

FY17 DoD Multidisciplinary University Research Initiative (MURI) Selections

Topic Number	Topic Name	Title	Office	University Main University Sub Awards	University States	PI
1	Foundations of Interactive Protocols for Quantum Computation and Communications	Scalable Certification of Quantum Computing Devices and Networks	AFOSR	California Institute of Technology University of Maryland, College Park University of California, Berkeley University of Southern California	CA MD CA CA	Thomas Vidick
2	Bio-inspired Low Energy Information Processing	Multiscale Analysis of Bioinspired Low Energy Information Processing: from Organelles to Organisms	AFOSR	University of California San Diego Icahn School of Medicine, Mount Sinai	CA NY	Padmini Rangamani
3	Autonomous Research Systems for Materials Development	Scientific Autonomous Reasoning Agent: Integrating Materials Theory, Experiment and Computation	AFOSR	Cornell University University of Colorado, Boulder Northwestern University California Institute of Technology	NY CO IL CA	Robert Bruce van Dover
4	Beam/Wave Dynamics in Geometrically Complex Systems with Emitting Boundaries	Multipactor and Breakdown Susceptibility and Mitigation in Space-based RF Systems	AFOSR	Michigan State University University of Wisconsin-Madison University of Michigan Texas Tech University University of New Mexico	MI WI MI TX NM	John Verboncoeur
5	Atmospheric Disturbances at High Altitudes	Integrated Measurement and Modeling Characterization of Stratospheric Turbulence	AFOSR	University of Colorado, Boulder Embry-Riddle Aeronautical University - Daytona Beach University of Minnesota	CO FL MN	Brian Argrow
6	Revolutionary Advances in Computational Quantum Many-Body Physics	Revolutionary Advances in Correlated Electron Materials: From Strongly Correlated Electrons to Large Scale DFT and Quantum Embedding	AFOSR	California Institute of Technology University of California, Berkeley University of California, Santa Barbara Cornell University Carnegie Mellon University University of Minnesota	CA CA CA NY PA MN	Garnet Chan
7	Melanin: Unique Biopolymers for Functional Precision Nanoscale Materials	Unraveling the Biology, Chemistry and Nanoscience of Natural and Synthetic Melanins	AFOSR	University of California, San Diego Scripps Institution of Oceanography University of Akron University of Delaware University of Ghent (1)	CA CA OH DE BE	Nathan Gianneschi
8	Adaptive Oxides for Biomimetic Synapse Design via Modulation of Internal States	Cross Disciplinary Electronic-ionic Research Enabling Biologically Realistic Autonomous Learning	AFOSR	Georgia Institute of Technology State University of New York, Binghamton	GA NY	Alan Doolittle
9	Physics, Chemistry and Mechanics of Polymer Dielectric Breakdown	Tracking, Diagnosing and Arresting Dielectric Breakdown Using Multiscale Characterization and Simulations	ONR	University of Connecticut Purdue University Stanford University University of Southern California	CT IN CA CA	Rampi Ramprasad

