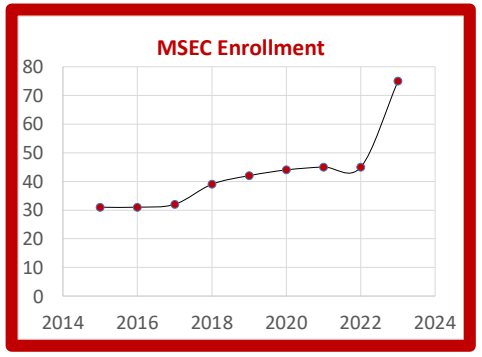
50+ faculty from 6 departments/programs in Engineering and Science

75 current students

Commercialization component: Boot Camps and 6-Credits of Business courses required

-> 5 student-initiated businesses launched

-> joint PhD/MBA program with McCoy College of Business



Assistant Director:
Anthony Torres
since: June 2023

New Faculty

Nathan Satchell
(Univ. of Leeds)
Devices for
superconducting computers

Recent Grants (>$10 M in multi-year funding)

NSF, NASA, DoT

Texas University Fund

~$4B endowment for 4 Texas Universities:
Texas State, UNT, Texas Tech, Univ. Houston

More Changes

New President (Kelly Damphousse)

New Dean (Barrett Bryant)

11 PhD Programs to be Added Fall 2024 (7 in Science & Eng.)

Reorganization of College of Science & Engineering

RCM Budget model to be introduced

TEXAS STATE®
MATERIALS SCIENCE, ENGINEERING AND COMMERCIALIZATION

Lehigh University
Department of Materials Science and Engineering

Head: **Ricardo Castro**
since: April/**2023**

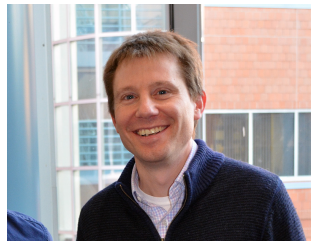
Dr. Glenn Balbus is our new rising star focusing on advanced characterization techniques.
Fadi Abdeljawad coming from Clemson enhances our expertise in modelling and simulations of materials' processes from atomic to mesoscale.

Lehigh and the U.S. Army Research Lab Announce $25 Million Cooperative Agreement to Develop Next-Generation Metallic Alloys

Researchers from Lehigh and Ohio State will leverage the existing Presidential Nano/Human Interfaces (NHI) Initiative for an innovative collaboration on the development of two novel metallic alloys. *PI: Martin Harmer*

OPEN POSITION: Professor of Teaching and Associate Chair

Drexel University
Department of Materials Science and Engineering
https://drexel.edu/materials/



Steve May
Chair since July 2020

Student success:

Scholarships: Fulbright, Goldwater, Knight-Hennessy (Stanford), Uhlig (ECS), Centennial (ASM), Gould (SPE), Acta Materialia (TMS), DAAD Rise.

Exit survey: $81,000 starting salary (2nd highest in CoE)

1-year out survey: 100% employment/grad school; 91% job satisfaction; +9% salary increase in last 3 years (compared to +6% for CoE on average)

Faculty Update:

Open TT faculty search: Electron microscopy, metallurgy, recycling, manufacturing…

Research Update: *Two recent MRI awards* : SEM with *in-situ* capabilities (Thermo Fisher Apreo 2S) & nanoCT (Zeiss Xradia 620 Versa).

Emily Herbert

Marley Downes

Darrell Omo-Lamai

Kyle Matthews

Erika Garro

Carl Furner

WSU School of Mechanical & Materials Engineering

- Director, Prof. John McCloy, 4 y term starting 7/1/2022
- Two new MSE faculty members
  - Prof. Arezoo Zare – Research focus in extreme environments
  - Prof. Syeda Sumaiya – Lab management and teaching. Research focus in grain boundaries and characterization
- Research Highlights
  - New ARL supported center (Cer3D) started in April, 2023
  - WSU-led Joint Center for Deployment and Research in Earth Abundant Materials (JCDREAM) taking leadership in the state for the newly awarded H_2 Hub effort
  - New research initiatives formed in Clean Energy (nuclear, hydrogen) as well as Manufacturing (including ceramics)
  - Active joint institutes with Pacific Northwest National Laboratory (nuclear, bioproducts, power grid)
- MSE Details
  - ~17 **faculty** (~13 TTF, 6 women), and 26 TTF affiliate faculty in MSE

Director: **John McCloy**
since: **July 2022**

Syeda Sumaiya

Arezoo Zare

WASHINGTON STATE UNIVERSITY

Stony Brook University

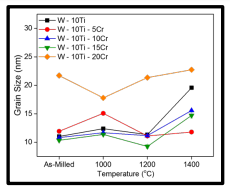
Department of Materials Science and Chemical Engineering

Chair: Dilip Gersappe
since:2018

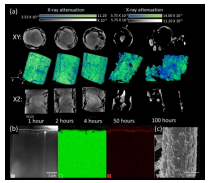
13 Materials and 8 Chemical Engineering TT Faculty members
~$10.5M in faculty research expenditures
~100 graduate students (82 PhD and 18 Masters)

Recent Research Thrusts

Nuclear Materials



Materials for Fusion Reactors

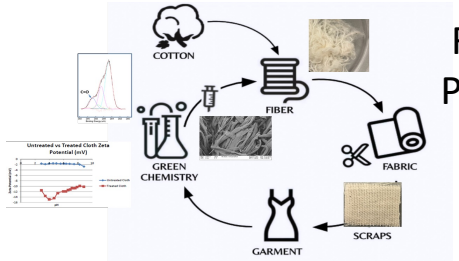


Design of small modular reactors

Molten salt reactors

4 Core Faculty (+1 New hire)
Funding: DOE EFRC, ARPA-E, Industry

Climate Change & Sustainability



Recycling Textiles
Polymer Upcycling
Green Synthesis

Biopolymers for protection of Dams, Levees, Coastlines

6 Core faculty
Funding: NSF, Industry, DoD

NY Climate Exchange

SBU will lead new $700M living laboratory. MSCE is actively involved in planning/research/ outreach activities

