

FY 2010 MULTIDISCIPLINARY UNIVERSITY RESEARCH INITIATIVE (MURI) – SELECTED PROJECTS

Page 1 of 7

MURI Topic 1: Optical Metamaterials				
ONR	Large-Area 3D Optical Metamaterials with Tunability and Low Loss	University of Pennsylvania Harvard University Northeastern University Purdue University University of Texas, Austin	Nader Engheta	PA MA MA IN TX
MURI Topic 2: Adaptive Cognitive Maps for Autonomous Systems				
ONR	Grid Cells and Cognitive Maps for Autonomous Systems	Boston University Massachusetts Institute of Technology University of Texas, Austin University of London ²	Michael Hasselmo	MA MA TX
MURI Topic 3: Non-linear Mediums Converting Frequencies of Propagating E/M and Pressure Waves				
ONR	Sound and Electromagnetic Interacting Waves	North Carolina State University Colorado School of Mines Georgia Institute of Technology Purdue University	Michael Steer	NC CO GA IN
MURI Topic 4: Biofuels: Microbial Communities, Biogeochemistry and Surface Interactions				
ONR	Fundamental Research on the Biological Stability of Future Naval Fuels and Implications for the Biocorrosion of Metallic Surfaces	University of Oklahoma Oklahoma State University Montana State University Colorado School of Mines	Joseph Suflita	OK OK MT CO
MURI Topic 5: Design, Synthesis, and Characterization of Electro-Active Polymers for Dielectric Energy Storage				

1. Team member institutions are those included in the lead institution's research proposal. They are subject to change at the discretion of the lead institution (e.g., if the final negotiated amount of the award is less than the amount proposed).
2. A non-US team member institution is identified in the lead institution's proposal. No MURI funding will be provided to the non-US institution.

ONR	Rational Design of Advanced Polymeric Capacitor Films	University of Connecticut Rensselaer Polytechnic Institute Pennsylvania State University Columbia University University of Akron	Rampi Ramprasad	CT NY PA NY OH
MURI Topic 6: Reasoning for Image Understanding in Uncertain Environments				
ONR	Rich Representations with Exposed Semantics for Deep Visual Reasonings	Carnegie Mellon University University of Maryland, College Park University of Illinois, Urbana-Champaign University of Pennsylvania	Martial Hebert	PA MD IL PA
ONR	Knowledge Representation, Reasoning and Learning for Understanding Scenes and Events	University of California, Los Angeles University of California, Irvine University of California, Berkeley California Institute of Technology Stanford University Brown University Massachusetts Institute of Technology	Song-Chun Zhu	CA CA CA CA CA RI MA
MURI Topic 7: Fundamental Study of High – and Low-K Dielectrics for III-V Electronic Devices				
ONR	Dielectric Enhancements for Innovative Electronics	University of California, Santa Barbara Arizona State University Harvard University Massachusetts Institute of Technology Ohio State University Stanford University Yale University	Umesh K. Mishra	CA AZ MA MA OH CA CT

1. Team member institutions are those included in the lead institution's research proposal. They are subject to change at the discretion of the lead institution (e.g., if the final negotiated amount of the award is less than the amount proposed).
2. A non-US team member institution is identified in the lead institution's proposal. No MURI funding will be provided to the non-US institution.

MURI Topic 8: Provably-Safe Perception-Based Control of Autonomous UAS Operations around Complex, Unstructured Terrain				
ONR	Animal Inspired Robust Flight with Outer and Inner Loop Strategies	University of Washington University of Maryland, College Park Boston University University of North Carolina, Chapel Hill	Kristi Morgansen	WA MD MA NC
ONR	Provably-Stable Vision-Based Control of High-Speed Flight through Forests and Urban Environments	Massachusetts Institute of Technology Carnegie Mellon University New York University Harvard University Wageningen (Netherlands) ²	Russ Tedrake	MA PA NY MA
MURI Topic 9: Dynamical Systems Theory in 4D Geophysical Fluid Dynamics				
ONR	Dynamical Systems Theory and Lagrangian Data Assimilation in 4D Geophysical Fluid Dynamics	Woods Hole Oceanographic Institution Columbia University University of California, Santa Barbara Marquette University University of North Carolina, Chapel Hill University of California, San Diego University of Miami University of Delaware	Larry Pratt	MA NY CA WV NC CA FL DE
MURI Topic 10: Hyperspectral, Radar and EO/IR Signatures in the Littorals				
ONR	Remote Sensing and Data-Assimilative Modeling in the Littorals	University of Washington Oregon State University Woods Hole Oceanographic Institution	Andrew Jessup	WA OR MA
MURI Topic 11: Novel Catalytic Mechanisms for the Chemical Reduction of Carbon Dioxide to Energy-Dense Liquids				
AFOSS	Novel Catalytic Mechanisms for the Chemical Reduction of Carbon Dioxide to Energy-Dense Liquids	University of California, San Diego California Institute of Technology Stanford University Princeton University	Clifford Kubiak	CA CA CA NJ

