

Materials and Manufacturing for Sustainability (M&MS) Welcomes Nine Faculty Hires

Seven new faculty will join The Ohio State University's materials community during the 2016-2017 academic year through the Materials and Manufacturing for Sustainability (M&MS) focus area of the university's Discovery Themes Initiative. These seven professors join two others hired in 2016 – Ned Hill and Farhang Pourboghrat – for a total of nine new faculty positions within the M&MS cohort to date. The M&MS initiative, managed by the Institute for Materials Research (IMR), is focused on enabling Ohio State faculty, students and staff to focus on translational innovation and research in technology, science and manufacturing as they apply to future energy systems and sustainability from the nano-scale to the macro-scale. With the goal to become pre-eminent in the field of advanced materials and technologies for sustainability, M&MS is building on IMR's existing strengths in materials hiring faculty to advance materials discoveries, developing strategic industrial and global relationships, and accelerating the research process to enable a paradigm of discovery-to-deployment at Ohio State.

The faculty recruitment within M&MS targets three areas – energy harvesting, storage and systems; high performance materials and structures; and materials for sustainable information processing – which complement Ohio State's current portfolio in the broader Energy and Environment Discovery Theme.



Marc Bockrath
Professor, Physics (beginning January 2017)

Marc Bockrath works in the field of electronics and mechanics of systems that have critical dimensions on the nanometer scale. His research interests include both understanding the new and interesting transport phenomena that arise in nanostructured materials, and learning how to control and detect their mechanical motion. His seminal results on high mobility nanotube electronics and low-loss mechanical resonators enable novel approaches to quantum information systems, which tie closely to the M&MS goal of developing advanced information technologies with lower power consumption. He was previously a Professor of Physics and Astronomy at University of California, Riverside and a recipient of the Sloan Research Fellowship and ONR Young Investigator Award.



Carolin Fink
Assistant Professor, Materials Science and Engineering

Carolin Fink joins the Welding Engineering Program to pursue research focused on welding metallurgy and weldability of nickel-base alloys, stainless steels and HSLA steels; material degradation and weld cracking phenomena; metallurgy and microstructural evolution in dissimilar materials joining and additive manufacturing. Her focus on computational materials and process modeling will contribute to the growing NSF I/UCRC Manufacturing and Materials Joining Innovation Center, supporting the M&MS goals of accelerating advanced materials discoveries and developing industrial and global relationships. Fink was previously a Postdoctoral Research Associate with Ohio State's Welding Engineering Program and in that role she supported several R&D projects on filler metal development for nuclear energy nickel base alloys and in-depth characterization in dissimilar materials joining. She was awarded the IIW Henry Granjon Prize in 2016 and a ThyssenKrupp Graduate Scholarship Award.



Ned Hill
Professor, Public Affairs, City and Regional Planning

Edward “Ned” Hill holds a joint appointment with the John Glenn College of Public Affairs and the College of Engineering, where he teaches economic development policy, public policy and public finance. Before coming to Ohio State, Hill was dean of the Levin College of Urban Affairs at Cleveland State University for eight years and was Professor and Distinguished Professor of Economic Development. He also serves as nonresident senior fellow of The Brookings Institution, and was chair of the Advisory Board of the National Institute of Standards and Technology’s (NIST) Manufacturing Extension Partnership (MEP) from 2007 until 2010. Hill’s contributions to the M&MS program fall in the areas of sustainable policy and economic development of high performance materials and structures.



John Horack
Neil Armstrong Chair in Aerospace Policy and Professor, Mechanical and Aerospace Engineering, Glenn College of Public Policy

John Horack is the Neil Armstrong Chair in Aerospace Policy, a joint appointment between the College of Engineering & John Glenn College of Public Policy which supports intellectual thought and political leadership in the area of aerospace policy, and pioneers preeminent research and student learning in this field. The chair is funded through a gift from Huntington Bank, celebrating the 50th anniversary of Senator John Glenn’s flight in Friendship 7, as well as funds from the Ohio State University Discovery Themes. Horack was previously a Vice President with Teledyne Brown Engineering, where he was responsible for the strategy and direction of Teledyne’s commercial space endeavors, and the Vice President for Research at the University of Alabama in Huntsville, where he led policies to increase research expenditures by 30% in just three years. Horack also spent 17 years with NASA, including 4 years as the Director of the Science and Mission Systems Office at NASA Marshall Space Flight Center. He was awarded the NASA Medal for Exceptional Achievement in 2008.



