

Past ME-512 Seminars

2019

May 6, 2019	Alexander Smits	Princeton University	TBD
Apr 29, 2019	Gareth McKinley	Massachusetts Institute of Technology	TBD
Apr 22, 2019	Marc Madou	University of California, Irvine	Novel Strategies in Carbon Micro and Nanofabrication
Apr 4, 2019	David Hibbitt	Founder of ABAQUS	ABAQUS and Its Market: Evolution of an Engineering Simulation Software Venture
Feb 4, 2019	Isaac M. Daniel	Northwestern University	A New Yield and Failure Theory for Composite Materials Under Static and Dynamic Loading
Jan 14, 2019	Loukas Kallivokas	The University of Texas at Austin	On Wave-Driven Inverse Problems: From Full-Waveform Imaging to Metamaterial Design

2018

Nov 5, 2018	Gregory Wagner	Northwestern University	Multiscale Process-Structure Simulations for Additive Manufacturing in Metals
Oct 29, 2018	Sheldon Weinbaum	The City College of New York	From Red Cells to Skiing, to a Jet Train that Travels at 700 km/hr on a Giant Ski
Oct 22, 2018	Ian Papautsky	University of Illinois at Chicago	Whole Blood Microfluidics: From Blood Fractionation to Liquid Biopsy
Oct 8, 2018	Katepalli Raju Sreenivasan	New York University	Unusual Aspects of Convection in the Sun
Jun 4, 2018	Prashant Purohit	University of Pennsylvania	Elasticity as the Basis of Allosteric Interactions in DNA and Membranes
May 7, 2018	Roger Kamm	Massachusetts Institute of Technology	Microphysiological Models Relying on Emergence of Multi-cellular Engineered Living Systems

Apr 30, 2018	A.M. Rajendran	University of Mississippi	Issues and Challenges in Chemistry Driven Engineering Constitutive Models for Heterogeneous Materials: A Multiscale Approach
Feb 26, 2018	Heng Chi	Georgia Institute of Technology	Mimetic-informed Computational Mechanics: Theory, Method Development and Applications
Feb 5, 2018	Xiaoyu "Rayne" Zheng	Virginia Tech	Printing with Light: Additive Manufacturing and Multiscale 3D Architected Metamaterials
Jan 29, 2018	Ping Guo	The Chinese University of Hong Kong	Novel Manufacturing Process and Equipment Inspired by Applied Physics: From Structural Coloration to Self-Levitation
Jan 22, 2018	Meredith Silverstein	Cornell University	Mechanics and Chemistry in Designing Polymers

2017

Oct 30, 2017	Jyoti Mazumder	University of Michigan	Quality Assured Direct Writing of Nickel Super Alloy Single Crystal
Oct 16, 2017	Alexander Yarin	University of Illinois at Chicago	Hydrodynamic Focusing on Nano-textured Surfaces and Spray Cooling of High-power Microelectronics
Oct 2, 2017	Derek Stein	Brown University	Nanostructures for Single-molecule Biophysics
May 1, 2017	Aniket Bhattacharya	University of Central Florida	DNA Conformations and Dynamics Squeezed Inside a Nano-channel with a Sliding Gasket
Apr 24, 2017	Cheng Sun	Northwestern University	The Development of High-throughput Precision 3D Printing Technologies Towards Patients-specific Biomedical Devices
Apr 3, 2017	John Rogers	Northwestern University	Materials and Mechanics Concepts for Skin-like Electronic and Microfluidic Systems

Feb 20, 2017	Timothy Simpson	Penn State University	Design Challenges and Research Opportunities in Additive Manufacturing
Jan 30, 2017	Arvind Murugan	University of Chicago	When is Something Self-folding?
Jan 23, 2017	John Dempsey	Clarkson University	Fracture of Sea Ice in Arctic and Antarctic

2016

Nov 14, 2016	Vadim Backman	Northwestern University	Convergence of Nanoimaging, Physics and Biology: Can Engineering Lead to a Cancer Cure?
Oct 17, 2016	Joost Vlassak	Harvard University	Nano-calorimetry: A Centuries-old Technique Applied at the Nano-scale
Oct 3, 2016	Ehud Yariv	Technion – Israel Institute of Technology	Electrohydrodynamic Flows Under Strong Electric Fields
Sep 26, 2016	Lex Smits	Princeton University	Underwater Flight: Hydrodynamics of Manta Ray Swimming
May 23, 2016	Carl Schultheisz	National Transportation Safety Board	Engineering Aspects of Accident Investigations
Apr 28, 2016	Amos Winter	Massachusetts Institute of Technology	Engineering Global Development: Using Emerging Markets Constraints to Drive the Innovation of Global Technologies
Apr 4, 2016	Konrad Rykaczewski	Arizona State University	How Poison Dar Frogs Could De-ice Airplanes: Fundamentals and Applications of Bioinspired Anti-icing Coatings
Mar 7, 2016	Jiaxing Huang	Northwestern University	Pencils, Paper and Movie Discs: Curious Minds and Materials Discoveries
Feb 29, 2016	Kemper Lewis	The State University of New York (University at Buffalo)	Cyber-Empathic Design—A Data Driven Framework for Product Design
Feb 1, 2016	Said Elghobashi	University of California, Irvine	How Do Dispersed Inertial Particles Modify Turbulent Flows?

