FY2022 DEFENSE UNIVERSITY INSTRUMENTATION INITIATIVE PROGRAM - SELECTED PROJECTS				
Principal Investigator	**Institution**	**State**	**Brief Description of Instrumentation or Research**	**Awarding Office**
Agarwal, Nitin	University of Arkansas	AR	Multimedia Data-Intensive High-Density Computational Support for Research on Monitoring Cyber Warfare Tactics through Social Media	ONR
Aiello, Clarice	University of California, Los Angeles	CA	Electron Spin Resonance Scanning Tunneling Microscopy (ESR – STM) for research on spin dependent electron transport in chiral biomolecules for quantum controllable physiological performance and quantum devices	ONR
Ajoy, Ashok	University of California, Berkeley	CA	Scanning High-field Nuclear Magnetometer	AFOSR
Amezcua Correa, Rodrigo	University of Central Florida	FL	Automated Laser Micro-machining for High Power Fiber Lasers	AFOSR
Arruda, Ellen	University of Michigan	MI	Self-triggered reconfigurable composite topological mechanical metamaterials	ONR
Asadi Zanjani, Navid	University of Florida	FL	Scanning Acoustic Microscope for Advanced Packaging Physical Assurance (SAPPA)	ONR
Banerjee, Rajarshi	University of North Texas	TX	Combinatorial Processing Techniques for Accelerated Discovery of Complex Concentrated Alloys	AFOSR
Bank, Seth	University of Texas at Austin	TX	Synthesis System to Atomically Control Linear and Nonlinear Light-Matter Interactions	AFOSR
Bardeen, Christopher	University of California, Riverside	CA	Picosecond Streak Camera for Measuring Dynamics in Photomechanical Materials	ONR
Bardet, Philippe	George Washington University	DC	Hardware for novel high-speed and 3D velocimetry	ONR
Baumann-Pickering, Simone	University of California, San Diego	CA	Deep Sea Acoustic and Optical Predator-Prey Observations	ONR
Beg, Farhat	University of California, San Diego	CA	The Compact Experimental System for Z-pinch and Ablation Research (CESZAR) Linear Transformer Driver	AFOSR
Behadm, Nader	University of Wisconsin	WI	Ultra-Wideband Power Amplifier System for Research on High-Power Phased-Array Antennas and Microwave Systems	ONR
Bonnel, Julien	Woods Hold Oceanographic Institution	MA	Using an Airgun System for Long Range Low-Frequency Acoustics Propagation	ONR
Bouteiller, Jean	University of Southern California	CA	Efficient scale-bridging methodologies for multi-scale modeling of the nervous system	ARO
Braiman, Yehuda	University of Central Florida	FL	Efficient, Scalable, High Power, Multi-Frequency Blue Diode Laser Array for Underwater Applications	ONR
Brown, Joseph	University of Hawaii	HI	Metal Thin Films for Interlocking Compliant Mechanical Metamaterials and Microelectronics Heterogeneous Integration	AFOSR
Chassignet, Eric	Florida State University	FL	Data Serving Platform for Ocean Prediction System Outputs	ONR
Checkelsky, Joseph	Massachusetts Institute of Technology	MA	In-situ Monitored Molecular Beam Epitaxy of Encapsulated 2D Materials	ONR
Chen, Jen-Yung	University of California, San Diego	CA	Dissecting the Molecular Pathways Underlying the Homeostatic Interactions Between Metabolism and Circadian Rhythms	AFOSR
Chen, Yong	University of California, Los Angeles	CA	Fabrication of Brain-Inspired Networks for Multifunctional Intelligent Systems	AFOSR
Chen, Yun	Johns Hopkins University	MD	Dynamic Topographical and Mechanical Characterization of Biomaterials	AFOSR
Chowdhury, Srabanti	Leland Stanford Junior University	CA	Multi-channel spectrum analyzer for component characterization with fast and accurate noise figure measurements	ONR
Comin, Riccardo	Massachusetts Institute of Technology	MA	Multifunctional Surveyor for Quantum Materials and Devices	AFOSR
Copp, Stacy	University of California, Irvine	CA	Analysis of Self-Assembling Bioinspired Nanomaterials	AFOSR
Cowlagi, Raghvendra	Worcester Polytechnic Institute	MA	Multimodal Sensor Configuration, Real-Time Estimation, and Optical Control in Autonomous Systems	AFOSR
