

AFOSR awards grants to 43 scientists and engineers through its Young Investigator Research Program

EurekAlert

The Air Force Office of Scientific Research today announced it will award approximately \$16.5 million in grants to 43 scientists and engineers who submitted winning research proposals through the Air Force's Young Investigator Research Program.

The YIP is open to scientists and engineers at research institutions across the United States who received Ph.D. or equivalent degrees in the last five years and show exceptional ability and promise for conducting basic research.

The objective of this program is to foster creative basic research in science and engineering, enhance early career development of outstanding young investigators, and increase opportunities for the young investigators to recognize the Air Force mission and the related challenges in science and engineering.

The intense competition for the YIP Award resulted in AFOSR receiving 242 proposals in response to its broad agency announcement in major areas of interest to the Air Force including, aerospace, chemical and material sciences; physics and electronics; and mathematics, information and life sciences. Proposals were based on the evaluation criteria listed in AFOSR's broad agency announcement. Those selected will receive the grants over a three to five year period.

The recipients and their anticipated research areas are:

Dr. Matthew S. Allen, University of Wisconsin, Madison, will investigate substructuring with nonlinear subcomponent models based on nonlinear normal modes with application to hypersonic vehicle design.

Dr. Andrea Alu, The University of Texas, Austin, will work on novel exotic features of metamaterials and their electromagnetic applications.

Dr. Jose E. Andrade, California Institute of Technology, will research energy-consistent multiscale algorithms for granular flow.

Dr. A. Salman Avestimehr, Cornell University, will focus on the impacts of local network-state information on the design of distributed communication networks for military applications.

Dr. Nader Behdad, University of Wisconsin, Madison, will explore high-power microwave metamaterials for phased-array, anti-HPM, and pulse shaping application.

Dr. Wesley H. Bernskoetter, Brown University, will conduct research on acrylate formation from CO₂ and Ethylene by tandem molybdenum and palladium catalysis.

Dr. Theodore A. Betley, Harvard University, will study bifunctional catalysts for CO₂ reduction.

Dr. Ania C. Bleszynski Jayich, University of California, Santa Barbara, will investigate Nanoscale probe of magnetism based on artificial atoms in diamond.

Dr. Adam B. Braunschweig, New York University, will study carbohydrate nanotechnology, specifically with hierarchical assemblies and information processing from oligosaccharide synthetic lectin host guest systems.

Dr. James H. J. Buchholz, University of Iowa, will investigate fundamental bounds on vortex shedding in forward flapping flight.

Dr. Jennifer A. Dionne, Stanford University, will explore colloidal metamaterials at optical frequencies.

Dr. Aaron M. Dollar, Yale University, will focus on active cells for multifunctional structures.

Dr. Dirk R. Englund, Columbia University, will work on quantum optics in diamond nanophotonic chips.

Dr. Krzysztof J. Fidkowski, University of Michigan, Ann Arbor, will focus on unsteady output-based adaptive simulation of separated and transitional flows.

Dr. Peter Frazier, Cornell University, will explore decision-theoretic methods in simulation optimization.

Dr. David B. Go, University of Notre Dame, will research ion-enhanced field emission for control of atmospheric pressure discharges.

Dr. Juliet T. Gopinath, University of Colorado, Boulder, will study phase and frequency control of laser arrays for pulse synthesis.

Dr. Micah J. Green, Texas Tech University, will examine interfacial engineering for low-density graphene nanocomposites and fluids.

Dr. Anastasios J. Hart, University of Michigan, Ann Arbor, will explore morphing carbon nanotube microstructures.

Dr. W. Matthias Ihme, University of Michigan, Ann Arbor, will conduct investigation on detailed characterization of nonideal effects on shock tube ignition dynamics using large-eddy simulation.

Dr. Martin C. Jonikas, University of California, Stanford, will focus on novel genetic

tools to accelerate our understanding of photosynthesis and lipid accumulation.

Dr. Ruben Juarez, University of Hawaii, Honolulu, will work on tournament games with externalities.

Dr. Changhong Ke, State University of New York at Binghamton, will research a multi-scale experimental study of the mechanical properties of carbon and boron nitride nanotubes and their polymer composites.

Dr. Negar Kiyavash, University of Illinois, Urbana-Champaign, will investigate information-theoretic approaches to network forensics.

Dr. Yongming Liu, Clarkson University, will examine concurrent structural fatigue damage prognosis under uncertainties.

Dr. Benjamin J. Lynch, University of California, Berkeley, will analyze a comprehensive modeling effort towards a physical understanding of solar coronal mass ejections.

Dr. Jonathan A. Malen, Carnegie Mellon University, will study tunable thermal conductance in heterostructured interfaces.

Dr. Jack J. McNamara, Ohio State University, will explore response prediction of compliant structures in hypersonic flow.

Dr. Brian F. Pflieger, University of Wisconsin, Madison, will focus on design, characterization, and metabolic engineering of alpha-olefin synthases.

Dr. Oleg Prokopyev, University of Pittsburgh, will work on new theory and methods in stochastic mixed integer programming.

Dr. William M. Reichert, University of South Alabama, will study biopolymer processing using ionic liquids for feedstock chemicals production.

Dr. Alp S. Sehirlioglu, Case Western Reserve University, will examine hetero-interfaces for extreme environment electronics.

Dr. Kyle M. Shen, Cornell University, will analyze a spectroscopic search for new superconductors in artificial materials.

Dr. Puneet Singla, State University of New York, Buffalo, will conduct investigation on information collection and fusion for space situational awareness.

Dr. Joseph E. Subotnik, University of Pennsylvania, will research artificial photosynthesis using nonadiabatic molecular dynamics for electron and energy transfer.

Dr. Danielle C. Tarraf, Johns Hopkins University, will explore an integrative theory of control and computation.

Dr. Anish Tuteja, University of Michigan, Ann Arbor, will examine polymer-based and polymer-templated nanostructured thermoelectric devices.

Dr. Thomas E. Vandervelde, Tufts University, will study nanostructured metallic layers for enhanced photodetector functionality.

Dr. Evelyn N. Wang, Massachusetts Institute of Technology, will focus on advanced nanostructures for two-phase fluid and thermal transport.

Dr. Rebecca M. Willett, Duke University, will conduct investigation on photon-limited sensing and surveillance.

Dr. Richard E. Wirz, University of California, Los Angeles, will study near-surface cusp confinement of micro-scale plasma.

Dr. Congjun Wu, University of California, San Diego, will explore unconventional states of matter with cold atoms and dipolar molecules.

Dr. Junrong Zheng, Rice University, will research chemical dynamics at surfaces of metal nanomaterials.

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