Seminar Talk

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Langley Professor
NC A&T State University

Friday, December 04, 2015
3:00 p.m. KH 224

Title: Small Satellites Systems Research Center

Abstract:
This talk will highlight the research being performed at the Small Satellites Systems Research Center that resides at the National Institute of Aerospace and NC A&T University. This research covers technology development, mission development, and systems engineering research. The small satellites that are the center's focus is represented by the pico-/nano-class. I will provide background information on the spacecraft bus and discuss the importance of this class of small satellites for Earth observation and space exploration. In addition, an overview on the technologies that will enable the ability of a suite of heterogeneous small satellites to be a viable option for mission development and will include how the systems engineering process needs to change from risk adverse to and risk tolerant philosophy. Several mission types will be discussed that will demonstrate a paradigm shift in mission development and design.

Bio:
William W. Edmonson received his Ph.D. in Electrical and Computer Engineering from NC State University in 1990. He is currently the National Institute of Aerospace S.P. Langley Professor with the Department of Electrical and Computer Engineering, NC A&T State University, where he also is Co-Director of the NSF I/UCRC Advanced Space Technologies Research & Engineering Center (S3RC). He is also Director of the Small Satellite Systems Research Laboratory at His current research interests include small satellite systems design with emphasis on modular and reconfigurable computing, development of tools for mapping control and signal processing algorithms to hardware, development of model-based systems engineering methodologies and tools for small satellite systems that insures reliability of design. In addition, the use of interval analysis, computational intelligence and stochastic approximation global optimization methods for digital signal processing/controls applications and design space exploration for space systems. He is a member of the IEEE P1788 Standards Committee on Interval Arithmetic. From 2008-09 was on an IPA assignment with NASA-LaRC as lead systems engineers for GPS radio occultation instrument. Presently, he is collaborating with universities in France, Ethiopia, Ghana, South Africa, Spain, Mexico, and Peru on human capacity development and research on small satellites development.