Joerg R. Jinschek
Associate Professor, Materials Science and Engineering (beginning January 2017)

Joerg Jinschek is internationally recognized for his fundamental contributions to the development of aberration-corrected transmission electron microscopy, with a focus on environmental modes of operation, and he will be a key asset to the Center for Electron Microscopy and Analysis (CEMAS). His expertise will also support M&MS research activities in materials for energy generation, conversion, and storage; high temperature materials for heat engines and propulsion; corrosion and degradation-resistant materials; lightweighting, and materials for biological applications. Jinschek joins us from FEI Company where he worked as a Senior Application Scientist responsible for in situ S/TEM research, including aberration corrected in situ microscopy and the exploration of nanomaterials at the atomic scale with variable gas pressures and temperatures. Jinschek also worked as a Product Marketing Manager in the Chemistry segment in FEI’s Materials Science Business Unit focusing on catalyst and polymer research, the Titan ETEM, in situ holders, and application software. Previously, Jinschek was a Research Assistant Professor at Virginia Tech and a Postdoctoral Research at the National Center for Electron Microscopy at Lawrence Berkeley National Laboratory, and was awarded a Feodor-Lynen-Fellowship of the Alexander-von-Humboldt Foundation.



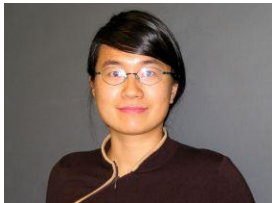
Jung-Hyun Kim
Assistant Professor, Mechanical and Aerospace Engineering and Materials Science and Engineering

Jung-Hyun Kim has extensive automotive research experience in academia and industry, contributing to innovations in energy storage materials and systems. His work will uniquely focus on massive battery life extension with real world testing and validation. Kim will be a key element in the creation of a new, multidisciplinary energy storage research hub, part of a world class network of Ohio State laboratories and centers supporting energy research including the Center for Automotive Research, Center for Electron Microscopy and Analysis and Nanotech West. He joins us from General Motors Global Research and Development Center where he was a senior researcher developing next-generation automotive battery systems. Before joining GM in 2011, Kim was a postdoctoral fellow with the Spallation Neutron Source in the Oak Ridge National Laboratory, where he investigated crystal structures of proton-conducting solid electrolytes and cathodes for intermediate-temperature solid oxide fuel cells and designed and installed in situ apparatus at the powder neutron diffraction (POWGEN) beam-line.



Sanjay Krishna
George R. Smith Chair in Engineering and Professor, Electrical and Computer Engineering (beginning January 2017)

Sanjay Krishna is a world leading researcher and innovator in the field of narrow bandgap semiconductors applied to infrared imaging sensors and related technologies. His research focus on antimony-based compound semiconductors will provide a new thrust in our highly regarded semiconductor epitaxy and device development cluster that dovetails with an M&MS goal to create information technologies with vastly lower power consumption. His innovation activities include his co-founding role of Skinfrared, LLC, a company developing portable infrared imaging systems for defense and commercial applications in areas such as early detection of skin cancer. This industry experience is an outstanding fit for the nascent Materials Innovation Greenhouse as we continue to build out OSU's innovation ecosystem via the M&MS Discovery Theme. Krishna was most recently the Microelectronics Endowed Chair and Regents Professor at the University of New Mexico where he was also the Director of the Center for High Technology Materials. Krishna is a Fellow of IEEE, OSA and SPIE, and is the recipient of the NCMR-DIA Chief Scientist Award for Excellence.



Chun Ning (Jeanie) Lau
Professor, Physics (beginning January 2017)

Chun Ning (Jeanie) Lau is well known for her discoveries of novel physics and phenomena of nanoscale systems, in particular, graphene and other two-dimensional materials. Her research on the electronic, thermal, and mechanical properties of nanoscale systems brings new expertise to the Ohio State materials community that will advance the M&MS goal of developing faster information processing technologies with lower energy consumption. Prior to joining Ohio State, Lau was a Professor in the Department of Physics and Astronomy at University of California, Riverside. She has published more than 80 papers, given more than 100 invited talks worldwide, and was the recipient of the NSF CAREER award and the Presidential Early Career Award for Scientists and Engineers (PECASE) award.



Farhang Pourboghrat
Professor, Mechanical and Aerospace Engineering, Integrated Systems Engineering

Farhang Pourboghrat's work focuses on fundamental and applied research related to the multi-scale experimental and computational characterization of engineered materials for light weighting of vehicles. His current research involves characterization and modeling of niobium, tin, multiphase advanced high strength steel, aluminum, in addition to polymer composites reinforced with glass, carbon, bio-fibers, clay nanotube, and graphene nano-platelets. Pourboghrat enhances the M&MS program by working with the Center for Design and Manufacturing Excellence and the Lightweight Innovations for Tomorrow (LIFT) consortium in the area of sustainable materials forming and manufacturing. His work at Michigan State University and Alcoa has significant application to the light weighting of structures, particularly automotive, and his work in the fiber based polymeric sandwich materials and graphene nano-platelet composites are both innovative in concept and application.