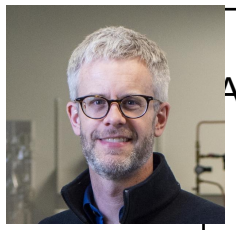
BCG · IBM · Georgia Tech · Duke University · NYU · University of Oxford · University of Washington · Pace University · Pratt · RIT Rochester Institute of Technology · Maritime College · CUNY The City University of New York · Moody's · Good Old Lower East Side GOLES

University of Colorado Boulder
Materials Science & Engineering Program

Director:
Stephanie J. Bryant
since: **July 2021**

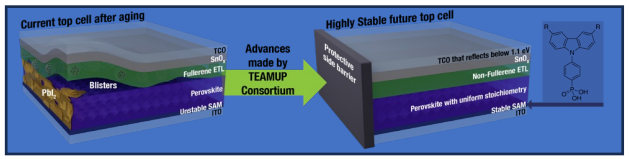
- Our program consists of **>65 faculty** and **>80 PhD students**.
- Recent senior materials faculty hires include**:**

  Mike Toney from SLAC**, Seth Marder** from Georgia Tech, and **Jason Burdick** from U of Penn
- Selected **recent faculty accomplishments:**



TEAMUP: Tandems for Efficient and Advanced Modules using Ultrastable Perovskites

PI Michael McGehee



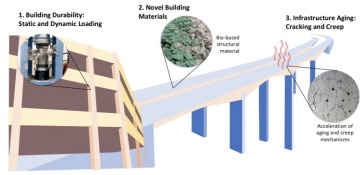
SOLAR ENERGY TECHNOLOGIES OFFICE
U.S. Department Of Energy

$9M

RC-REVIVE: Reinforced Concrete Repair by an Evolving Internal Vascular Ecosystem

PI Mija Hubler

DARPA



$10M

the David & Lucile Packard FOUNDATION

Wyatt Shields

- **New instrumentation capabilities**

  New Clean Room, XPS coupled with Low energy ion scattering, X-ray Diffractometer

University of North Texas
Department of Materials Science and Engineering
www.materials.engineering.unt.edu

Vijay K. Vasudevan
Chair since: September 1, 2021

Department At a Glance

- MSE Department founded in 2003
- UNT R1 and Hispanic/Minority Serving Institution (HSI/MSI)
- 24 faculty (20 FT); 90 UGs, 84 Grads, 9 Postdocs, 4 RAPs; FY23 ~$9.8 million research awards
- Structural materials, tribology/ surface engineering, functional materials, advanced manufacturing, computational MSE
- 1,150 High-impact journal papers 2017-2023; Highest h-index 82; Average h-index of MTSE faculty 42; Number of Citations ~200,000

Centers

- Center for Agile and Adaptive Additive Manufacturing with state-of-the-art AM and other equipment; Texas state funded $5M/year (www.caaam.unt.edu)
- Advanced Materials and Manufacturing Processes Institute (www.ammpi.unt.edu)
- Materials Research Facility (www.mrf.unt.edu)
- PACCAR Technology Institute (https://paccar.unt.edu)
- Center for Battery Technology

Faculty Success

- Vijay Vasudevan (with UNT co-PIs plus ORNL, Ames Lab, PNNL) – DOE-SC/FES RENEW; $1.5 million, 3 years (2023-2026)
- Marcus Young – Army DURIP ~$2.6 million (2023)
- Anu Kaul, DOE-NNSA-MSIPP, $5 million/5 years (2023)
- Vijay Vasudevan, Rajiv Mishra, ~$1.2 million grant; DOE-EERE; Al-Ce (2022-2025)
- Rajiv Mishra (ammpi.unt.edu) $5.5 million grant Army Research Lab to devise new bulletproof protection materials.
- Rajarshi Banerjee - ONR $1 miilion (total $3.0 million), Multimaterial Additive
- Narendra Dahotre, TMS Bruce Chalmers Award (2022)
- Jim Williams, Honorary Member ASMI (2023)
- Diana Berman – Fulbright Scholarship (2023)
- Rajarshi Banerjee – Fellow ASMI (2023)
- Wonbong Choi – Fellow NAI (2023)
- Yufeng Zheng, TMS Young Leaders Professional Development Award (2023)

Student Success

- NASA Lunar Forge BIG Idea Challenge – UNT student led team one of 7 finalists (2023); $180K+
- UNT Materials Advantage Chapter – Winner Chapter of Excellence (2022-2023)
- 1st Place, STLE Annual Meeting Student Poster Competition (2023)
- 1st and 2nd Place, North Texas MRS Chapter Poster Competition (2023)

Collaborations, Positions

- Additive Manufacturing
- Computational MSE
- Environmental Degradation
- Radiation Damage
- Tribology
- Two new faculty members joined – Yufeng Zheng (metallic materials, advanced characterization) and Sameehan Joshi (additive manufacturing)
- Faculty opening in energy storage/battery materials

Clemson University
Materials Science and Engineering

https://www.clemson.edu/mse/

Kyle Brinkman,
Chair since: March, 2019

Kostya Kornev *(Presenting)*

- ***AMIC Materials Building now under construction, anticipated completion 2025***
- ***Clemson's Raj Bordia named President American Ceramic Society (ACERS)***
- **Tianyu Zhu hired as tenure track Assistant Professor with expertise in Battery Materials (prior @ LBNL-DOE and Industry); Cong Ren hired as tenure track Associate Professor primary appointment ME (prior INL-DOE)**
- **Currently Negotiating new i) Full Professor and ii) Assistant Professor positions.**
- **Three "joint" MSE positions open- TPR home i) Automotive Engineering, ii) Mechanical Engineering and iii) Chemical and Biomolecular Engineering with partial teaching duties in MSE**
- **ABET site visit completed October 2023**

University of Connecticut
MSE Department
https://mse.engr.uconn.edu/

MATERIALIZE YOUR FUTURE.

materials &ENGINEERING science

Engineering is strong at UConn.