Crabbs, Robert	University of Central Florida	FL	Atmospheric and Turbulence Monitoring Sensors	ONR
Cronin, Stephen	University of Southern California	CA	Widely Tunable Ultrafast Photon Source for Interrogation of Hot Electron-driven Electrochemical and Photocatalytic Processes	ARO
Dantu, Karthik	SUNY, Buffalo	NY	Reasons: Resilient, Adaptive, Scalable, Autonomy in Networked Swarms	AFOSR
DeGraef, Marc	Carnegie Mellon University	PA	Laboratory Diffraction Contrast Tomography for 3-Dimensional Microstructure Characterization	AFOSR
Deng, Hui	University of Michigan	MI	Atomic Force Microscope for Research on Ultra Low Threshold Exciton and Polariton Lasers in van der Waals Heterostructures	ARO
Deotare, Parag	University of Michigan	MI	High Speed Charactrrization of On-Chip Optoexcitonic Communication Elements	ARO
Douglas, Pamela	University of Central Florida	FL	Electrical Steering for Transcranial Focused Ultrasound Modulation of Electroencephalograph Signals	AFOSR
Edgar, James	Kansas State University	KS	Furnace for Graphite and Hexagonal Boron Nitride Crystal Growth	AFOSR
Englund, Dirk	Massachusetts Institute of Technology	MA	Cryogenics for a Quantum Network Testbed	ARO
Estevadeordal, Jordi	North Dakota State University	ND	Scientific-Grade Wind Tunnel for Advanced Unsteady Aerodynamics Research	AFOSR
Feng, Liang	University of Pennsylvania	PA	Ultrafast Characterization of Dynamical Stability and Photon Correlation of Active Photonic Materials, Devices, and Quantum Emitters	ARO
Fernando, Harinda	University of Notre Dame	IN	An Instrument Package for Research on Marine Fog-Turbulence Coupling	ONR
Ferro, Patrick	Gonzaga University	WA	Investigate Epoxy Segregation for Acrylate/Epoxy Advanced Matrix C-Fiber Composites	AFOSR
Fisher, Ian	Leland Stanford Junior University	CA	Research in Electronic Properties Near Quantum Phase Transitions and in Topological Materials	AFOSR
Gang, Oleg	Columbia University	NY	Nanoscale spatially and chemically resolved imaging of DNA-assembled nanomaterials	ARO
Ghaderi, Javad	Columbia University	NY	Real-Time Processing and Inference in Distributed Edge-Cloud Networks	ARO

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Giometto, Marco	Columbia University	NY	Aerial Light Detection and Ranging System for Land-Atmosphere Interaction Research	ARO
Gorodetsky, Alon	University of California, Irvine	CA	A Microscope for Nanoscale Electrical Measurements	ONR
Gottlieb, Sigal	University of Massachusetts, Dartmouth	MA	Development and Implementation of Robust and Scalable Numerical Algorithms	AFOSR
Grassian, Vicki	University of California, San Diego	CA	Micro-Spectrochemical Analysis of Complex Samples Utilizing Combined Optical-Photothermal Infrared and Raman Spectroscopy	ARO
Griffin, Robert	University of West Florida	FL	High-Powered Arms and Hydraulically Autonomous Mobile Humanoids for Urban Operations and Exploration	ONR
Haberman, Michael	University of Texas at Austin	TX	Scanning System for Characterization of Vibration, Acoustic Radiation and Scattering from Underwater Targets	ONR
Hale, Matthew	University of Florida	FL	Robotic Platform for Testing and Validation of Heterogeneous Autonomous Systems in Contested Environments	AFOSR
Hanson, Ronald	Leland Stanford Junior University	CA	Laser Systems for Fundamental Spectroscopy of Oxygen (O2) in Hypersonic Air Flows	AFOSR
Hatridge, Michael	University of Pittsburgh	PA	Cryogenic Platform and Controls for Quantum State Routers and Reservoir Computation	AFOSR
Hemley, Russell	University of Illinois, Chicago	IL	Integrated Instrument for Synthesis of New High Energy Density Materials	ARO
Hoffman-Kim, Diane	Brown University	RI	Confocal Microscope for Imaging of Brain Injury Progression	ONR
Hopkins, Patrick	University of Virginia	VA	Nonequilibrium Polariton Thermometry enabled via Infrared Variable Angle Spectroscopy Ellipsometry	ARO
Jayant, Krishna	Purdue University	IN	Nano-Needle Bioelectronics	AFOSR