2015

Nov 16, 2015	Ulrich Keyser	Cambridge University	DNA Origami Nanopores: Design, Developments, and Challenges
Nov 9, 2015	Madhav Mani	ESAM, Northwestern University	Morphogenesis: From Genes to Physical Form
Oct 26, 2015	Sinan Keten	Northwestern University	Designing Better Structural Materials by Understanding Nanoconfinement and Nanoscale Interfaces
Oct 19, 2015	Robert Gao	Case Western Reserve University	Advanced Sensing and Data Analytics for Smart Manufacturing
June 1, 2015	Hanchen Huang	Northeastern University	Metallic Glue in Ambient Environment
May 18, 2015	Levent Burak Kara	Carnegie Mellon University	Supporting Visual Thinking and Ideation Through 3D Design Abstraction
Apr 6, 2015	Gang Chen	Massachusetts Institute of Technology	Materials and Devices for Efficient Solar and Thermal Energy Utilization
Mar 9, 2015	Larry Bergman	University of Illinois at Urbana-Champaign	Recent Developments in Nonlinear System Identification and Model Updating
Feb 23, 2015	Jianmin Qu	Northwestern University	Nonlinear Ultrasonic Methods for Nondestructive Damage Assessment in Structural Materials
Feb 9, 2015	Petia Vlahovska	Brown University	Electromechanics of Biomimetic Bilayer Membranes

2014

Nov 10, 2014	Liz Gerber	Northwestern University	Designing Infrastructures to Enhance Innovation
Nov 3, 2014	Eric Masanet	Northwestern University	Accelerating the Development and Deployment of Sustainable Technologies through Prospective Life-Cycle Systems Assessment
Oct 27, 2014	Oluwaseyi Balogun	Northwestern University	Nanometrology and Imaging of Materials using Laser Generated Stress Waves
Sep 29, 2014	G. Ravichandran	California Institute of Technology	Mechanics of Cell-Matrix Interactions in Three-Dimensions

May 5, 2014	Yonggang Huang	Northwestern University	Mechanics of Cell-Matrix Interactions in Three-Dimensions
Apr 7, 2014	David Dornfeld	University of California, Berkeley	Sustainability as a Driver for Innovation in Advanced Manufacturing
Mar 10, 2014	Sinan Keten	Northwestern University	A Materials Genome Approach to Engineering Functional Biomolecular Materials
Feb 10, 2014	Joel Burdick	California Institute of Technology	Recovery of Function in Major Spinal Cord Injury Using Epidural Stimulation

2013

Nov 18, 2013	Malcolm MacIver	Northwestern University	Convergent Evolution of Mechanically Optimal Locomotion and its Implications for Information Acquisition
Oct 7, 2013	Kyung-Suk Kim	Brown University	Search for New Multi-functional Materials with Ruga Mechanics and AFM Interferometry
Sep 30, 2013	Aleksei Aksimentiev	University of Illinois at Urbana-Champaign Northern Illinois University	Using Nanopores to Sequence DNA
May 20, 2013	Nick Pohlman	Northern Illinois University	Fundamental Flow and Functional Transport in Granular Materials
Apr 22, 2013	Pradeep Sharma	University of Houston	Flexoelectricity
March 4, 2013	Tom Daniel	University of Washington	Sensorimotor Neural Engineering: Where Silicon Meets the Neuron
Feb 14, 2013	Kripa Varanasi	Massachusetts Institute of Technology	Nanoengineered Surfaces for Efficiency Enhancements in Energy and Water
Feb 4, 2013	Rajiv Shivpuri	Ohio State University	Integration of Interdisciplinary Approaches for the Process Modeling and Design in Manufacturing

2012

Nov 12, 2012	Hsueh-Chia Chang	University of Notre Dame	Ionic Diodes, Rectifiers, Transistors and Inductors
Oct 29, 2012	Cheng Sun	Northwestern University	Scalable Micro-/Nano-fabrication for Metamaterials: Transforming Scientific Inspirations to the Reality
Oct 8, 2012	Huajin Gao	Brown University	Research on Nanomechanics of Engineering and Biological Systems
Oct 1, 2012	Hod Lipson	Cornell University	The Robotic Scientist: Finding Invariants, from Cognitive Robotics to Computational Biology
May 14, 2012	John Hutchinson	Harvard University	Wrinkling Modes and Instabilities in Elastomers and Film/Elastomer Bilayers
Apr 30, 2012	Rich Lueptow	Northwestern University	Cutting and Shuffling—Applications to Granular Mixing
Apr 6, 2012	Jack Hu	University of Michigan	Product Assembly: Quality, Productivity and Customization
Mar 5, 2012	Dan Goldman	Georgia Institute of Technology	The Secrets of Swimming in Sand
Feb 20, 2012	Cate Brinson	Northwestern University	Nanostructured Polymer Systems
Jan 20, 2012	Ali Nadim	Claremont Graduate University	Digital microfluidics with Electrowetting