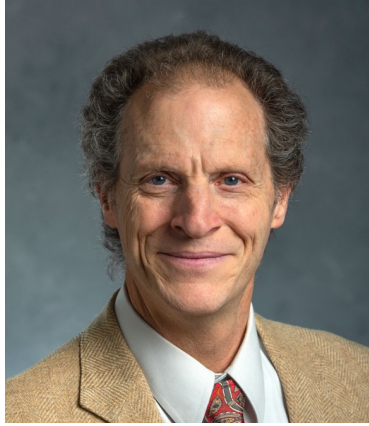
Materials makes us stronger.

- **Student success: UConn sweeps 1st in both ASM undergrad competitions**
- **Faculty: 1 new (A. Dupuy), +2 more career awards (S. Wang, Y. Zhu)**
- **MSE=>$60M active research.**
- **We're now in a College of Engineering.**
- **Nationwide: UConn tied for 1st in mean graduation time (4.1 years)**

Head: **Bryan Huey**
since: Fall 2017

MICHIGAN STATE UNIVERSITY

Michigan State University
Chemical Engineering and Materials Science
< https://www.chems.msu.edu/>



Kris Chan, Chair, Tom Bieler, Assoc. Chair
Since Fall 2021

- **Professor Christina (Kris) Chan hired as Chair**
- **Hired new faculty member (TEM expert) in Battery Electrochemistry**
- **Open searches for 2 faculty in Semiconductor area, a teaching specialist, and a completely open topic, open rank search for ~3 additional faculty**
- **Our vision is to increase cross linking between ChE and MSE programs – further along in grad program, but made recent progress in undergrad program to have more shared courses in polymers.**

University of Virginia
Department of Materials Science and Engineering

https://engineering.virginia.edu/departments/materials-science-and-engineering

Elizabeth (Beth) J. Opila

Chair since January 2022

UNIVERSITY of VIRGINIA

SCHOOL of ENGINEERING & APPLIED SCIENCE

Department of Materials Science and Engineering

Department news

- Department founded 1962, but….
- New BS program in MSE approved by state of Virginia in 2021
- ABET accreditation granted May 2023

May 2023 BS MSE graduates

Faculty External Awards

- Jon Ihlefeld, 2023, Fellow of the American Ceramic Society
- Haydn Wadley, 2023, Virginia Academy of Science, Engineering, and Medicine

New Faculty Hire

- Kory Burns, UVA Rising Scholar, postdoc at ORNL
- PhD University of Florida
- Research Interest: TEM
- August 2024 start

New Collaborative Research Awards

- ARO MURI, PI Opila, *Planetary- and Geologically-Inspired Discovery of Refractory Materials*, UVA & ASU, $6.25M, 5y
- DARPA, PI Wadley, *Optimal Multi-Material Design via Tomographic Characterization and Data-Driven Models*, UVA, Honeywell, Intl., Cambridge U, UIUC, Brown, & Rowan U, $8.6M, 4y

University of Pennsylvania
Materials Science and Engineering
<https://mse.seas.upenn.edu/>

Shu Yang
Chair since July 1, 2021

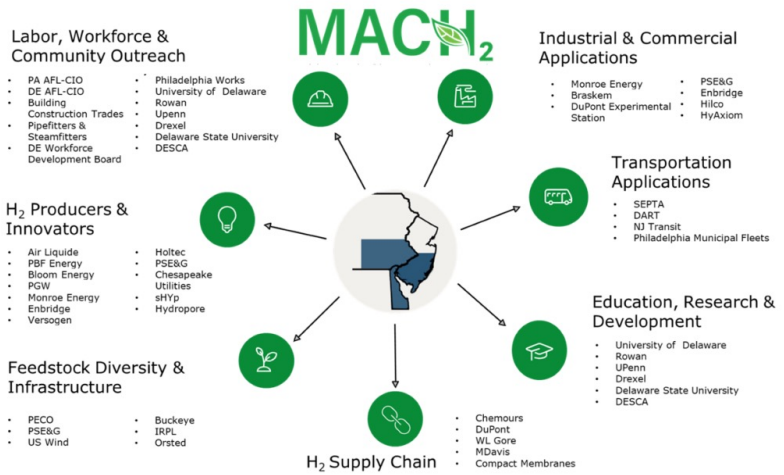
- **Faculty Recognition**

Award	Liang Feng	U.S. Defense Advanced Research Projects Agency (DARPA) Director's Fellowship
Award	Karen I. Winey	2022 American Association for the Advancement of Science (AAAS) Fellow
Award	Shu Yang	2023 American Chemical Society (ACS) Langmuir Lectureship Award
Award	Shu Yang	2022-2023 Faculty Advancement Network (FAN) Ivy Plus Provost Leadership Fellow
Award	Shu Yang	2023 Penn Center for Innovation (PCI) Inventor of the Year Award
Award - TEACHING	Peter K. Davies	2023 Penn Engineering Student Choice S. Reid Warren, Jr. Award
Award - TEACHING	Mahadevan Khantha	2023 Penn Engineering Student Choice Hatfield Award for Excellence in Teaching in the Lecturer and Practice Professor Track
Leadership Appt	Russell J. Composto	Appointed Faculty Co-Director of Penn First Plus
New Hire	Eric Huang	Senior Lecturer
Retirements	Peter K. Davies	2023 Retirement

- **We successfully completed ABET site visit in October.**

- **Penn Among Education Partners in Mid-Atlantic Clean Hydrogen Hub (MACH2) to Advance Clean Energy**
  - **We plan to add a new specialization**, *Hydrogen Energy Systems.*

- **We are looking for faculty candidates (all rankings)** in Quantum/Electronic Materials and Structural Materials.



