

Meilin Liu

Hightower Chair and Regents' Professor
School of Materials Science & Engineering
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Home page: <http://fcbt.mse.gatech.edu/liu.htm>

Education

University of California at Berkeley, Materials Science & Engineering, PhD, 1989; MS, 1986
South China University of Technology, Materials Science & Engineering, BS, 1982

Appointments

1992-present	Regents' Professor (2008-present), Professor (2000-2008), Associate Professor (1996-2000), Assistant Professor (1992-1996), School of Materials Science and Engineering (MSE), Georgia Institute of Technology, Atlanta, Georgia
2021-present	<i>Hightower</i> Endowed Chair, School of MSE, Georgia Tech
2015-2021	<i>B. Mifflin Hood</i> Endowed Chair, School of MSE, Georgia Tech
2012-2022	Associate Chair, School of MSE, Georgia Tech
2010-2015	Associate Director, DOE Energy Frontier Research Center on <i>HeteroFoam</i> at USC
2006-2008	Director, NSF Industry/University Cooperative Research Center for Fuel Cells
2001-2016	Co-Director, Center for Innovative Fuel Cell and Battery Technologies
1989-1992	Research Scientist, Ceramtec, Salt Lake City, Utah

Fellowship/Membership

Fellow, European Academy of Sciences (EurASc)
Fellow, International Association of Advanced Materials (IAAM)
Fellow, Electrochemical Society (ECS)
Fellow, American Ceramic Society (ACerS)

Students Supervision

Supervised **43** PhD, **29** joint-PhD, and **13** MS students, **42** postdoctoral fellows, **33** visiting professors, and 10 visiting scholars; many of his former students/advises are now conducting pioneering research in major industrial research centers and academia. ~**30** of his former postdoctoral/PhD students are faculty members in universities in the US, China, South Korea, and Spain.

Research Interests

Design, fabricate, in situ/operando characterize, and simulate materials for energy storage and conversion. This includes membranes, thin films, coatings, and porous electrodes with heterogeneous surfaces and interfaces, as well as devices such as fuel cells, batteries, electrolyzers, and membrane reactors for chemical transformation. The primary focus is on understanding how the structure, composition, and morphology of materials influence their electrical, chemical, catalytic, and electrochemical properties, particularly regarding charge and mass transfer along surfaces, across interfaces, and through complex porous structures. Our overarching objective is to develop innovative strategies and materials aimed at enhancing efficiency while reducing the cost of chemical and energy transformation processes.

Professional Service

Co-organized 11 national/international symposia and workshops, co-edited 7 proceedings volumes, and chaired numerous sessions in the areas of fuel cells, batteries, supercapacitors, and sensors.

Served on numerous review panels and provided technical reviews for various organizations, such as the U.S. NSF, NASA, Departments of Energy, Defense, and Commerce; professional societies (ECS, ACerS, ACS-PRF); the NSF of China, South Korea, Singapore, Hong Kong, and Japan; the European Science Foundation and similar organizations in European member countries; the Australian Research Council, Qatar National Research Fund; Canadian agencies and institutions; and various states in the U.S. (e.g., Connecticut, Ohio, South Carolina, Tennessee, and West Virginia)

Served as technical reviewer for numerous technical journals, including *Science*, *Science Advances*, *Nature*, *Nature Energy*, *Nature Materials*, *Nature Catalysis*, *Nature Comms.*, *Energy Environ. Sci.*, *Adv. Mater.*, *Adv. Energy Mater.*, *Adv. Functional Mater.*, *Joule*, *Nano Letters*, *ACS Nano*, *JACS*, *ACS Energy Lett.*, *Materials Today*, *Nano Energy*, *ACS Catalysis*, *Solid State Ionics*, *J. Electrochem. Soc.*, *Int. J. Hydrogen Energy*, among others.

Held various offices in professional organizations, including the Electrochemical Society (ECS) Student Award Committee, The High-Temperature Materials Division of ECS (Executive Committee Member), the Georgia Section of ECS (Secretary, Vice President, and President), and the Georgia Tech Chapter of Sigma Xi (Secretary, Vice President, and President).

Editorial Board Membership: *Nano Energy* (IF: 17.88), Nature Publishing Group *Asia Materials* (IF: 10.76), *Solid State Ionics* (IF: 3.785), *Batteries* (IF: 5.938), *Rare Metals* (IF: 4.9)

Sponsors: Federal Agencies: DOE Basic Energy Science; SECA, National Energy Technology Laboratory; ARPA-E; EERE; NSF-DMR; NSF-CTS, DARPA; ONR; ARO/DURIP; NASA.

