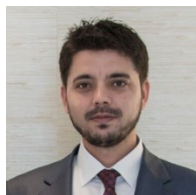




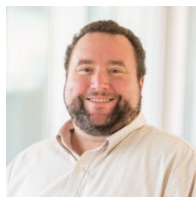
Congratulations to the NSF LEAPS-MPS 2021 Awardees *Launching Early-Career Academic Pathways in the Mathematical and Physical Sciences*

The intent of the LEAPS-MPS (NSF 21-570) awards is to initiate the research careers of pre-tenure faculty in tenure-track positions, particularly those at Minority Serving Institutions, Predominantly Undergraduate Institutions, and R2 institutions, promoting the participation of scientists from all segments of the MPS scientific community, including those from underrepresented groups. LEAPS-MPS complements the NSF CAREER program by providing additional funding opportunities to increase the number of proposals to MPS from such institutions, and by providing early federal funding to help launch the academic careers of individuals who can serve as role models for the U.S. scientific workforce of the future. These awards support innovative plans for recruiting and retaining a broad representation of researchers in MPS fields, increase opportunities for all scientists including those from groups underrepresented in MPS fields, and encourage individuals to become actively and competitively engaged in research as independent investigators.

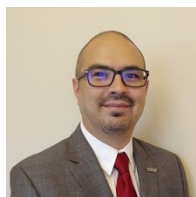
The Mathematical and Physical Sciences Directorate is pleased to recognize the inaugural class of LEAPS-MPS Awardees.



Aftab Ahmed
California State University - Long Beach
Award Number: 2137952 (Division of Physics)
LEAPS-MPS: Dispersive Coupling of Light to Surface Plasmons for Biosensing



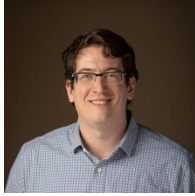
Joseph J. Badillo
Seton Hall University
Award Number: 2137600 (Division of Chemistry)
LEAPS-MPS: Development of New Photoacid Catalyzed Reactions for Organic Synthesis



Rogelio Benitez
The University of Texas Rio Grande Valley
Award Number: 2137923 (Division of Materials Research)
LEAPS-MPS: Exploring Centrifugal Jet Spinning of Ultra-High-Temperature Ceramic Nanofibers



Kassahun H. Betre
San Jose State University Foundation
Award Number: 2138323 (Division of Physics)
LEAPS-MPS: Investigating Emergent Gravity in Combinatorial Quantum Systems



William Boney
Texas State University San Marcos
Award Number: 2137465 (Division of Mathematical Sciences)
LEAPS-MPS: Fragments of Compactness



Abbey Bourdon
Wake Forest University
Award Number: 2137659 (Division of Mathematical Sciences)
LEAPS-MPS: Isolated Points on Curves



Zachary M. Boyd
Brigham Young University
Award Number: 2137511 (Division of Mathematical Sciences)
LEAPS-MPS: Structure and Dynamics of Global Supply Chain Networks



Joseph N. Burchett
New Mexico State University
Award Number: 2137452 (Division of Astronomical Sciences)
LEAPS-MPS: Unraveling the Galaxy-Cosmic Web Connection using Monte Carlo Physarum Machine

Kenneth Carrell
Angelo State University
Award Number: 2137787 (Division of Astronomical Sciences)
LEAPS-MPS: A Systematic Investigation of Transient Behavior in RR Lyrae Variable Stars



Joya A. Cooley
California State University-Fullerton Foundation
Award Number: 2137437 (Division of Materials Research)
LEAPS-MPS: Interrogating Negative Thermal Expansion in Earth-Abundant Oxide Materials



Blair Davey
Montana State University
Award Number: 2137743 (Division of Mathematical Sciences)
LEAPS-MPS: Elliptic Theory for The Schrodinger Operator



Oriana S. Fisher
Lehigh University
Award Number: 2137107 (Division of Chemistry)
LEAPS-MPS: Structural and Biophysical Studies of Bacterial Copper Acquisition and Regulation

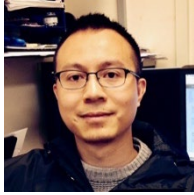


Joseph C. Furgal
Bowling Green State University
Award Number: 2137672 (Division of Materials Research)
LEAPS-MPS: Photodynamic Hybrid Polymer Network Sponges and their Structure-Property Relationships