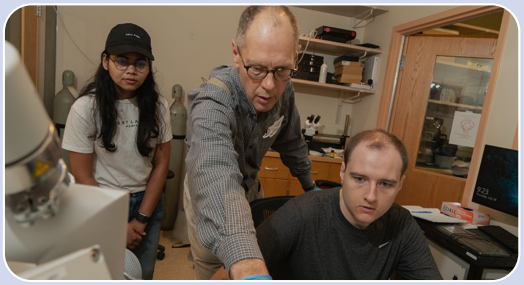
Carnegie Mellon University

Carnegie Mellon University
Materials Science and Engineering

https://www.cmu.edu/engineering/materials/

Beth Dickey
Head

Decarbonization in Metals Manufacturing



Research

- Study blast furnace efficiency
- Use experiments and simulations to study hydrogen DRI (PNW, Nucor, USS, funded by DOE)
- Perform techno-economic analysis of potential pathways for decarbonization
- Analyze workforce and local environmental impacts of decarbonization

Education

- Collaborate with U. S. Steel on a graduate student project course
- Visit the Mon Valley Works and take the Carrie Furnaces Industrial Tour with students and staff
- Students work in teams to evaluate decarbonization options

Global Impact

- Established Industrial Decarbonization Analysis, Benchmarking, and Action (INDABA) Partnership in 2023
- Convene global academic-industry network examining options for industrial decarbonization
- Focus on iron and steel with lessons for other industries

NASA

Space Technology Research Institute for Model-based Qualification & Certification of Additive Manufacturing

CISR
Carnegie Mellon University
Center for Iron and Steelmaking Research

Carnegie Mellon University
Wilton E. Scott Institute for Energy Innovation

Manufacturing Futures Institute
The Digital Transformation of Manufacturing

Purdue University
School of Materials Engineering
http://www.purdue.edu/mse

Dave Bahr
Head since: Aug. 2012

Two new faculty openings for 24-25

Joint with College of Sciences, very broad

One Assistant, one Associate level

https://careers.purdue.edu/job/West-Lafayette-Assistant-Professor-Advanced-Materials-IN-47906/1096126900/

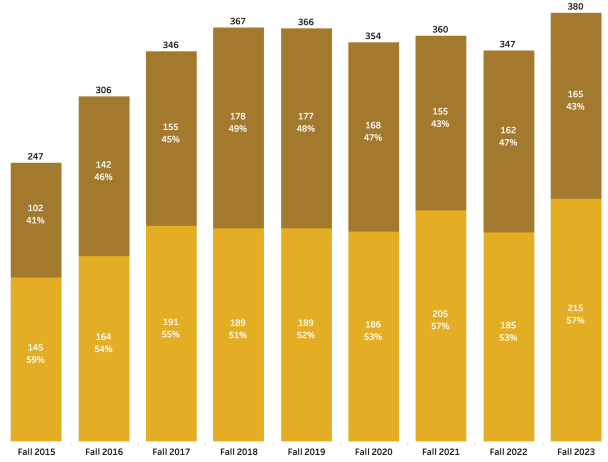
https://careers.purdue.edu/job/West-Lafayette-Associate-Professor-Advanced-Materials-IN-47906/1096135500/

"New" faces in 23-24

Babak Anasori, Reilly Associate Professor, MSE and ME, was at IUPUI

Mohamad Zbib, Associate Prof of Practice, ENE and MSE

Raisul Islam, Assistant Professor, Jan 2024



Record enrollment (dropped in 2020), 210 UG (70 per year)
24 MS, 141 PhD

We're now in 4 zip codes, 2 area codes, and too many buildings

North Carolina State University
Department of Materials Science and Engineering

Head: **Don Brenner**
Since: **2018**

CLAWS
Commercial Leap Ahead for Wide Bandgap Semiconductors

- $39 million DoD Microelectronics Commons regional innovation hub. Of 8 hubs, only hub in the Southeast.
- **Commercial Leap Ahead for Wide Bandgap Semiconductors (Claws).**
- Co-PI + 2 of 7 company partners from MSE.

THE XM
Technology Hub for Engineering Extreme Materials

- $8.5 million congressional seed funds.
- **Technology Hub for Engineering Extreme Materials (THE XM).**
- Computational Design + Additive Manufacturing + Advanced Characterization.

New Hires

New Engineering Dean: **Jim Pfaendtner**

100 Year Celebration: 1st Ceramics Program in the southeast

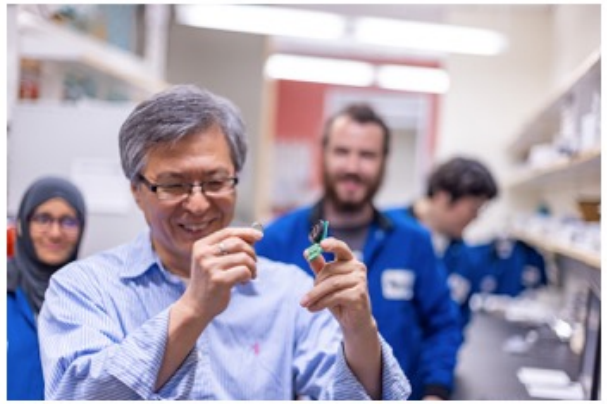
- Celebration April 4th and 5th, 2024.
- Wide Bandgap Symposium anchored by Hiroshi Amano.
- Distinguished Alumni Hall of Fame and Symposium.
- Celebration gala.

New Assistant Professor **Martin Seifrid**

University of Texas at Dallas
Department of Materials Science and Engineering
www.mse.utdallas.edu

Manuel Quevedo
Chair since 07/2020

- Two new faculty started in Fall 2023 for a total of 18 faculty T/TT in MSE.
- The School of Engineering is currently searching for 25 new faculty positions in several strategic areas, with at least 3 positions assigned to MSE.
- MSE continues to lead UT-Dallas initiatives related to CHIPS and related opportunities.



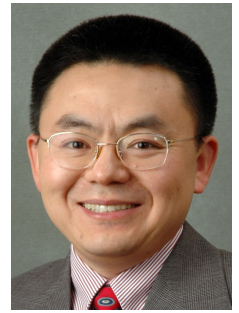
Dr. Kyeongjae Cho displays a finished battery and the hardware used to test its efficiency. To learn more about the new battery technology initiative and its impact for UT Dallas and North Texas, check out this video on YouTube.

