The Department of Defense (DoD) announced that 40 university researchers at 31 institutions have been selected to receive awards to enhance their research programs. The awards totaling $25.4 million will be made under the FY 2020 DoD Historically Black Colleges and Universities and Minority-Serving Institutions (HBCU/MSI) Science Program.

FY 2020 DoD HBCU/MI Research and Education Program (REP) Research Awards

Institution	Principal Investigator	Proposal Title	State	Service	Minority Designation	USD(R&E) Priority Area
California State University-Northridge	Lu, Gang	Unraveling Exciton Dynamics in Van der Waals Heterostructures for Optoelectronic and Photonic Applications	CA	ONR	MSI	Microelectronics
Clark Atlanta University	Khan, Ishrat	Stabilizing and Recovering Polymeric Nanoscale Assemblies Utilizing Dynamic Covalent Bonds	GA	ARO	HBCU	Novel Engineered Materials
Claflin University	Ling, Jie	Synthesis and Characterization of Novel Inorganic Optical Crystalline Materials	SC	ARO	HBCU	Novel Engineered Materials
CUNY-Hunter College	Braunschweig, Adam	Synthetic Carbohydrate Receptors: Tools for Exploring and Exploiting the Most Complex Recognition in Biological Materials	NY	AFOSR	MSI	Novel Engineered Materials
Delaware State University	Khan, Mohammad	Ultra-High Precision Sensing of Isotopic Signatures using Mid-Infrared (Dual) Frequency Comb Spectroscopy	DE	ARO	HBCU	Precision Sensing
Florida A&M University	Oates, William	Quantifying Complexity to Advance the Discovery and Design of Next Generation Smart Materials	FL	AFOSR	HBCU	Novel Engineered Materials
Florida A&M University	Ramakrishnan, Subramanian	Towards Light-Weight Composites for Defense Applications: Engineering Structure Dynamics and Rheological Properties of Functional Inks	FL	ARO	HBCU	Novel Engineered Materials
Florida Atlantic University	Mahgoub, Imadeldin	Deception-Based Security of IOBT Networks Using Intelligent Hybrid Honeypots and Game Theory	FL	ONR	MSI	Artificial Intelligence/ Machine Learning
Florida Atlantic University	Pados, Dimitris	ACE: Autonomous Conformity Evaluation of Tensor Data by Means of Novel L1-norm Principal-Component Analysis	FL	AFOSR	MSI	Quantum Science
Hampton University	McCormick, Michael	Investigation of Coastal Boundary Layer Characteristics Including Ducting Severe Storm Intensification & Aerosol Properties	VA	ARO	HBCU	Precision Sensing

ARO-Army Research Office
ONR-Office of Naval Research
AFOSR-Air Force Office of Scientific Research

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FY 2020 DoD HBCU/MI Research and Education Program (REP) Research Awards

Institution	Principal Investigator	Proposal Title	State	Service	Minority Designation	USD(R&E) Priority Area
Morgan State University	Samokhvalov, Alexandr	Aluminum Metal-organic Frameworks Based on Metalloporphyrins and Sorption of Archetypal Organosulfur Compounds	MD	ARO	HBCU	Novel Engineered Materials
Tennessee State University	Sekmen, Ali	Manifold Segmentation and Deep Convolutional Networks	TN	ONR	HBCU	Artificial Intelligence/ Machine Learning
Texas A&M University-Corpus Christi	Sheng, Jian	Understanding Roles of Flow, Surface, and Microbe Phenotype on Formation and 3D Architecture of Shear Resistant Biofilms with Integrated Microfluidics and Mesoscale Experimentations	TX	ONR	MSI	Novel Engineered Materials
Texas A&M University-Corpus Christi	Shinoda, Toshiaki	Investigation of Upper Ocean Physics and Air-sea Interaction over the Indian Ocean and Maritime Continent	TX	ONR	MSI	Artificial Intelligence/ Machine Learning
Texas A&M University-Kingsville	Hosur, Mahesh	Studies on the Mechanical Behavior of Woven Hybrid Fiber Reinforced Polymer Nanocomposites Subjected to Marine Environmental Conditions	TX	ONR	MSI	Novel Engineered Materials
Texas State University	Droopad, Ravi	Ultrawide Bandgap Hetero-structures: Growth, Characterization, and Modeling	TX	AFOSR	MSI	Microelectronics
Texas State University	Piner, Edwin	Heterogeneous Integration of Diamond and Ultrawide-Bandgap Semiconductors for Fundamental Phonon and Electron Transport Studies	TX	ONR	MSI	Microelectronics
University of Arizona	Osorio, Javier	Analyzing Migration Patterns from Central America Using Natural Language Processing and Machine Learning	AZ	ARO	MSI	Artificial Intelligence/ Machine Learning
University of Arkansas-Pine Bluff	Mosleh, Aboozar	Development of Sapphire based Integrated Microwave Photonics	AR	AFOSR	HBCU	Microelectronics
University of California-Irvine	Schoenung, Julie	Functionally Integrated Materials via Additive Manufacturing	CA	ARO	MSI	Novel Engineered Materials
University of California-Merced	Liwang, Patricia	A Hybrid Computational/Experimental Approach to Tuning the Specificity of Chemokine Inhibitors	CA	ARO	MSI	Precision Sensing

