

Partnership for Fostering Graduate Training in Atmospheric Sciences at Texas Southern University

- **Principal Investigator:** Daniel Vrinceanu (Texas Southern University)
- **Co-Investigators:** Bruce Prince, Mark Harvey (Texas Southern University); Maria Zawadowicz, Michael Jensen, Chongai Kuang (Brookhaven National Laboratory)

Texas Southern University (TSU), a Carnegie R2 research institution and one of the largest historically black colleges and universities in the nation, builds a long-term and sustainable research partnership with Brookhaven National Laboratory (BNL) to train graduate students in atmospheric sciences. Through the ongoing engagement with research activities in the DOE Science Focus Area (SFA) PASCALS: Process-Level Advancements of Climate Through Cloud and Aerosol Lifecycle Studies (<https://asr.science.energy.gov/projects/15588>), this project aims to expand existing research programs, develop new capacities at TSU, and provide additional exciting opportunities for research and hands-on training for underrepresented and underserved graduate and undergraduate students. The main goal of the proposed program is the creation of a positive and inclusive learning and research environment that will nurture the next generation of a scientifically and technologically savvy, globally competitive energy workforce. Toward this end, the project sets the following objectives:

1. Provide experiential training to graduate students from the Departments of Physics, Chemistry, and Environmental and Interdisciplinary Sciences at TSU by leveraging existing collaborations with staff scientists in the Environmental and Climate Sciences Department at BNL and through broadening mentoring, science, and immersion opportunities coupled with curricular development.
2. Enhance research capabilities at TSU by fostering a sustainable partnership with the BNL research group with the goal of developing both theoretical physical models and computational chemistry models of particulate reaction formation and its interaction with the formation of cloud condensation nuclei.
3. Leverage DOE's Atmospheric Radiation Measurement (ARM) user facility by actively partnering on analyzing data from the Tracking Aerosol Convection Interactions Experiment (TRACER) campaign and other ARM deployments toward creating predictive models of critical aerosol formation and convective interactions in cloud processes, in conjunction with empirical statistical analysis methods.