Michelle Gaines
Spelman College
Award Number: 2137578 (Division of Materials Research)
LEAPS-MPS: Surface Morphological Effect on Biomolecular Attachment to Responsive Microgels for Tunable Biomimetic 3D-Cell Culture Scaffolds

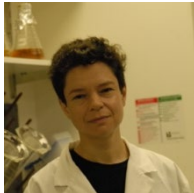
Funda Gultepe
University of Toledo
Award Number: 2137611 (Division of Mathematical Sciences)
LEAPS-MPS: Surface Subgroups of Outer Automorphism Group of The Free Group and Dynamics on The Boundary



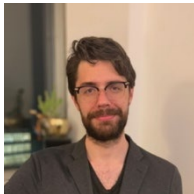
Yi He
University of New Mexico
Award Number: 2137558 (Division of Chemistry)
LEAPS-MPS: Revealing Key Residues and Physical Interactions Drive The Structural and Dynamic Changes in Subdomains of PICK1



Tao He
San Francisco State University
Award Number: 2137983 (Division of Mathematical Sciences)
LEAPS-MPS: Statistical Learning on Next Generation Sequencing of T/B Cell Receptor Repertoire Data



Erica Y. Jacobs
Saint John's University
Award Number: 2137713 (Division of Chemistry)
LEAPS-MPS: Structural and Functional Characterization of Tick Vaccine Antigen Homologs



Colin D. Kinz-Thompson
Rutgers University Newark
Award Number: 2137630 (Division of Chemistry)
LEAPS-MPS: Accuracy and the Regulatory Reprogramming of Bacterial Chemosensing



Amanda N. Laubmeier
Texas Tech University
Award Number: 2137694 (Division of Mathematical Sciences)
LEAPS-MPS: Predator Competition in Systems with Seasonal Birth

Lindsey-Kay Lauderdale
Towson University
Award Number: 2136890 (Division of Mathematical Sciences)
LEAPS-MPS: Applications of Algebraic and Topological Methods in Graph Theory Throughout the Sciences



Haydee Lindo
Harvey Mudd College
Award Number: 2137949 (Division of Mathematical Sciences)
LEAPS-MPS: Singularities, Rigidity, and Trace Modules



Beth Malmskog
Colorado College
Award Number: 2137661 (Division of Mathematical Sciences)
LEAPS-MPS: Foundational Connections in Number Theory, Coding Theory, Graphs, and Their Applications



Vivian Merk
Florida Atlantic University
Award Number: 2137663 (Division of Materials Research)
LEAPS-MPS: Investigating the Role of Carbohydrate-Mineral Interactions



Marcus Michelen
University of Illinois at Chicago
Award Number: 2137623 (Division of Mathematical Sciences)
LEAPS-MPS: Analytic Approaches to Limit Theorems and Random Structures



Maren E. Mossman
University of San Diego
Award Number: 2137848 (Division of Physics)
LEAPS-MPS: An Ultracold Atom Platform for Quantum Hydrodynamics Research and Undergraduate Training in Quantum Technology



Jason Murphy
Missouri University of Science and Technology
Award Number: 2137217 (Division of Mathematical Sciences)
LEAPS-MPS: Long-Time Behavior for Nonlinear Dispersive Equations

Candice Price
Smith College
Award Number: 2137739 (Division of Mathematical Sciences)
LEAPS-MPS: DNA Knot Shadows Explorations



Madalyn R. Radlauer
San Jose State University Foundation
Award Number: 2137584 (Division of Chemistry)
LEAPS-MPS: Confinement of Organometallic Complexes within Structured Polymers for Site-Isolated Tandem Catalysis

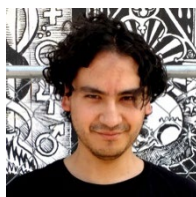
Eric G. Ramos
Bowdoin College
Award Number: 2137628 (Division of Mathematical Sciences)
LEAPS-MPS: The Representation Theory of Combinatorial Categories