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University of California-Riverside	Wilson, Richard	Combinatorial Discovery of Metallic Systems with Superior Magnetic Transport Properties	CA	ARO	MSI	Novel Engineered Materials
University of California-Santa Barbara	Jayich, Ania	Patterning Atomic-scale Quantum Systems with DNA Origami	CA	ARO	MSI	Quantum Science
University of California-Santa Barbara	Weld, David	Probing Driven Quantum Gases and Enhancing Professional Development Pathways at a Minority-Serving Institution	CA	AFOSR	MSI	Quantum Science
University of California-Santa Cruz	Sadjadpour, Hamid	Secure and Resilient Design of Internet of Battlefield Things	CA	ARO	MSI	Cyber Security
University of Central Florida	Ahmed, Kareem	Highly Compressible Shock-Laden Turbulent Reacting Flows for Hypersonics	FL	AFOSR	MSI	Hypersonics
University of Central Florida	Caranto, Jonathan	Mechanism of O2-dependent Nitramine Degradation by a Heme Enzyme	FL	ARO	MSI	Novel Engineered Materials
University of Houston	Karim, Alamgir	Multilayered Protective Biomimetic Coatings from Sustainable Chitin and Chitosan	TX	AFOSR	MSI	Novel Engineered Materials
University of Houston	Mukherjee, Arjun	Proactive Defensive Techniques for Deception-Based Attacks	TX	ARO	MSI	Cyber Security
University of Illinois-Chicago	Zuck, Lenore	Compositional Testing of Network Protocols for Attacks	IL	AFOSR	MSI	Cyber Security
University of New Mexico-Albuquerque	Jackson, Nathan	Development of Multifunctional Flexible Piezoelectric Materials for MEMS Applications	NM	ARO	MSI	Microelectronics
University of North Carolina-Greensboro	Santin, Joseph	A Novel Model to Improve Neural Performance During Oxygen Deprivation	NC	AFOSR	MSI	Quantum Science
University of Puerto Rico-Mayaguez	Rodriguez-Abudo, Sylvia	Experimental and Numerical Investigation of Grain Shape Effects on Littoral Sediment Dynamics and Transport of Munition Constituents	PR	ONR	MSI	Precision Sensing
University of Texas-Rio Grande Valley	Ramezani, Hamidreza	Defect States in Time and Space Modulated Lattices	TX	AFOSR	MSI	Microelectronics
University of Texas-San Antonio	Millwater, Harry	A Fast and Effective Sensitivity and Uncertainty Quantification Method for Additively Manufacturing Metals	TX	ARO	MSI	Manufacturing

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University of Texas-San Antonio	Schanze, Kirk	Optical Control of Charge and Energy Transfer in Molecular Wires	TX	AFOSR	MSI	Microelectronics
University of the District of Columbia	Xu, Jiajun	Understanding the Processing-Microstructure-Property Relationships of Additively Manufactured Parts during Direct Metal Laser Sintering Processes: Multi-scale Modeling and Experimental Characterizatio	DC	ONR	HBCU	Novel Engineered Materials
University of the Incarnate Word	Cardenas, Rosa	Using NMR Techniques to find the Correlation of Spin Fluctuation Behavior to Superconductivity of the Iron Chalcogenide Fe1+eTe0.5Se0.5	TX	ONR	MSI	Materials Science
University of the Incarnate Word	Frye, Michael	Autonomous Control for Unmanned Vehicles	TX	ARO	MSI	Autonomy & Robotics
Xavier University of Louisiana	Zhang, Kun	Event Detection for Streaming Analytics: An Intelligent Mathematical Paradigm	LA	ARO	HBCU	Quantum Science

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