MSE at UT-Dallas received **$30 million over three years** from the Department of Defense.

- Develop and commercialize new battery technologies and manufacturing processes.
- Enhance the domestic availability of critical raw materials.
- Train high-quality workers for jobs in an expanding battery energy storage workforce.

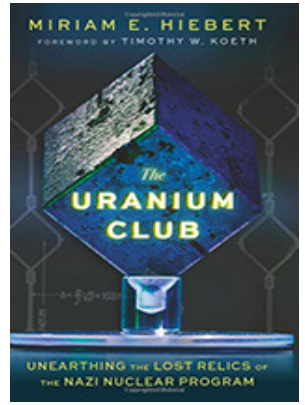
- MSE is currently developing a plan and viability for an undergraduate program in materials science with emphasis in electronics materials and Energy (Fall 2025).
- Center for Harsh environment electronics and systems started to position MSE at UT-Dallas as a key player in this area.
- Other programs include minors/certificates in energy and microelectronics for UT-Dallas students and other institutions in DFW.

University of Maryland
Department of Materials Science and Engineering
< https://mse.umd.edu/ >



JC Zhao
Chair since
July 2019

- Liangbing Hu amongst 40 being invited to the White House by OSTP to the "*American Possibilities: A White House Demo Day*" event on 11/7/2023.
- Liangbing Hu: UMD *Distinguished University Professor*; Gottlieb Oehrlein: *2023 Plasma Materials Science Hall of Fame Prize*; JC Zhao: *2023 J. Willard Gibbs Phase Equilibria Award* & *Clark Distinguished Chair Professor*.
- Gianna Valentino (1/23) & Shenqiang Ren (8/23) started at UMD MSE.
- Search underway for a microscopy faculty.
- Miriam Hiebert & Tim Koeth: "***The Uranium Club***" published on 7/11/23.
- Carlos Rios Ocampo: Lead PI of a $2M Future of Semiconductor NSF award
- Liangbing Hu: A Key PI of a New Energy Earthshot Research Center led by ORNL
- Started a battery course in Fall '23 & 2nd in Spring '24
- $5M JEOL NEOARM 200 C- corrected STEM arrived.



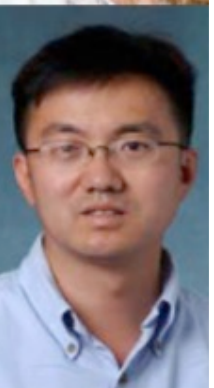
24 articles in *Science* & *Nature* **50+** front covers

ION+ InventWood™ From Nature | For the Future HighT-Tech LLC MEST

ALCHEMITY WH POWER IONIC DEVICES

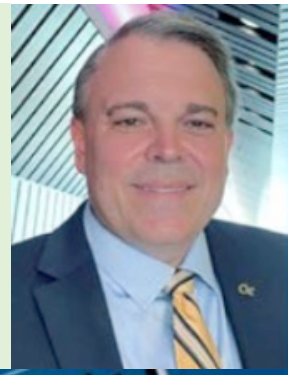
POLYMER-X 8 spinoff companies

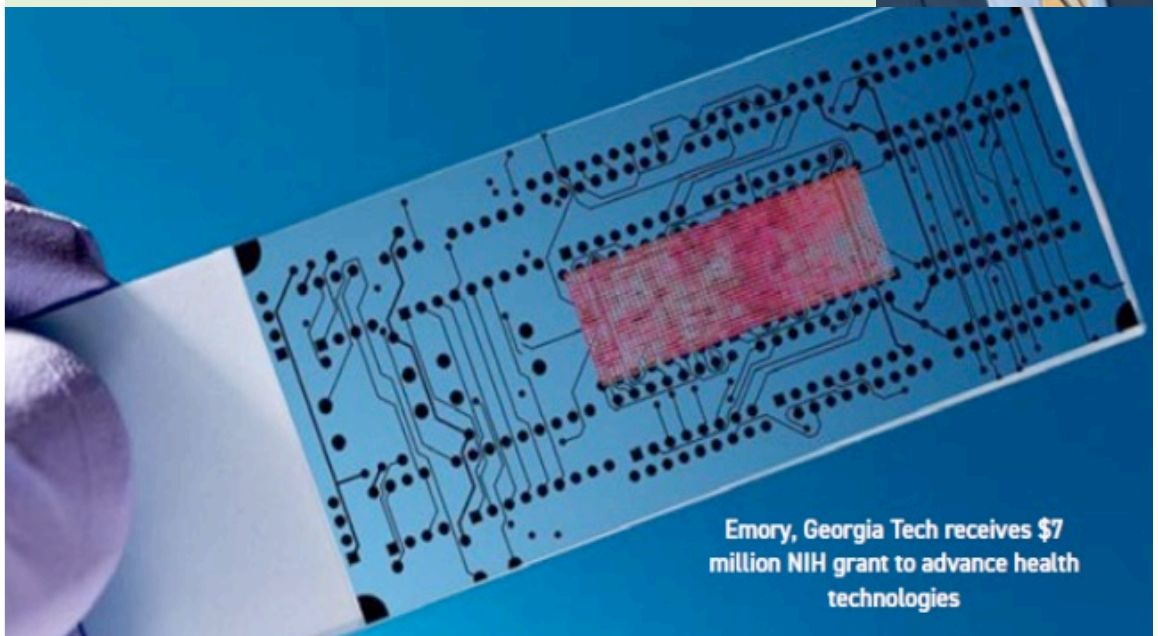
Georgia Institute of Technology
School of Materials Science and Engineering



Pushing Boundaries:
3 NSF DMREF projects of MSE and MSE-affiliated faculty funded out of a total of 37 projects.

NIH funds a $7.8 million *Atlanta Center for Microsystems Engineered Point-of-Care Technologies* (ACME POCT) support inventors across the country. ACME POCT is co-led by MSE's Eric Vogel.