1. Team member institutions are those included in the lead institution's research proposal. They are subject to change at the discretion of the lead institution (e.g., if the final negotiated amount of the award is less than the amount proposed).
2. A non-US team member institution is identified in the lead institution's proposal. No MURI funding will be provided to the non-US institution.

MURI Topic 12: Third-order Nonlinear Optical Organics				
AFOSR	Center for Organic Materials for All Optical Switching	Georgia Institute of Technology University of Washington University of Arizona University of Central Florida	Seth Marder	GA WA AZ FL
MURI Topic 13: Fundamental Processes in High Temperature Gas-Surface Interactions				
AFOSR	Fundamental Processes in High-Temperature Hypersonic Flows	University of Minnesota Pennsylvania State University Montana State University University of Arizona University at Buffalo, the State University of New York	Graham V. Candler	MN PA MT AZ NY
MURI Topic 14: Propagation of Ultrashort Laser Pulses Through Transparent				
AFOSR	Mathematical Modeling and Experimental Validation of Ultrafast Nonlinear Light-Matter Coupling Associated with Filamentation in Transparent Media	University of Arizona University of Colorado Cornell University Temple University University of Central Florida Colorado School of Mines	Jerome Maloney	AZ CO NY DC FL CO
MURI Topic 15: Superconducting Semiconductors				
AFOSR	Quantum Preservation, Simulation & Transfer in Oxide Nanostructures	University of Pittsburgh University of California, Santa Barbara University of Wisconsin, Madison Cornell University Michigan State University	Jeremy Levy	PA CA WI NY MI
MURI Topic 16: Human-Machine Adversarial Networks				

1. Team member institutions are those included in the lead institution's research proposal. They are subject to change at the discretion of the lead institution (e.g., if the final negotiated amount of the award is less than the amount proposed).
2. A non-US team member institution is identified in the lead institution's proposal. No MURI funding will be provided to the non-US institution.

AFOSR	Multi-Layers and Multi-Resolution Networks of Interacting Agents in Adversarial Environments	University of Illinois, Urbana-Champaign Georgia Institute of Technology Stanford University University of California, Berkeley University of Maryland, College Park	Tamar Basar	II GA CA CA MD
MURI Topic 17: Biologically-Engineering of Adherent / Spectroscopically Interrogated Microstructures				
AFOSR	Bio-enabled Particle Adherents for Interrogated Spectroscopy	Georgia Institute of Technology University of Arizona University of California, San Diego Norfolk State University	C. Meredith	GA AZ CA VA
MURI Topic 18: Control of Information Collection and Fusion				
AFOSR	Control Science for Next Generation Sensing	University of Pennsylvania University of California, Berkeley University of Minnesota University of Melbourne (Australia) ²	Daniel Koditschek	PA CA MN
MURI Topic 19: Stable Metrics for Global Inference in Social Networks to Predict Collective Behavior				
AFOSR	Inferring Structure and Forecasting Dynamics on Evolving Networks	University of California, Los Angeles University of Arizona University of Southern California University of California, Santa Barbara University of California, Irvine Claremont Graduate University	P. Jeffrey Brantingham	CA AZ CA CA CA CA
MURI Topic 20: Solid State Cooling				
AFOSR	Cryogenic Peltier Cooling	Ohio State University Princeton University Massachusetts Institute of Technology Michigan State University Boston College California Institute of Technology	Joseph P. Heremans	OH NJ MA MI MA CA

1. Team member institutions are those included in the lead institution's research proposal. They are subject to change at the discretion of the lead institution (e.g., if the final negotiated amount of the award is less than the amount proposed).
2. A non-US team member institution is identified in the lead institution's proposal. No MURI funding will be provided to the non-US institution.

