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FY 2023 DoD HBCU/MSI Research and Education Program

	Institution	Principal Investigator	Proposal Title	ST	Service	Minority Category	USD(R&E) Priority Area
1	Alabama A&M University	Ncube, Israel	Equivariant Hopf Bifurcation in Symmetric Artificial Neuronal Networks Characterised by Multiple Unbounded Distributed Time Delays	AL	ARO	HBCU	Trusted Artificial Intelligence
2	Alabama A&M University	Bommareddi, Rami	Investigation of the Effect of Metallic Nanoparticles Plasmonics on Rare-earth Luminescence	AL	AFOSR	HBCU	Advanced Materials
3	Bowie State University	Ji, Soo-Yeon	Understanding Attackers' Time-variant Pattern Changes in Cyber-Deception by Utilizing Deep Learning, Time-series Analysis, and Imaging Processing	MD	ARO	HBCU	Integrated Sensing and Cyber
4	California State University-Dominguez Hills	Crogman, Horace	Research and Learning Hybrid Program (RLHP) to Enhance Undergraduate STEM Curriculum	CA	ARO	MSI/HSI	Biotechnology
5	California State University-Northridge	Lu, Gang	First-Principles Exploration of Moiré Excitons	CA	ARO	MSI/HSI	Quantum Science; Advanced Materials
6	California State University-Northridge	Miao, Maosheng	From Novel Chemistry of Supercomposition Compounds to the Design of New Materials for Defense Applications	CA	ARO	MSI/HSI	Advanced Materials
7	CUNY-City College of New York	Bandosz, Teresa	Multifunctional Active Fabrics of Enhanced Protection Against CWAs: Combining the Activity of Catalytic Phases and Modified Carbon Cloth	NY	ARO	MSI/HSI	Advanced Materials
8	CUNY-City College of New York	Sun, Yi	Developing Spatiotemporal Resolution Theory and Localization Algorithms for Superresolution Microscopy to Elucidate Endothelial Surface Glycocalyx (ESG) Ultrastructure	NY	ARO	MSI/HSI	Biotechnology
9	CUNY-Hunter College	Braunschweig, Adam	MAUGI: Microarray for Universal Glycan Identification Based Upon Multiplexed Synthetic	NY	AFOSR	MSI/HSI	Biotechnology
10	CUNY-New York City College of Technology	Kolmakov, German	Fundamental Research to Build Polariton-assisted Optical Quantum Networks	NY	ARO	MSI/HSI	Advanced Computing and Software
11	CUNY-Queens College	Almeida, Euclides	Extreme Nonlinear Metamaterials Based on Hybrid Light-Matter States	NY	AFOSR	MSI/HSI	Advanced Materials

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12	Delaware State University	Yue, Yanfeng	Nanoporous Polymer/Metal-Organic Framework Nonwoven Cloth: Electrospinning Fabrication and Application for Capture of Chemical Warfare Agents	DE	ONR	HBCU	Advanced Materials
13	Delaware State University	Marcano Olaizola, Aristides	Stimulated Raman Method for Efficient Generation of Enhancer-Free Singlet Oxygen	DE	AFOSR	HBCU	Quantum Science
14	Fisk University	Hawrami, Rastgo	New Generation Rare Earth Doped Low Phonon Crystals for Mid-IR Laser Applications	TN	AFOSR	HBCU	Microelectronics; Advanced Materials
15	Florida A&M University	Chauhan, Ashvini	Development of Metaomics-based Innovative Microbiome Indicators of a Healthy Gut Ecosystem and Prediction of Impending Dysbiosis and Disease(s) Upon Exposure to Environmental Pollutant(s): Moving Toward a Resilient Gut Microbiome for Warfighter Health	FL	AFOSR	HBCU	Biotechnology
16	Florida A&M University	Ramakrishnan, Subramanian	Structure Dynamics and Rheology of Preceramic Polymer Hairy Nanoparticles	FL	AFOSR	HBCU	Advanced Materials
17	Florida International University	Li, Hebin	Optical Two-Dimensional Coherent Spectroscopy of Color Centers in Silicon Carbide	FL	ARO	MSI/HSI	Quantum Science
18	Florida International University	Lai, Cheng-Yu	Suprastructural Interactions in Metamaterial Plasmonic for Light-matter Enhancement (SIMPLE)	FL	ONR	MSI/HSI	Advanced Materials
19	Georgia State University	Mani, Ramesh	2D Electronic Materials for Quantum Science and Quantum Functions	GA	ARO	MSI/AANAPISI	Quantum Science; Advanced Materials
20	Hampton University	Moore, William	Improved Weather Forecasting from Fusion of Satellite and Ground-Based Measurements	VA	ARO	HBCU	Environmental Sciences
21	Howard University	Owolabi, Gbadebo	Enhanced Microstructures and Mechanical Performances of Additively Manufactured Metallic Alloys	DC	ARO	HBCU	Advanced Materials
22	Norfolk State University	Temple, Doyle	Discovery and Investigation of New Materials for Quantum Photonics	VA	ARO	HBCU	Quantum Science
23	North Carolina Central University	Wu, Marvin	Carrier Dynamics and Charge Transport in Soft Semiconductors	NC	ARO	HBCU	Microelectronics; Advanced Materials