2011

Nov 28, 2011	Tolga Kurtoglu	Palo Alto Research Center	Computational Synthesis for Design and Manufacturing of Complex Systems
Nov 7, 2011	Ayusman Sen	Pennsylvania State University	Designing Intelligent Nano/Microbots
Oct 24, 2011	M. Taher Saif	University of Illinois at Urbana-Champaign	Neuromechanics of Memory and Learning
Oct 10, 2011	Paul Umbanhowar	Northwestern University	Granular Locomotion and Force Generation
Apr 18, 2011	Wolfgang Knauss	California Institute of Technology	On the Importance of the Dilatational Component of the Stress State in the Uniaxial Yield-like Behavior of Rate-Dependent Polymers: C. Bauwens-Crowet Revisited
Apr 7, 2011	John Brady	California Institute of Technology	Osmotic Propulsion: The Osmotic Motor

Mar 10, 2011	John Rudnicki	Northwestern University	Localized Compaction in Porous Sandstones
Feb 25, 2011	Barry Trimmer	Tufts University	Soft-Bodied Locomotion: Animas, Robots and Morphological Computation
Feb 3, 2011	Jane Wang	Northwestern University	Multidisciplinary View of Interface of Engineering Surfaces

2010

Nov 18, 2010	Neelesh Patankar	Northwestern University	Fundamentals of Roughness-induced Superhydrophobicity
Nov 5, 2010	Sandip Ghosal	Northwestern University	Transport Problems in Micro and Nano Fluidics
Oct 21, 2010	Todd Murphey	Northwestern University	Choreography and Control for Robotic Systems
Oct 12, 2010	Susan Trolier-McKinstry	Pennsylvania State University	Designing Piezoelectric Films for MEMS Applications
May 4, 2010	Jian Cao	Northwestern University	Point-of-Need Manufacturing Processes for Enhancing Energy Efficiency
Apr 26, 2010	Ted Belytschko	Northwestern University	Multiscale Analysis of Failure
Mar 18, 2010	Howard Stone	Princeton University	Surprises in Viscous Flows: From Charged Drops to Bacteria in Curved Channel Flows
Feb 4, 2010	Huajian Gao	Brown University	Probing Mechanical Properties of Nanostructured Materials via Ultra-Large Scale Molecular Dynamics Simulations

2009

Dec 3, 2009	Malcolm Maclver	Northwestern University	Infomechanics and the Bone-brain Continuum
Nov 4, 2009	Mike Robinson	University of Colorado	Wind Energy Technology Development and Deployment in the US – 20% by 2030

Oct 22, 2009	Dean Ho	Northwestern University	Nanodiamond-Mediated Enhancement of Therapeutic Efficacy Towards Chemoresistant Tumors
Oct 9, 2009	Daniel Koditschek	Pennsylvania State University	Composition of Limit Cycle Controllers for Gait Transitions in Legged Locomotion
Sep 18, 2009	Andrew Alleyne	University of Illinois at Urbana-Champaign	Precision Motion Control for Manufacturing Applications
May 26, 2009	Carol Livermore	Massachusetts Institute of Technology	From Micro Assembly to High Power MEMS: Creating New Capabilities at the Micro and Nano Scales
May 21, 2009	Chih-Ming Ho	University of California – Los Angeles	Control of Complex systems – Turbulence, Cells and Financial Markets
Apr 23, 2009	Neelesh Patankar	Northwestern University	The Hydrodynamics of Aquatic Locomotion and its Relevance to Engineering, Evolution, and Neuromechanics
Mar 19, 2009	Rhett Mayor	Georgia Institute of Technology	High-speed, High-precision Micro-milling: An Enabler for Next-generation Sustainable Energy System Production
Jan 15, 2009	Mitra Hartmann	Northwestern University	Mechanical and Behavioral Constraints on Neural Encoding in the Rat Vibrissal/Trigeminal Pathway

2008

Nov 13, 2008	Kevin Lynch	Northwestern University	Robot Assembly: From Vibratory Manipulation to Self-Organization Electric Field Pretouch for Robotic Manipulation
Nov 5, 2008	Joshua Smith	Intel Research Seattle	Electric Field Pretouch for Robotic Manipulation
Oct 29, 2008	MinJun Kim	Drexel University	Biologically-Powered Robotic Microswimmers