		Aarhus University (Denmark) ² Kharkov Stat Polytechnic U (Ukraine) ² Dresden (Germany) ² University of Science and Technology (Poland) ²		
MURI Topic 21: Neuronal Behavior in Primary Blast				
ARO	Blast Induced Thresholds for Neuronal Networks	University of Pennsylvania Columbia University Duke University	David F. Meany	PA NY NC
MURI Topic 22: Identifying and Extracting the Mathematical Signatures of Prokaryotic Activity in DNA: Developing a Theoretical Foundation for Predicting DNA Stability				
ARO	Prokaryotic Genomic Instability	Indiana University University of Southern California	Pat Foster	IN CA
MURI Topic 23: Tomography of Social Networks of Asymmetric Adversaries				
ARO	Measuring, Understanding, and Responding to Covert Social Networks	Harvard University Princeton University Massachusetts Institute of Technology University of Florida Northeastern University	Patrick J. Wolfe	MA NJ MA FL MA
MURI Topic 24: Adaptive Perception and Autonomous Agility in Severe Environments				
ARO	Neuro-Inspired Adaptive Perception and Control for Agile Mobility of Autonomous Vehicles in Uncertain and Hostile Environments	Georgia Institute of Technology Massachusetts Institute of Technology University of Southern California	Panagiotis Tsiotras	GA MA CA
MURI Topic 25: Structured Modeling for Low-Density Languages				
ARO	An Omnivorous Framework for Translation and Analysis of Low Density Languages	Carnegie Mellon University University of Southern California University of Texas, Austin Massachusetts Institute of Technology	Jaime Carbonell	PA CA TX MA

1. Team member institutions are those included in the lead institution's research proposal. They are subject to change at the discretion of the lead institution (e.g., if the final negotiated amount of the award is less than the amount proposed).
2. A non-US team member institution is identified in the lead institution's proposal. No MURI funding will be provided to the non-US institution.

MURI Topic 26: Directed Self-Assembly of Reconfigurable Materials				
ARO	Reconfigurable Matter form Programmable Colloids	University of Michigan University of Illinois, Urbana-Champaign New York University	Sharon Glotzer	MI IL NY
MURI Topic 27: "Atomtronics": A generalized electronics				
ARO	Atomtronics: Material and Device Physics of Quantum Gases	University of Maryland, College Park Harvard University Bucknell University Massachusetts Institute of Technology	Ian Spielman	MD MA PA MA
MURI Topic 28: Bio-Electronic Templates for Interfacing to the Nanoscale				
ARO	Near and Far-Field Interfaces to DNA-Guided Nanostructures from RF to Lightwave: Exploiting the Spectrum	University of California, Irvine Texas A&M New York University-POLY University of Michigan University of California, Irvine New York University University of Pennsylvania Marshall University Yale University Wright State University	Peter Burke	CA TX NY MI CA NY PA WV CT OH
MURI Topic 29: Ion Transport in Complex Heterogeneous Organic Materials				
ARO	An Integrated Multi-Scale Approach for Understanding Ion Transport in Complex Heterogeneous Organic Materials	Colorado School of Mines University of Chicago University of Massachusetts, Amherst University of California, Riverside	Andrew Herring	CO IL MA CA
MURI Topic 30: Defect Reduction in Superlattice Materials				
ARO	Fundamental Study of Defects and their Reduction in Type-II Superlattice Materials	University of Illinois, Urbana-Champaign Arizona State University Georgia Institute of Technology University of North Carolina, Charlotte	Shun Lien Chuang	IL AZ GA NC

1. Team member institutions are those included in the lead institution's research proposal. They are subject to change at the discretion of the lead institution (e.g., if the final negotiated amount of the award is less than the amount proposed).
2. A non-US team member institution is identified in the lead institution's proposal. No MURI funding will be provided to the non-US institution.

1. Team member institutions are those included in the lead institution's research proposal. They are subject to change at the discretion of the lead institution (e.g., if the final negotiated amount of the award is less than the amount proposed).
2. A non-US team member institution is identified in the lead institution's proposal. No MURI funding will be provided to the non-US institution.