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24	North Carolina Central University	Bondarev, Igor	Transdimensional Chiral Metasurfaces: Theory and Applications	NC	ARO	HBCU	Advanced Materials
25	North Carolina Central University	Vlahovic, Gordana	High-Resolution Geophysical Investigation of the Lithosphere-Asthenosphere System in the Carpatho-Pannonian Region	NC	ARO	HBCU	Ennvironmental Sciences
26	Northeastern State University	Burba, Christopher	Polymer Electrolytes for Halide-ion Shuttle Batteries	OK	ONR	MSI/AIANSI	Renewable Energy Generation and Storage
27	Old Dominion University	Yamaleev, Nail	Novel Mathematical Model for Compressible Vixcous Flows	VA	ARO	MSI/AANAPISI	Quantum Science; Hypersonics
28	Old Dominion University	Dhali, Shirshak	Non-local Electron Kinetic Fluid Models for Development of Predictive Tools for Plasma Assisted Combustion/Ignition	VA	ONR	MSI/AANAPISI	Quantum Science
29	Old Dominion University	Xu, Tian-Bing	Investigations on Advanced Piezoelectric Two-Stage Amplification Acoustic Transducers	VA	ONR	MSI/AANAPISI	Microelectronics
30	Prairie View A&M University	Qian, Lijun	Data Driven Radio Frequency Learning and Spectrum Sharing in Congested and Contested Wireless Environment	TX	ARO	HBCU	Future Generation Wireless Technology (Future G)
31	Prairie View A&M University	Xu, Yuhao	High-Pressure Combustion of Hydrocarbons and Methyl Esters With Spherical Droplet Flames	TX	ONR	HBCU	Directed Energy
32	San Diego State University	Nguyen, Duy H.N.	Enabling High-Mobility UAV Communications with Adaptive Signal Processing	CA	ARO	MSI/HSI	Future Generation Wireless Technology (Future G)
33	San Diego State University	Youssef, George	Nondestructive Evaluation of 3D Printed Composites using Terahertz Waves	CA	ONR	MSI/HSI	Advanced Materials
34	Tennessee State University	Samad, Manar	Mathematically Inspired Deep Representation Learning of Unlabeled Heterogeneous Data	TN	AFOSR	HBCU	Advanced Computing and Software; Human-Machine Interfaces

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35	Texas A&M University	Shryock, Kristi	Defense Pathways for Research Opportunities for Minorities Underrepresented in STEM (Defense PROMUS)	TX	ONR	MSI/HSI	Hypersonics; Space Technology
36	Texas A&M University-Corpus Christi	Baca Garcia, Jose	CASER: Coordinated Autonomous Systems for Exploration and Reconnaissance	TX	ARO	MSI/HSI	Trusted Artificial Intelligence and Autonomy
37	Texas A&M University-Kingsville	Zhang, Xuewei	Model-Based Design of Smart Structures for High-Voltage Applications	TX	ONR	MSI/HSI	Microelectronics; Advanced Materials
38	Texas A&M University-Kingsville	Alam, Shah	Study of Damage Mechanics and Material Response of Impact on Composite Armor by Multiscale Modeling and Testing	TX	AFOSR	MSI/HSI	Advanced Materials
39	Texas State University	Piner, Edwin	Lateral Heterogeneous Integration of Ultrawide Bandgap AlGaN and Diamond	TX	ONR	MSI/HSI	Advanced Materials
40	Texas State University	Theodoropoulou, Nikoleta	Epitaxial Oxides on Si for Fundamental Electronic Transport Studies, Quantum Effects and Device Integration	TX	ONR	MSI/HSI	Microelectronics; Quantum Science
41	Texas Tech University	Cong, Weilong	Ultrasonic Vibration-Assisted Laser Additive Manufacturing of Structural Materials	TX	ARO	MSI/HSI	Advanced Materials
42	Texas Tech University	Maldonado, Victor	Unlocking the Coupled Hydro-Acoustic Mechanisms and Benefits of Bioinspired Micropillars	TX	ONR	MSI/HSI	Biotechnology; Advanced Materials
43	University of Arizona	Butcher, Eric	Nonlinear Oscillator Synchronization and Multi-Agent Consensus on Compact Manifolds with Novel Feedback Coupling and Complex Network Optimization	AZ	ONR	MSI/HSI	Advanced Computing and Software
44	University of Arizona	Little, Jesse	Separation Bubble Dynamics: A Comprehensive Investigation of Low- and High-Speed Flows using Experiments, Simulations and Stability Theory	AZ	ONR	MSI/HSI	Hypersonics
45	University of California-Irvine	Preece, Daryl	Enhancing Postdoctoral Training in DoD Photonics Research for Under-represented Minorities	CA	ARO	MSI/AANAPISI	Biotechnology
46	University of California-Merced	LiWang, Andy	Elucidating the Timekeeping Mechanism of a Circadian Clock	CA	ARO	MSI/HSI	Biotechnology