Jiang, Chunqi	Old Dominion University	VA	Atmospheric-Pressure Pulsed Plasma Characterization	AFOSR
Jones, Anya	University of Maryland	MD	Real-Time Control for Mitigation of Air Vehicle Gust Response	AFOSR/ONR
Jordan, Nicholas	University of Michigan	MI	Repetitive Marx Generator for High Power Microwave Research	ONR
Kadakia, Madhavi	Wright State University	OH	Accelerate Generation of Clonal or Rare Cell Populations, Augment Existing Sequencing Capabilities, and Facilitate Cutting-Edge	AFOSR
Kamphaus, Robert	University of Washington	WA	EM 124 Multibeam Echosounder Upgrade for R/V Thomas G Thompson	ONR
Kanazawa, Angjoo	University of California, Berkeley	CA	Capture, Compute, and Display of Neural Scenes and Objects for Augmented Reality / Virtual Reality	ONR
Kanistras, Konstantinos	University of Alabama, Huntsville	AL	Fluid-Structure Interaction Investigation of Active Blowing on Deformable Surfaces	AFOSR
Ketterle, Wolfgang	Massachusetts Institute of Technology	MA	Laser systems for quantum simulations of many-body physics with ultracold atoms	ARO
Khorrami, Farshad	New York University	NY	Demonstrating Attacks and Defenses on Autonomous Platforms Driven by Deep Networks	ARO
Kisailus, David	University of California, Irvine	CA	Multimodal High-Speed Atomic Force Microscope System	AFOSR
Kong, Yu	Rochester Institute of Technology	NY	Visual Analytics for Threat Action Detection, Precognition, and Justification	ONR
Krushelnick, Karl	University of Michigan	MI	Enhancement of High Repetition Rate Capability for Zettawatt-Equivalent Ultrashort Pulse Laser System	AFOSR
Lerczak, James	Oregon State University	OR	Fabrication and Testing of a Rapid Sampling Profiler for Energetic, High Ship Traffic Coastal Environments	ONR
LeRoy, Brian	University of Arizona	AZ	Upgrade of scanning tunneling microscope to enable qPlus operation	ARO
Lewis, Jared	Indiana University at Bloomington	IN	Improving Automated Protein Engineering Workflows with State-of-the-Art Plate Reading Capability	ARO
Li, Xiaoqin	University of Texas at Austin	TX	Collective spin excitations in quantum magnets	ARO
Lieuwen, Timothy	Georgia Institute of Technology	GA	Laser System for Multiplexed Time-Resolved Measurements in High-Speed Flows and Combustion	ONR
Linke, Norbert	University of Maryland	MD	High-efficiency photon detection support for a medium-distance quantum network	ARO
Little, Jesse	University of Arizona	AZ	A nozzle to expand the 15in. x 15in. Arizona Supersonic Wind Tunnel into the Subsonic and Transonic Regime	ARO
Little, Justin	University of Washington	WA	Quantum Cascade Laser Spectrometer for Investigating Non-Equilibrium Plasma Chemistry	AFOSR
Luyen, Hung	University of North Texas	TX	Ultrawideband Near-Field Probe System for Antenna Research	ONR
Mahesh, Krishnan	University of Minnesota	MN	Hybrid computing platform to enable complex multi-physics DNS/LES from desktop to exascale	ONR
Majumdar, Arka	University of Washington	WA	Photonic Modulators for Cryo-Computing	ONR
Marandi, Alireza	California Institute of Technology	CA	Quantum State Engineering with Networks of Optical Parametric Oscillators	ARO
Marks, Tobin	Northwestern University	IL	Determining the Absolute Molecular Weights of Pi-Conjugated Polymers	AFOSR
Matos, Helio	University of Rhode Island	RI	Prototype Systems for Research of Advanced Composite Stuctures for Undersea Environments	ONR
McMahon, Peter	Cornell University	NY	Superconducting Circuit Quantum Machines	AFOSR
McNeese, Nathaniel	Clemson University	SC	Connecting and Leveraging Digital and Physical Dimensions to Advance Human-Autonomy	ONR
McPeak, Kevin	Louisiana State University	LA	Ellipsometry of Thin Films for Mid-Infrared Optoelectronics	ARO
Merrifield, Sophia	University of California, San Diego	CA	Autonomy Testbed for Heterogenous UxV Teams	ONR
Michaels, Alan	Virginia Polytechnic Institute and State U	VA	Improving In-phase/Quadrature Recording Capabilities	ONR