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10	Percept Formation and Scene Analysis in Echolocating Systems	Bio-inspired Adaptive Sonar for Classification and Guidance in Complex Environments	ONR	Brown University Johns Hopkins University Texas A&M University Virginia Polytechnic Institute	RI MD TX VA	James Simmons
11	Phase Change Materials for Photonics	New Phase Change Materials for Photonics: from In-silico Design to Novel Device Concepts	ONR	University of Pennsylvania Massachusetts Institute of Technology University of Minnesota Purdue University University of Maryland	PA MA MN IN MD	Ritesh Agarwal
12	Event Representation and Episodic Memory	A Computational Cognitive Neuroscience Approach to Understanding Event Representation and Episodic Memory	ONR	University of California, Davis Harvard University Princeton University Washington University New York University	CA MA NJ MO NY	Charan Ranganath
13	Nonlinear Phenomena and Interactions Induced by Short and Ultra-Short Pulsed Lasers in the Long-wave Infrared Regime	Fundamental Studies of Nonlinear Optics and Laser-plasma Phenomena in Gases and Solids using High-Power LWIR Lasers	ONR	University of California, Los Angeles University of Michigan University of Maryland University of Arizona University of Central Florida State University of New York, Stony Brook	CA MI MD AZ FL NY	Chandrashekar Joshi
14	High-Fidelity Simulation Methodologies for Multi-Phase Flows	Predicting Turbulent Multi-phase Flows with High Fidelity; a Physics-based Approach	ONR	University of Minnesota University of California, Santa Barbara California Institute of Technology University of Iowa University of Michigan Johns Hopkins University Massachusetts Institute of Technology Australian Maritime College, University of Tasmania (1)	MN CA CA IA MI MD MA AUS	Krishnan Mahesh
15	Novel Approaches to Modeling Factions and Conflict	Near Real Time Assessment of Emergent Complex Systems of Confederates	ONR	Carnegie Mellon University University of Arkansas, Little Rock University of South Carolina University of Pittsburgh	PA AK SC PA	Kathleen Carley
16	Assuring Composability and Correctness for Intelligent and Learning Systems that Interact with Unstructured Physical Environments	Perceptual Representations for Actions, Composition, and Verification	ONR	Cornell University Brown University Massachusetts Institute of Technology	NY RI MA	Hadas Kress-Gazit
17	Additive 3D Self-Assembly of Responsive Materials	Adaptive Self-Assembled Systems: Exploiting Multifunctionality for Bottom-up Large scale Engineering	ARO	University of Pittsburgh Harvard University Northwestern University University of Illinois, Urbana-Champaign	PA MA IL IL	Anna Balazs

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18	Anyons in 2D Materials and Cold Atomic Gases	Abelian Bridge to Non-Abelian Anyons in Ultra-Cold Atoms and Graphene	ARO	University of California, Santa Barbara University of California, Berkeley California Institute of Technology Columbia University Rice University University of Pittsburgh Niels Bohr Institute, Univ. of Copenhagen (1)	CA CA CA NY TX PA DK	Andrea Young
19	Characterization of Information Content in Data for Multimodal Data Analysis	Semantic Information Pursuit for Multimodal Data Analysis	ARO	Johns Hopkins University Stanford University University of Maryland University of California, Berkeley University of Southern California University of California, Los Angeles Oxford University (2) Imperial College (2) University of Surrey (2) University College London (2)	MD CA MD CA CA CA UK UK UK UK	Rene Vidal
20	Nutritional and Environmental Effects on the Gut Microbiome and Cognition	Dissecting microbiome-gut-brain circuits for microbial modulation of host cognition in response to diet and stress	ARO	University of California, Los Angeles California Institute of Technology Harvard Medical School University of Chicago	CA CA MA IL	Elaine Hsiao
21	Spectral Decomposition and Control of Strongly Coupled Nonlinear Interacting Systems	From Data-Driven Operator Theoretic Schemes to Prediction, Inference and Control of Systems	ARO	University of California, Santa Barbara California Institute of Technology Massachusetts Institute of Technology University of Michigan, Ann Arbor University of Washington, Seattle	CA CA MA MI WA	Igor Mezic
22	Toward Room Temperature Exciton-Polaritons	Room-Temperature Two-Dimensional Polaritronics with van der Waals Heterostructures	ARO	University of Michigan University of Texas, Austin University of California, Berkeley University of Pittsburgh	MI TX CA PA	Hui Deng
23	Cyber Deception through Active Leverage of Adversaries' Cognition Process	Realizing Cyber Inception: Towards a Science of Personalized Deception for Cyber Defense	ARO	University of Southern California Carnegie Mellon University Arizona State University University of North Carolina, Chapel Hill North Carolina State University University of Texas, El Paso	CA PA AZ NC NC TX	Milind Tambe

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