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47	University of California-Merced	Bhat, Harish	Reducing Dynamical Complexity: Automated Learning of Reduced-Order Models	CA	ONR	MSI/HSI	Quantum Science
48	University of California-Santa Barbara	Liao, Bolin	Probing Microscopic Transport Processes in Organic and Hybrid Materials using Ultrafast Electron Imaging	CA	ARO	MSI/HSI	Biotechnology & Advanced Materials
49	University of California-Santa Barbara	Weld, David	Probing Driven Quantum Gases and Enhancing Professional Development Pathways at a Minority Serving Institution	CA	ONR	MSI/HSI	Quantum Science; Microelectronics
50	University of California-Santa Cruz	Sanfelice, Ricardo	Learning Algorithms for Hybrid Dynamical Systems using Experimental Data	CA	AFOSR	MSI/HSI	Trusted Artificial Intelligence and Autonomy; Human-Machine Interfaces
51	University of Central Florida	Li, Guifang	2.5D Photonic Integration for Imaging and Information Processing	FL	ARO	MSI/HSI	Advanced Computing and Software
52	University of Central Florida	Vasu Sumathi, Subith	Multi-QCL Laser Absorption Diagnostics for Energetic Materials Performance and Hypersonic Flow Fields Under Extreme environments	FL	ONR	MSI/HSI	Advanced Materials; Hypersonics
53	University of Central Florida	Ahmed, Kareem	Oblique Detonation Waves for Ultra-High Mach Hypersonic and space propulsion	FL	AFOSR	MSI/HSI	Hypersonics
54	University of Hawaii-Honolulu	Uspal, William	Engineering Self-Organization in Active Colloidal Mixtures Using Particle Shape	HI	ARO	MSI/AANAPISI	Biotechnology
55	University of Hawaii-Honolulu	Culley, Alexander	Visualizing Microbial Communities and Their Interaction with Wild Viruses	HI	ARO	MSI/AANAPISI	Biotechnology
56	University of Hawaii-Honolulu	Ray, Tyler	Developing Field-Assisted Assembly for the Design and Fabrication of Multiscale Functional Materials	HI	ONR	MSI/AANAPISI	Advanced Materials
57	University of Houston	Ordonez, Carlos	Eclectic Studies in Quantum Information: Circuit QED and the Unruh Effect, Entanglement Degradation in Causal Diamonds and Conformal Quantum Mechanics Aspects of Quantum Chaos	TX	ARO	MSI/HSI	Quantum Science