Mischaikow, Konstantin	Rutgers University	NJ	Accurate Computations for Imprecise Nonlinear Dynamics	AFOSR
Montanari, Giancarlo	Florida State University	FL	Developing advanced tool for partial discharge detection in Power Electronic Power Distribution System	ONR
Mueller, Holger	University of California, Berkeley	CA	Absolute Optical Frequency Reference for Quantum Sensing	AFOSR
Narayanaswamy, Venkateswaran	North Carolina State University	NC	Long Duration Mach 6 Wind Tunnel for Hypersonics Research	AFOSR

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Ni, Kang-Kuen	Harvard University	MA	Molecular Quantum Simulator	AFOSR
O'Malley, Michelle	University of California, Santa Barbara	CA	Acquisition of advanced cytometry tools for DoD supported research at UC-Santa Barbara	ARO
Oxley, Jimmie	University of Rhode Island	RI	Multi-channel PDV and Raman Spectrometer	AFOSR
Pagola, Silvina	Old Dominion University	VA	Structural Analysis of Photocatalysts for Hydrogen Production and Organic Multicomponent Ferroelectric Crystals	AFOSR
Pamidi, Sastry	Florida State University	FL	Superconducting Power Device Testbed with Cryogenic Helium Cooled Compact Terminations	ONR
Park, Jungkyu	Kennesaw State University	GA	Coupled Thermal and Mechanical Characterization System for Carbon Nanocomposites for Flexible Electronics	ARO
Patek, Sheila	Duke University	NC	A high speed imaging system for research on ultrafast, repeated-use materials and systems	ARO
Ping, Jinglei	University of Massachusetts Amherst	MA	Controllable Atomic-Scale Functionalization of Two-Dimensional Materials	AFOSR
Pol, Vilas	Purdue University	IN	Li-ion Battery Safety Systems: In situ/Multi-mode Calorimetry, Electrochemical Impedance Spectroscopy, and Critical Temperature Cycling	ONR
Prasad, Anamika	South Dakota State University	SD	Characterizing Nanomechanics of Interfaces for Next-Generation Multifunctional Aerospace Composites	AFOSR
Pride, Dominique	University of Alaska	AK	Advanced Metering Infrastructure for Research to Increase Renewable Energy Contribution in an Arctic Community	ONR
Priya, Shashank	Pennsylvania State University	PA	Laser and Photonic Sintering for Ultrafast Synthesis of Multifunctional Materials with Novel Microstructures	ONR
Rajapakse, Indika	University of Michigan	MI	Automated Fluidics System for Multiway Dynamical Systems	AFOSR
Raney, Jordan	University of Pennsylvania	PA	Data-Driven Multimaterial Additive Manufacturing of Active Architected Materials	AFOSR
Ravichandran, Jayakanth	University of Southern California	CA	Growth and in situ Characterization of Thin Films of Vapor Pressure Mismatched Perovskite Chalcogenides	AFOSR
Regal, Cindy	University of Colorado	CO	Quantum Science with Neutral Atom Arrays in a Cryogenic Environment	ARO
Rentzepis, Peter	Texas A&M University	TX	Ultrahigh-Resolution Microscope Raman and Synchronous Fluorescence System	AFOSR
Richardson, Kathleen	University of Central Florida	FL	Infrared Material Purification and Handling	AFOSR
Rollett, Anthony	Carnegie Mellon University	PA	Robotic Laser Hot Wire System for Research on Additive Manufacturing via Directed Energy Deposition	ONR
Rush, Christina	Salish Kootenai College	MT	Life Sciences Equipment	ARO
Sales, Christopher	Drexel University	PA	Closing the Mass Balance on Poly and Perfluoroalkyl Substances (PFAS) using Combustion Ion Chromatography for Fast and Reliable Determination of Halogens and Sulfur	ONR
Sanfelice, Ricardo	University of California, Santa Cruz	CA	Verification and Validation of Autonomous Systems with Hybrid Dynamics under Uncertainty	AFOSR
Schaibley, John	University of Arizona	AZ	Widely Tunable Continuous-wave Laser to Study 2-Dimensional Material Structures	AFOSR
Schauss, Peter	University of Virginia	VA	Quantum gas microscopy of dipolar fermions in geometrically frustrated lattices	ONR
Shankar, Shyam	University of Texas at Austin	TX	Measurement of Novel Josephson Qubit Devices and Circuits	AFOSR