National Labs: Argonne National Laboratory (ANL); Oak Ridge National Laboratory (ORNL)

Non-profit Organizations: ACS Petroleum Research Fund (PRF); Electric Power Research Institute (EPRI); Gas Research Institute (GRI); GT Research Corporation

Industries: Hyundai Motor Company; CBMM (Brazil); Nissan-North America; Samsung Advanced Institute of Technology (SAIT); TOPSOE Fuel Cells; Phillips 66; ConocoPhillips; nGmat, Pall Corporation; Nissan Motor Company; Samsung Display Devices; Toyota Technology Center, Toyota Motor Company; Shell Chemical; MicroCoating Technologies; Gazillion Bits; Symphonic Optical Technologies; Reactive Energy; Johnson Electromechanical Systems; Engelhard; Caleb Technology Corporation; Kimberly-Clark; Ceramtec; Eka Nobel Chemicals; Cummins, and Elkem

Publications, Presentation, and Patents

Published 20 review articles, 7 book chapters, and over 680 refereed papers in reputed journals such as *Science* (1), *Nature* (1), *Nature Energy* (1), *Nature Communications* (8), *Energy & Environmental Science* (25), *Advanced Materials* (20), *Advanced Energy Materials* (23), *Advanced Functional Materials* (24), *Joule* (2), *Angewandte Chemie International Edition* (8), *Applied Catalysis B Environmental* (5), *Nano Letters* (11), *ACS Nano* (14), *Journal of the American Chemical Society* (2), *Chemical Society Reviews* (1), *ACS Energy Letters* (5), *Materials Science and Engineering: R* (2), *Materials Today* (4), *Nano Energy* (31), *ACS Catalysis* (7), *Energy Storage Materials* (11), *Advanced Science* (8), *Chemistry of Materials* (13), and *Journal of Materials Chemistry A* (32).

Google Scholar Citations: ~82,500; h-index: 159

Highly Cited Researcher (2018 to present)

Presented ~200 invited, keynote, or plenary lectures at conferences, workshops, universities, national labs, and industries around the world

Awarded ~33 US Patents on new materials and novel structures for batteries, fuel cells, supercapacitors, sensors, and membranes reactors; co-founded a battery technology company *PolyPlus Battery*

Selected Awards and Honors

- 2024 Fellow, European Academy of Sciences (EurASc)
Research.com **Materials Science** in United States Leader Award
Research.com **Chemistry** in United States Leader Award (<https://research.com/u/meilin-liu>)
- 2023 Highly Cited Researcher in the field of **Materials Science** (by Clarivate)
Research.com **Materials Science** in United States Leader Award
Research.com **Chemistry** in United States Leader Award
- 2022 Highly Cited Researcher in the field of Materials Science
Highly Cited Researcher in the field of Environment and Ecology
- 2021 Hightower Endowed Chair Professor
Fellow, International Association of Advanced Materials (IAAM)
Highly Cited Researcher in the field of **Materials Science**
- 2020 Highly Cited Researcher in the field of **Materials Science**
Highly Cited Researcher in the field of **Chemistry**
- 2019 Highly Cited Researcher in the field of **Materials Science**
- 2018 HTM Outstanding Achievement Award (Electrochemical Society)
Charles Hatchett Award (UK Institute of Materials, Minerals and Mining, IM³)
Highly Cited Researcher in the field of **Cross-Field**
- 2017 Member, EU Academy of Sciences (EUAS)
Kolon Faculty Fellow (Kolon Industries)
- 2015 B. Mifflin Hood Endowed Chair Professor
- 2013 Outstanding Faculty Research Author Award (Georgia Tech)
- 2012 Fellow, Electrochemical Society (ECS)
- 2011 Fellow, American Ceramic Society (ACerS)
- 2010 Ross Coffin Purdy Award (American Ceramic Society)
- 2009 World Class University Professor, Ulsan National Inst. of Science & Technology, South Korea
- 2008 Regents' Professor
- 2007 NASA Tech Brief Award
Invited participant, US-Japan Frontiers of Engineering (National Academy of Engineering)
- 2005 Crystal Flame Innovation Award in Research (FuelCell South)
- 2003 Outstanding Achievement in Research Program Development Award (Georgia Tech)
Sustained Research Award (Sigma Xi)
- 2002 Senior Teaching Fellow (Georgia Tech)
- 2001 Best Faculty Paper Award (Sigma Xi)
- 1999 Outstanding Faculty Research Author Award (Georgia Tech)
- 1997 Invited participant, Frontiers of Engineering (National Academy of Engineering)
- 1996 Best MS Thesis Advisor Award (Sigma Xi)
- 1993 National Young Investigator (NYI) Award (National Science Foundation)