Julie Rana
Lawrence University
Award Number: 2137577 (Division of Mathematical Sciences)
LEAPS-MPS: Moduli of Stable Surfaces and Beyond



Carl J. Saint-Louis
Kennesaw State University Research and Service Foundation
Award Number: 2137454 (Division of Chemistry)
LEAPS-MPS: Molecular Design, Synthesis, Properties, and Application of 2,5-bis(2-(4-nitrophenyl)ethynyl)thiophene Photolabile Protecting Groups for the Synthesis of Hydroxamic Acids



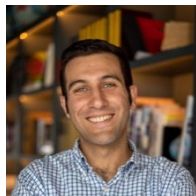
Tonatiuh Sanchez-Vizuet
University of Arizona
Award Number: 2137305 (Division of Mathematical Sciences)
LEAPS-MPS: Hybridizable Discontinuous Galerkin Methods for Non-Linear Integro-Differential Boundary Value Problems in Magnetic Plasma Confinement.



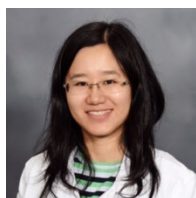
Monica So
Chico State Enterprises
Award Number: 2137915 (Division of Materials Research)
LEAPS-MPS: Tunable Hybrid Materials for Studying Charge Transport



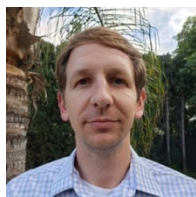
Timothy Susse
Simon's Rock of Bard College
Award Number: 2137608 (Division of Mathematical Sciences)
LEAPS-MPS: Algorithms and Geometry in Group Theory



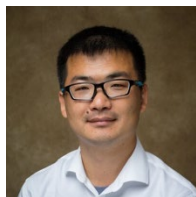
Pasha Tabatabai
Seattle University
Award Number: 2137509 (Division of Physics)
LEAPS-MPS: Emergent Mechanics of a Living Material



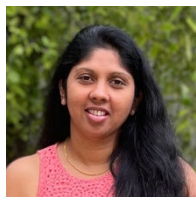
Si Tang
Lehigh University
Award Number: 2137614 (Division of Mathematical Sciences)
LEAPS-MPS: Random Growth Models, Spin Glasses and Stability of Complex Networks



Joseph Teprovich
The University Corporation, Northridge
Award Number: 2137973 (Division of Chemistry)
LEAPS-MPS: Investigating Ion-Transport and Dynamics in Composite Materials Containing Large Boron-Rich Anion (LBRA) Salts



Bo Wang
North Carolina Agricultural & Technical State University
Award Number: 2137575 (Division of Chemistry)
LEAPS-MPS: Artificial Intelligence Techniques for Automatic NMR Metabolomics Data Processing

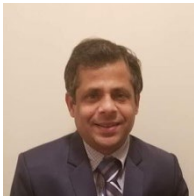


Lakmali P. Weerasena
University of Tennessee Chattanooga
Award Number: 2137622 (Division of Mathematical Sciences)
LEAPS-MPS: Advancing Approximation of Heterogeneous Multi-Objective Set Covering Problems with Modeling and Applications



Coral R. Wheeler
Cal Poly Pomona Foundation, Inc
Award Number: 2137988 (Division of Astronomical Sciences)
LEAPS-MPS: The Tiniest Galaxies in the Universe as Testbeds of
Fundamental Physics

Karamatou Yacoubou Djima
Amherst College
Award Number: 2137649 (Division of Mathematical Sciences)
LEAPS-MPS: Uncovering and Exploiting Multiscale Structures in Big Data
Using Diffusion-Based Representation and
Optimal Sampling



Ram B. Yadav
South Carolina State University
Award Number: 2137718 (Division of Physics)
LEAPS-MPS: Experimental Nuclear Structure Studies



Xianyi Zeng
University of Texas at El Paso
Award Number: 2137934 (Division of Mathematical Sciences)
LEAPS-MPS: Computational Methods for Many-Physics Problems Involving
Multi-Material Flows



Xian Zhang
Stevens Institute of Technology
Award Number: 2137883 (Division of Materials Research)
LEAPS-MPS: Tailoring the Thermal Properties of Flexible Two-Dimensional
(2D) Heterostructures