Sideris, Constantine	University of Southern California	CA	Advanced Petascale Numerical Methods for Solution and Inverse Design of Massive Computational Physics Problems	AFOSR
Smith, Calvin	Alabama State University	AL	Creating a Quantitative Statistics Training and Research (STAR) Laboratory for the Behavioral Sciences	ARO
Son, Steven	Purdue University	IN	Thermal Decomposition of Energetics	AFOSR
Song, Kenan	Arizona State University	AZ	Understanding Thermal Properties of 3D Printable Polymer/Nanoparticle Composites	AFOSR
Sorger, Volker	George Washington University	DC	Photonic Processor & Artificial Intelligence Rapid Prototyping and Test System	AFOSR
Storr, Kevin	Prairie View A&M University	TX	Cryogenic Liquefaction via Compressed Helium and Gas Recovery	ARO
Takeuchi, Ichiro	University of Maryland	MD	New Phase Change Materials for Photonics: Closed-loop Autonomous Atomic-layer Design and Synthesis via Artificial Intelligence	ONR
Taylor, Rebecca	Carnegie Mellon University	PA	Peptide Nucleic Acid-Based Nanostructures at Biotic and Abiotic Interfaces	AFOSR
Thole, Karen	Pennsylvania State University	PA	Optical Heat Flux Measurements for Engine and Turbine Rigs to Accelerate Turbine Development	AFOSR
Thom, Stephen	University of Maryland, School of Medici	MD	Anmis ImageStream Mk II imaging flow cytometer	ONR
Topcu, Ufuk	University of Texas at Austin	TX	Testbed for Autonomy in Contested Environments	AFOSR
Van Newkirk, Amy	Pennsylvania State University	PA	Glass Processing System for Specialty Optical Fibers	AFOSR
Vasu, Subith	University of Central Florida	FL	Characterization of Energetics	AFOSR
Verduzco, Rafael	William Marsh Rice University	TX	X-ray Photoelectron Spectroscopy (XPS)/Hard Energy photoelectron spectroscopy (HAXPES) for Fast, Multiplexed, and Autonomous Underwater Bioelectronic Sensors	ONR
Vuletic, Vladen	Massachusetts Institute of Technology	MA	Laser system for a network of entangled atomic clocks	ONR
Waas, Anthony	University of Michigan	MI	On the Experimental Characterization of a 3D Multiaxial Fatigue Model for Structural Fiber Reinforced Composites	ARO
Wei, Shuangqing	Louisiana State University	LA	Advanced Signal and Information Processing for Managing Interference in Radio Communication Systems	ONR
Williams, David	University of Rochester	NY	Super Resolution Adaptive Optics Ophthalmoscope for Revealing the Retinal Code	AFOSR
Wu, Tianfu	North Carolina State University	NC	Building the Paradigm of Big Model + Big Computational Platform for Universal Representation Learning and Deep Consensus Learning	ARO

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Xu, Ting	University of California, Berkeley	CA	Micro-Extruder to Design Processible Enzyme-Containing Polymers For Bioactive Plastics	ARO
Yu, Qi	University of California, San Diego	CA	Computational Clusters for Robotic Deep Learning in Complex Spatiotemporal Environment	ARO
Yuste, Rafael	Columbia University	NY	A 3 photon holographic imaging and optogenetics of neurons and neural circuits	ARO
Zdilla, Michael	Temple University	PA	Thermal and Sensitivity Analysis Facility for Next-Generation Materials	ONR
Zeng, Yuping	University of Delaware	DE	Advanced Materials and Devices for High Performance Radio Frequency Applications	AFOSR
Zhang, Yong-Hang	Arizona State University	AZ	Emerging Compound Semiconductors for Heterovalent Integration	AFOSR
Zhao, Min	University of California, Davis	CA	Image Cell Signaling in vivo and ex vivo Spatiotemporally Modulated with Electric Fields	AFOSR
Zhao, Xinyu	University of Connecticut	CT	Multi-Physics Modeling of Advanced Propulsion and Energy Systems	AFOSR
Zhen, Bo	University of Pennsylvania	PA	Narrow-linewidth tunable laser for studying light-matter interactions in nanophotonic high-order topological insulators	ONR
Zhu, Lei	Case Western Reserve University	OH	Thermal Conductivity Measurement for Multilayer Film Capacitor Research	ONR