New faculty

Antonio Facchetti
Highly-cited researcher
Fellow: MRS, NAI

Erin Ratcliff
DOE-EFRC director

Emma Hu
Anju Toor
Scott Danielsen

Associate Chair:
Preet Singh

Chair (since 2022)
Natalie Stingelin

Stingelin elected to the European Academy of Sciences

ICAA19
INTERNATIONAL CONFERENCE ON ALUMINUM ALLOYS
ATLANTA, GA, USA | 24 - 27 JUNE 2024

University of Central Florida
Materials Science and Engineering, CECS

< MSE.UCF.EDU >

UNIVERSITY OF CENTRAL FLORIDA

Sudipta Seal,
Chair since: June, 2017

New Hires: Fall 2023

Paria Gharavi
Asst Prof, U Penn

Liping Yu (CAREER)
Assoc. Prof, U Maine

Leland Nordin
Asst Prof, Stanford

Ehsan Sani
Asst Prof, Caltech

Shruti Vyas
Asst Prof, NUS

Honors/News:

UCF Hosts NSF PREM Center Conf with U Washington:Ultrafast Dynamics/Catalysis in Emerging materials
MSE UG Program – ABET accredited (2023), UG enrollment in rise > 127 (3 yrs running)
Prof. Y. Sohn – President of Korean American Science Organization
DOE 1 million: H2 Gas Turbines: PI. J. Gao
NSF STTR Phase II (~1 million) (Seal et al & Kismet Tech (UCF Alum))
MSE UG Alum – Start up SOARCE : Receives 600K in funding

Growth

Energy, Infectious Disease, Hypersonics, Biionix, 2-D materials (5 to 6 additional Hires)
Semi-conductor Education program (CHIPS Act) – Grant from Intel (MSE and ECE)

University of Illinois Urbana Champaign
Materials Science and Engineering

https://matse.illinois.edu

Nancy Sottos
Dept. Head

New Faculty Hires

Quantum Materials

Chris Anderson

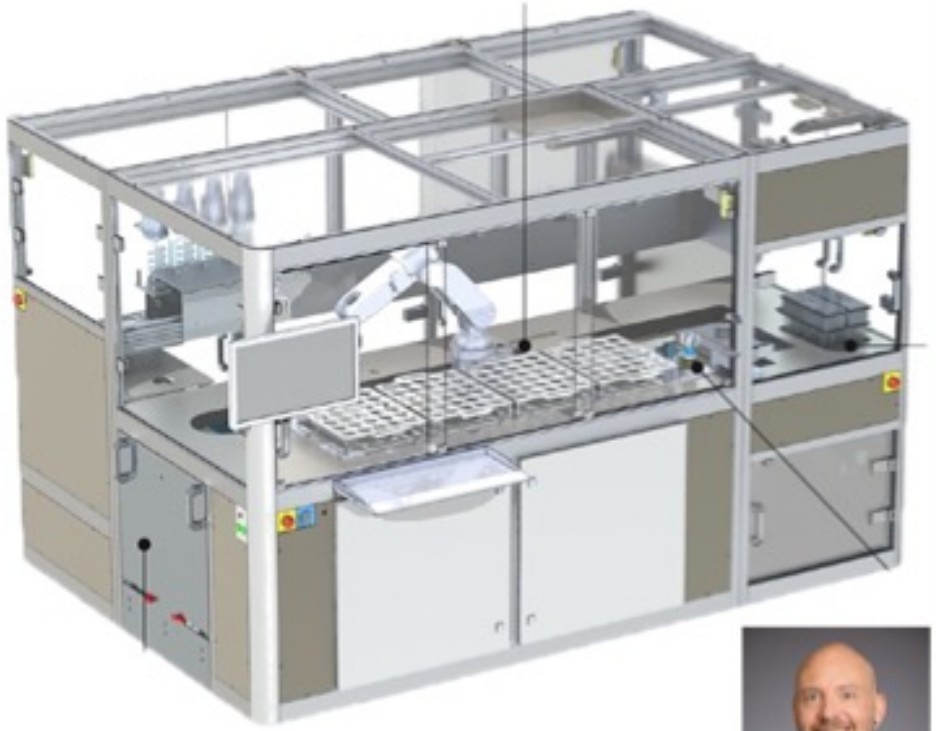
DEVELOPING NEW MATERIALS TO REVOLUTIONIZE QUANTUM TECHNOLOGIES IS UNNECESSARY
critical

Biomaterials

Peter Zhou

SYNTHESIZING MATERIALS FOR CURING GENETIC DISEASES IS CHALLENGING
happening

$3.6 M NSF MRI High-Throughput (HTP) Polymer Characterization Facility



Charles Schroeder (PI)

Data Science in MatSE Curriculum

- New MatSE + Data Science BS degree for FA 25
- Graduate Concentration in Data Science and Eng.

New grad courses:

- *Intro to Digital Materials*
- *Machine Learning for MatSE*
- *Material Informatics*

MSE@UCI

University of California, Irvine (UCI)
Department of Materials Science and Engineering

https://mse.uci.edu

Lorenzo Valdevit, Ph.D.
Chair since January 2024

Department numbers (2023)

Faculty: 14 + 4 emeriti, 1 lecturer, 19 affiliates

Students: 67 Ph.D., 15 MS, 113 BS

Expenditures: ~$9M/year

Upcoming Recruitments:

- Materials for energy and sustainability
- Processing of functional materials

Department News:

- MSE celebrated its 5-year anniversary in June 2023!
- Largest UG cohort ever (55 freshmen)
- Expenditures are up (highest per faculty in Engineering at UCI)
- NSF-MRSEC (CCAM) and other Centers are thriving

Recent and Select Faculty Accolades:

- **Earthman**: Fellow, ASM International
- **He**: NSF CAREER Award
- **Pan**: Highly Cited Researcher
- **Ragan**: HENAAC Award for Outstanding Technical Achievement in Academia
- **Schoenung**: Fellow, MRS; Distinguished Professor and Aldrich Endowed Chair






Recent and Select Alumni Accolades:

- **Johnny Lincoln*07**: 2023 Distinguished Alumnus

JOHNS HOPKINS
WHITING SCHOOL of ENGINEERING

Department of Materials Science and Engineering

https://materials.jhu.edu/

Michael Kessler
Head since Jan. 2023

Research-intensive department, 150 students, top 3 in the nation in research funding per faculty, 19 tenure-track faculty (three just hired), and >40 affiliated faculty.