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58	University of Houston	Verma, Rakesh M.	Tackling Cybersecurity Attacks and Software Vulnerabilties using Machine Learning	TX	ARO	MSI/HSI	Integrated Sensing and Cyber
59	University of Illinois-Chicago	Klie, Robert	Definition of the Fundamental Barriers to Multivalent Ion Intercalation in Transition Metal Oxides	IL	ARO	MSI/AANAPISI	Microelectronics & Advanced Materials
60	University of Maryland Baltimore County	Carter, Gary	Optical Frequency Combs and Solitons in High Q Microresonators	MD	AFOSR	MSI/AANAPISI	Microelectronics
61	University of Nevada-Las Vegas	Island, Joshua	Observing Quantum Nonlocality of Non-Abelian Anyons in a Van der Waals Heterostructure	NV	ONR	MSI/AANAPISI	Quantum Science
62	University of Nevada-Las Vegas	Kim, Kwang	Bioinspired Multi-Functional Soft Materials for Naval Applications	NV	ONR	MSI/AANAPISI	Advanced Materials; Biotechnology
63	University of New Mexico-Albuquerque	Becerra Chavez, Francisco	Nonclassical Atomic Spin Ensembles Based on Coherent Feedback and Quantum Eraser	NM	AFOSR	MSI/HSI	Quantum Science
64	University of New Mexico-Albuquerque	Jackson, Nathan	Multifunctional High Performance Smart Thin Films for Microsystem Applications	NM	AFOSR	MSI/HSI	Microelectronics
65	University of New Mexico-Albuquerque	Osinski, Marek	Novel Nanoparticles for High-Precision Levitated Optomechanical Sensors	NM	AFOSR	MSI/HSI	Integrated Sensing and Cyber
66	University of North Carolina-Charlotte	Walsh, James	Shocks and Social Preferences	NC	ARO	MSI/AANAPISI	Behavioral Sciences
67	University of North Carolina-Charlotte	Zhang, Yong	An Emerging Family of Multifunctional Organic-Inorganic Hybrid Structures	NC	ARO	MSI/AANAPISI	Advanced Materials
68	University of North Carolina-Greensboro	Rathnayake, Hemali	HBCU/MI: A New Concept for a Programmable Capacitive Charge Injection in Live Cells using		ARO	MSI/AANAPISI	Biotechnology
69	University of North Carolina-Pembroke	Tosun, Ali	An Automated Framework For Investigating Security and Privacy of Internet-of-Military-Things Devices	NC	ARO	MSI/AIANSI	Advanced Computing and Software; Cyber
70	University of North Texas	Shen, Mo-how	High-throughput Screening and Quality Assessment Testing and an AI-based In-Situ Process Monitoring and Quality Control Framework for Additive Manufacturing New Builds and Repaired Parts	TX	ONR	MSI/HSI	Artificial Intelligence; Manufacturing
71	University of North Texas	Zhang, Zihao	Tunable Plasmonic Multispectral Metasurfaces	TX	AFOSR	MSI/HSI	Microelectronics; Advanced Materials

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72	University of Texas-Arlington	Wetz, David	Preparing the Next-Generation Workforce to Design Advanced Electrical Power Systems for the DoD Deploying Multiple Sources, Energy Storage, Intelligent Control, and Transient Loads	TX	ONR	MSI/HSI	Renewable Energy Generation and Storage
73	University of Texas-Arlington	Chakravarthy, Animesh	Reilient Multi-Vehicle Networks	TX	AFOSR	MSI/HSI	Integrated Sensing and Cyber
74	University of Texas-El Paso	Schuster, Brian	Development of Engineered Metallic Composites for Control of Compressive Deformation and Failure Modes	TX	AFOSR	MSI/HSI	Advanced Materials
75	University of Texas-Rio Grande Valley	Wongkasem, Nantakan	Detailed Examination of Electromagnetic Propagation/Radiation in Human Organs, Tissues and Cells	TX	ARO	MSI/HSI	Directed Energy; Biotechnology
76	University of Texas-San Antonio	Restrepo, David	Novel Architected Materials for Drag Reduction and Flow Control in Hypersonic Vehicles	TX	ARO	MSI/HSI	Advanced Materials & Hypersonics
77	Virginia Commonwealth University	Tibbetts, Katharine	Dynamics and Mechanisms of CO2 Photoreduction on Rationally Designed Nanocatalysts	VA	ARO	MSI/AANAPISI	Advanced Materials; Environmental Sciences
78	Virginia Commonwealth University	Motai, Yuichi	Intelligent Doppler Radar-based Tracking and Classification of Target Objects	VA	ONR	MSI/AANAPISI	Integrated Sensing and Cyber
79	Virginia Polytechnic Institute and State University	Mehrizi-Sani, Ali	SEcure Control for REnewable DERs in power Grid (SECURED-GRID)	VA	ARO	MSI/AANAPISI	Advanced Computing and Software
80	Virginia Polytechnic Institute and State University	Whittington, Abby	Multi-Material Integration for Porous 4D Materials	VA	ARO	MSI/AANAPISI	Advanced Materials
81	Virginia Polytechnic Institute and State University	Shao, Linbo	Generation and Quantum Control of On-chip Microwave Phonons	VA	AFOSR	MSI/AANAPISI	Microelectronics
82	Xavier University of Louisiana	Blake, Robert	Mechanisms Used by Cycloclasticus Pugetii to Oxidize Polycyclic Aromatic Hydrocarbons	LA	ARO	HBCU	Biotechnology

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