

SPACE EDUCATION AND OUTREACH SYMPOSIUM (E1)  
Enabling the Future - Developing the Space Workforce (5)

Author: Dr. Gordana Vlahovic  
North Carolina Central University, United States

Prof. Diane Markoff  
North Carolina Central University, United States

Prof. Marvin Wu  
North Carolina Central University, United States

Prof. Alade Tokuta  
North Carolina Central University, United States

Prof. Branislav Vlahovic  
North Carolina Central University, United States

DEVELOPING THE SPACE WORKFORCE AT NASA UNIVERSITY RESEARCH CENTER FOR  
AEROSPACE DEVICE RESEARCH AND EDUCATIONAL AT NORTH CAROLINA CENTRAL  
UNIVERSITY

**Abstract**

Presented will be impact of NASA Center for Aerospace Research and Education (NASA-CADRE), established in 2009 at North Carolina Central University, on increasing diversity of future space workforce in the United States. NASA-CADRE encompasses research in several space related fields including detectors and sensors, nanotechnology, computational science, robotics, nuclear physics, and astrophysics. The cornerstone of NASA-CADRE is a cluster of interdisciplinary research groups lead by senior investigators from five NCCU science departments, and scientists from NASA and collaborating institutions. In addition to research the primary goal of the NASA-CADRE is to enhance education and training in the sciences and to provide impetus for students to both enter and continue careers in research, specifically in those fields supporting aerospace science and engineering. Key strategies for accomplishing this include providing multiple opportunities for participation in an array of interdisciplinary research projects, ensuring that these projects are strongly mentored by dedicated faculty and supported with stipends or course credit earned for student work. The series of activities were organized including strengthening of the NCCU curriculum in the STEM disciplines, development of a student learning center, institution of an interactive advising web page, establishment of an annual two-week summer workshop for high school students and faculty, and initiation of aerospace science seminar series and other outreach activities targeting minority communities.

A key part of education activities is to integrate techniques, methodologies and modes of discovery, common to primary research, more strongly into the standard curriculum, so as to not only increase the possibilities for drawing students into research projects, but also to enhance the education experience for all science students, researchers and non-researchers alike. NCCU has, for example, actively moved forward in the development of new degree programs in computational sciences, recognizing the growing workforce niche for individuals who possess a balanced set of technical (algorithmic and programming) skills along with practical knowledge of theory and application in a specific discipline. Special emphasis has been given to internship and networking opportunities since they are important gateways into the profession, especially for minority students who face an additional barrier of not having role models and peers to introduce them to their line of work. Finally, joint efforts with National Science Foundation Center

of Research Excellence - Computational Center for Fundamental and Applied Science and Education will also be discussed.