

AGEP-NC Newsletter

May/June 2023



www.agep-nc.org

Congratulations to 2022-2023 New PhDs!

Michael Bonds, Aerospace Engineering, NC State. "Evaluation of Complex Cooling Geometries with Jet Impingement and Effusion for Gas Turbine Combustor Liners"

Maria Aleman Chona, Aerospace Engineering, NC State. "Airfoil Flow-Separation and Stall Detection Using Surface-Mounted Pitot Tubes"

Joel Guerra, Aerospace Engineering, NC State. "Multiphase Flow Modeling of Liquid Injectors"

Timothy Holder, Biomedical Engineering, UNC/NC State. "Towards Electronic Systems, Experimental Protocols, Study Infrastructure, and a Unified Theory for Quantifying Psychophysiological States in Human-Canine Interactions"

Ricky Pimentel, Biomedical Engineering, UNC/NC State. "An Energy Audit of Human Gait: Experimental and Computational Assessment of How Structure and Function Shape Walking Economy"

Matthew Rich, Biomedical Engineering, UNC/NC State. "Device design and finite element modeling to better understand the response of cartilage to cyclical compressive loading"

Jessie Marie Garcia, Chemistry, NC State. "Improving the Scope of Transferases via Rational Design for Natural Product Diversification"

Jessica M Gonzalez Delgado, Chemistry, NC State. "A Comparative Study of the Backbone Dynamics and the Effects of Substrate Binding on the Dehaloperoxidase-hemoglobin Isoenzymes"

Roger Machin Rivera, Chemistry, NC State. "Addition of Carbon and Nitrogen Nucleophiles to Cyclopropanone Surrogates: Radical Ring-Opening of Cyclopropanone Hemiaminals for the Synthesis of Fused Heterocycles"

Emmanuel Iamsun Echevaerri Jimenez, Chemistry, NC State. "A Virtual Reality Learning Environment to Support Students' Abilities to Extract, Represent, and Predict Stereochemical Outcomes for the Diels-Alder Reaction"

Kianna Jimenez, Chemistry, NC State. "Advanced Nanoporous Materials for Magnetic Resonance of Biomacromolecules"

Melissa Mitchler, Chemistry, NC State. "Development of a Novel Methylmalonyl-CoA Biosensor Platform for Polyketide Extender Unit Production and Engineered Detection in *E. coli*"

Boris Goenaga, Civil, Construction, and Environmental Engineering, NC State. "Framework for the Implementation of a Pavement Friction Management Program"

Mohannad Ibrahim, Computer Engineering, NC State. "Architecture-Centric Quantum Computing Algorithms and Software/Hardware Co-Designs"

Obinna Okoye, Mechanical Engineering, NC State. "Gas Turbine Vane Film Cooling in a Subsonic Cascade"

Kyle Duke, Statistics, NC State. "Inference in Dynamic Treatment Regimes"

Yeng Saanchi, Statistics, NC State. "Impact of the Choice of Hyper-parameters on Statistical Inference using SGD Estimates and Optimal Experimental Designs for Precision Medicine with Multi-component Treatments"

Welcome Two New AGEP-NC Leaders

Abdellah Ahmidouch - PI for North Carolina A&T

Dr. Abdellah Ahmidouch, Dean of the College of Science and Technology, officially became PI of the AGEP-NC project for North Carolina A&T State University in March 2023. He has been a co-PI on the project since the beginning. His research interests are in nuclear physics, nuclear nonproliferation, application and exploration of nuclear physics potential in medicine and physics and STEM education. We welcome his leadership on the AGEP-NC project at NC A&T.



Dr. Patrick Martin, previous AGEP-NC PI for NC A&T has taken on a new role as dean of the College of Science, Technology, Engineering, and Mathematics at Johnson C. Smith University. We thank Patrick for his service to the AGEP-NC project. Congratulations, Patrick!

Melanie Simpson - co-PI for NC State



Dr. Melanie Simpson, Professor and Department Head of the Department of Molecular and Structural Biochemistry, has joined the NC State AGEP-NC leadership team. She served as a faculty fellow in the first cohort (2018-2020) of AGEP-NC Fellows, hence she has deep knowledge of the AGEP-NC model. She has demonstrated the know-how and strength to change the culture in her own academic department and will provide valuable expertise to help us institutionalize the AGEP-NC efforts at NC State.

Scenes from the 2023 Summer Alliance Meeting