Materials Characterization and Processing facility —opened in new, expanded facility. Electron microscopy, X-ray diffraction, tomography, sample prep, and more. Recognized by Baltimore Building Congress & Exchange for outstanding workmanship. Mitra Taheri, director.

Award-winning thrusts in biomaterials(INBT), materials for sustainable energy (ROSEI), materials for extreme environments (HEMI), and artificial intelligence (AI-X Foundry). Increasing interaction with JHUAPL. Nearly 100% of undergraduates participate in research.

University of Florida

Department of Materials Science and Engineering

www.mse.ufl.edu

Michele Manuel
Chair since: Feb . 2017

2023 ASM Silver Medal Award

ASM INTERNATIONAL

2023 INMM Early Career Award

INMM INSTITUTE OF NUCLEAR MATERIALS MANAGEMENT

THE OHIO STATE UNIVERSITY
COLLEGE OF ENGINEERING

Department of
MATERIALS SCIENCE AND ENGINEERING

The Ohio State University
Department of Materials Science and Engineering
<https://mse.osu.edu>

Michael J. Mills,
Chair since May 2019

Wei Zhang, Acting
Chair for AU2023

- 41 tenure-track faculty (39% women and URM), five active NSF Career Awards (Ghazisaeidi, Hwang, Locke, Grassman, Liu), one ONR Early Career (Leonard), one AFOSR Early Career (Doan-Nguyen)

- New research program highlights:
  - NSF ERC Hybrid Autonomous Manufacturing Moving from Evolution to Revolution (HAMMER)
  - HSS and NIH programs on regenerative medicine for skin injuries and diseases
  - Defense MURI program for quantum materials research

- Phase 2 of the Biomedical and Materials Engineering Complex scheduled to complete in SU2025

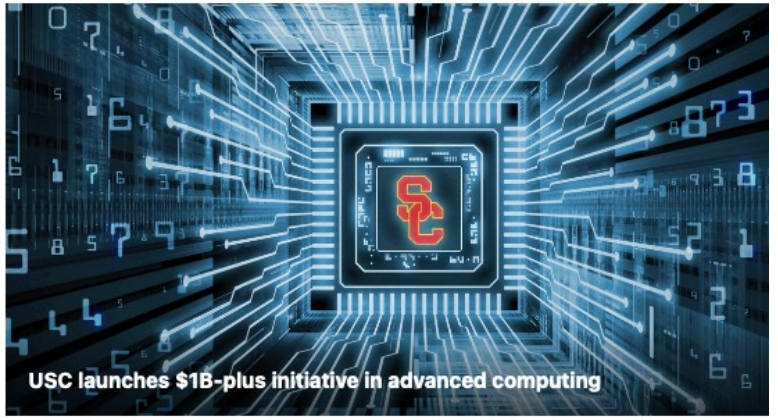
Ten (10) tenure-track assistant professors as of Fall 2023

- Three (3) started in AU2023
- Five (5) male and five (5) non-male
- Research areas spanning across electronic and energy materials, biosensors, material properties, manufacturing, welding & non-destructive evaluation

University of Southern California
Chemical Engineering and Materials Science Department
https://chems.usc.edu

Andrea M. Hodge
Chair since: August 2020

- **Welcome new Faculty in January 2024 Francisco (Paco) Villalobos**
- **Hired a new full professor for Fall 2024**
- **We have hired 6 new faculty members since 2021**



E-CET Pushes the Frontiers of Energy Transition

Viterbi Staff | May 15, 2023

The Ershaghi Center for Energy Transition Convenes Stakeholders and Funds Research Projects

- **Our Department will launch a new program in Energy Engineering - Fall 2024**

University of Michigan
Department of Materials Science and Engineering
https://mse.engin.umich.edu

Elizabeth A. Holm
Chair since 1/23

- **Six new and renewed major research centers**

DOE BES PRISMS: $26M/11 years	NSF MRSEC: $18M/6 years	DARPA ICECycle: $12M/3 years	AFOSR MURI: $7.5M/5 years	DOE EFRC: $1M/4 years	MI EV Center: $160M

- **Undergraduate success**
  - 10 NSF GRF awards
  - $233,100 in undergrad scholarships

- **Research recognition**
  - Prof. Claudia Loebel named Packard Fellow
  - Prof. Vikram Gavini and PhD student Vishal Subramanian win Gordon Bell Prize

- **Strategic focus areas:** Infrastructure – DEI – Community

Massachusetts Institute of Technology
Department of Materials Science and Engineering

Head: **Caroline Ross**
since: **2023 (interim, until 6-2024)**

- **Faculty arrivals** (Casamento, Wallin, Cheema in 2024), retirements (Lechtman, Hosler) and departures (Ortony, Van Vliet and Schuh)
- New lab: **The Breakerspace, for all MIT UGs to explore materials**
- Activity in climate and sustainability (**MIT Climate & Sustainability Consortium, Center for electrification and decarbonization of industry, MIT energy initiative…)**
- **Startups:** Sublime Systems, Avanti, Via Separations, and others
- **Strong computational materials science program,** collaboration with **Schwartzman College of Computing;** Common Ground academic subjects
- **Robust DEI initiatives** including MICRO and mentoring programs
- **Challenges: Space and infrastructure,** UG enrollment, Resources to support faculty research

Breakerspace: desktop SEM, XRD, Raman, Instron, etc.

