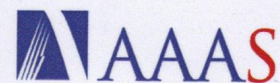


HBCU-UP/CREST PI/PD Meeting

PROGRAM BOOK



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enhanced experiments on Conservation of Energy, Conservation of Momentum, Ohm's Law, and Electromagnetic Induction. This TIP has directly impacted STEM students enrolled in the Introductory Physics, Modern Physics, Biophysics, and Renewable energy courses. The project has also impacted the research training of students in the areas of Nonlinear Optics, Computational Physics, and Computational Chemistry. Our research assistant students have disseminated their works by presenting posters at national, regional, and local conferences (ERN-2014, SER-MACS 2013, and the 2013 WSSU's Research Day). Furthermore this TIP has assisted in sustaining students' retention and enrollment in the Physics Minor program at WSSU.

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Poster Category: STEM Science and Mathematics Education

Targeted Reinvigoration of Critical Key Aspects of the Undergraduate Physics Program in the Department of Physics and Astronomy at Howard University

Prabhakar Misra, Howard University

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Specific critical aspects of the undergraduate program in the Department of Physics and Astronomy at Howard University have been reinvigorated via a targeted infusion approach. As a result of this effort, there is now an improved learning environment, which has been driven by four major activities: (1) Implementation of an Atmospheric Physics minor; (2) Conversion of the existing General Astronomy course into a hybrid on-line/laboratory class; (3) Upgrading of the Howard University Planetarium & Astronomical Observatory; and (4) Development of a Recruitment/Scholarship Program and Peer Support/Tutorial Program for Physics majors.

Funder Acknowledgement: Financial support from the National Science Foundation (Award No. HRD-1238383) is gratefully acknowledged.

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Poster Category: STEM Research

NSF-CREST: Advanced Center for Laser Science and Spectroscopy

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The CREST Advanced Center for Laser Science and Spectroscopy (ACLaSS) at Hampton University continues to enhance human resource development of minority students, and strengthen the research and education infrastructure. The goals of ACLaSS are to: 1) advance the research and education center with cutting edge laser sciences and spectroscopy; 2) develop and implement graduate and undergraduate educational modules; 3) provide extensive research and educational opportunities to graduate and undergraduate students; and 4) strengthen the pipeline of students pursuing advanced degrees in science and technology through outreach activities and summer workshops, and 5) provide educational opportunities in laser science and spectroscopy to high school teachers and students in grades K-12. The ACLaSS involves the participation of a diverse group of faculty and students from the Physics, Chemistry, and Atmospheric and Planetary Sciences Departments at Hampton University, as well as scientists at other national and international institutions, industries, and government agency laboratories.

Funder Acknowledgement: The research and education activities are supported by NSF HRD: 1137747.

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Poster Category: STEM Research

CREST Phase II: Computational Center at North Carolina Central University

Branislav Vlahovic, North Carolina Central University

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The goal of the Computational Center for Fundamental and Applied Science and Education (CCFASE) is to develop strong interdisciplinary, integrative research programs and research-based educational training that enhances the existing undergraduate and graduate curriculum at NCCU, thus expanding the University's ability to increase minority representation in the sciences. We are establishing sustainable, nationally recognized, computationally driven, complementary and closely interwoven research across four areas: (1) Development of novel nanomaterials and application of these materials in advanced optoelectronic devices; (2) Low-to-medium-energy nuclear and hypernuclear few-body physics; (3) Intelligent systems and robotics; and (4) Geophysical characterization of intraplate seismic zones.

The projects are internationally recognized and have the potential for large positive impacts in their respective scientific fields. Major results from these areas include: accurate calculations of the three-body scattering problem with charged particles, and the four-body problem when three particles are different; development of highly efficient and accurate computational codes for simulation of nanostructured materials; improving synergistic autonomous team capabilities of multiple robots and object