Forge and foundry

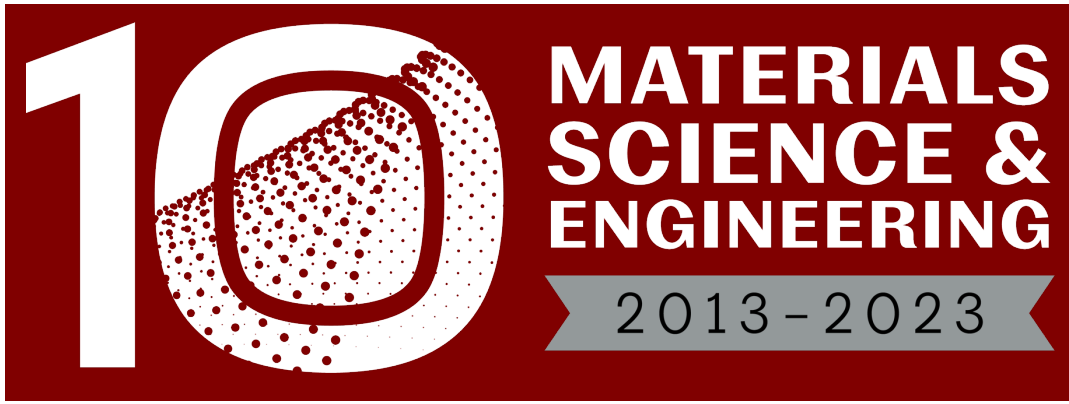
DMSE DEPARTMENT OF MATERIALS SCIENCE & ENGINEERING

MATERIALS SCIENCE & ENGINEERING
TEXAS A&M UNIVERSITY

Texas A&M University
Department of Materials Science and Engineering
https://engineering.tamu.edu/materials/index.html

Ibrahim Karaman
Head since: July 2013

- **3 assistant professors, 3 full professors, and 1 instructional associate professor**



- **Hired 19 faculty in the last 10 years, total of 24 TTF, 3 Non-TTF, 8 TTF – 33%**
- **Successful first ABET visit**: 2 strengths, 0 issues
- **Army Center funded – High Throughput Materials Discovery for Extreme Conditions (HTMDEC) - $9M for 4 years.**
- **50% of all undergrads went to graduate school last year.**

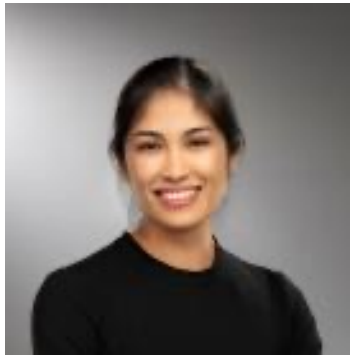
Highlights submitted but not presented at the Fall 2023 UMC meeting

UCDAVIS
MATERIALS SCIENCE AND ENGINEERING

University of California, Davis
Materials Science and Engineering
https://mse.engineering.ucdavis.edu/

Yayoi Takamura
Chair since: July 2020

- New Faculty Hiring:
  - Dr. Amir Saeidi started on Jan. 1, 2023 as Assistant Professor of Teaching
  - Dr. Erika La Planted started on July 1, 2023 as Assistant Professor
  - Dr. Mingwei Zhang started on July 1, 2023 as Assistant Professor


- NSF Major Research Instrumentation award for the purchase of two Rigaku SmartLab x-ray diffractometers placed in our characterization facility
- Passing of Distinguished Professor Emeritus Subhash Mahajan, NAE member
  - Expert on electronic materials and slip and twinning phenomena

University of Illinois Chicago
Materials Engineering Graduate Program

Head: **Kouros Mohammadian**
since: **2017**

Santanu Chaudhuri
ICME

Matthew Daly
Mechanics of Materials

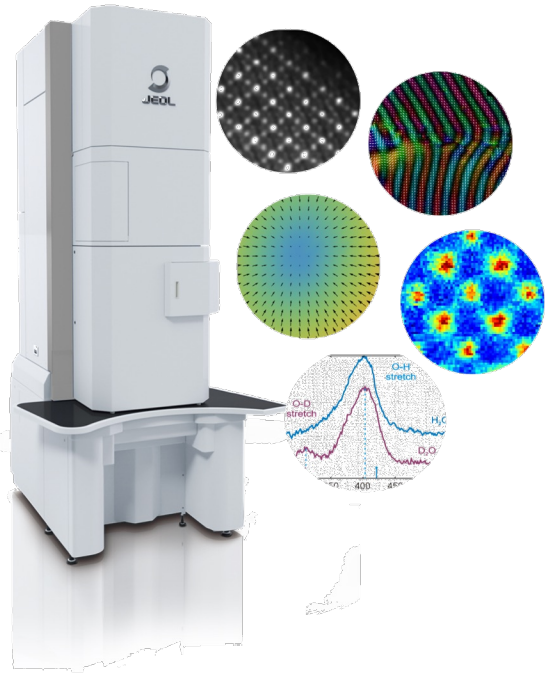
Sara Kadkhodaei
First principles MSE

Enrollment: 16 PhD, 12 MS (33% increase since 2020)

Annual Expenditure: ~$1M (FY 2023 – 68% increase over FY2020)

Awards: 1 NSF CAREER Award (Daly), TMS Young Leader Award (Daly)

Community Outreach: Future Unlimited workshops, Oakton Community College, ASM Design Competition



New $5.7M Magnetic-Field-Free TEM (1st in NA)
Supported by $4M NSF MRI Award

University at Buffalo
Department of Materials Design and Innovation

Head: **Krishna Rajan**
Joint: 2015

- **Just completed our 8th year with over 70 MS and 30 PhD graduated**
- **1st Graduating BS class in MDI**
- **Major initiatives:**
  - **2 NSF Career awards…total of 3 NSF Career awards since department started**
  - **Major new investments for MDI:**
    - **in-operando FIB / S(T)EM,**
    - **Environmental Atom Probe Tomography,**
  - **Major faculty hiring initiative for next phase of MDI growth:**
    - **3 new faculty hires in 2023 / 3 NSF**
    - **4 faculty positions open for 2024- structural materials, AI in sustainability, Senior position in materials for health & medicine , Chaired position in Microelectronics**
    - **MDI Distinguished Research fellow program**