University of Pavia

Ph.D. School of Electrical and Electronics Engineering and Computer Science

SEMINAR ANNOUNCEMENT

The NASA TROPICS CubeSat constellation mission for tropical cyclone observation

Prof. William J. Blackwell

Lincoln Labs, Massachusetts Institute of Technology

Lexington, Massachusetts, USA

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Magenta Seminar Room, Floor "D"

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Abstract:. Recent technology advances in miniature microwave radiometers that can be hosted on very small satellites have made possible a new class of constellation missions that provide very high revisit rates of tropical cyclones and other severe weather events. The Time-Resolved Observations of Precipitation structure and storm Intensity with a Constellation of Smallsats (TROPICS) mission was selected by NASA as part of the Earth Venture–Instrument (EVI-3) program and is now in development as a constellation of six 3U CubeSats in three low-Earth orbital planes. Launch readiness is planned for late 2019. TROPICS will provide rapid-refresh microwave measurements over the tropics that can be used to observe the thermodynamics of the troposphere and precipitation structure for storm systems at the mesoscale and synoptic scale over the entire storm lifecycle. This presentation will provide an overview of the mission and an update on current status, with a focus on recent performance simulations on a range of observables to be provided by the constellation, including temperature, water vapor, rain rate, and TC intensity indicators.

Bio: Bill Blackwell received the S.M. and Sc.D. degrees in electrical engineering and computer science from the Massachusetts Institute of Technology (MIT), Cambridge, MA, USA, in 1995 and 2002, respectively. Since 2002, he has been with the Lincoln Laboratory, MIT, where he is currently an Associate Leader of the Applied Space Systems Group. He serves or has previously served on the NASA Atmospheric Infrared Sounder and NPP science teams, the Joint Polar Satellite System Sounding Operational Algorithm Team, and the National Academy of Sciences Committee on Radio Frequencies. He was the Integrated Program Office Sensor Scientist for the Advanced Technology Microwave Sounder on the Suomi National Polar Partnership launched in 2011 and the Atmospheric Algorithm Development Team Leader for the National Polar-Orbiting Environmental Satellite System Microwave Imager/Sounder. He has served as the Principal Investigator on the MicroMAS-1, MicroMAS-2, and MiRaTA microwave sounding CubeSat missions and is currently PI on the NASA TROPICS Earth Venture mission (tropics.ll.mit.edu). His current research interests include atmospheric remote sensing, including the development and calibration of airborne and spaceborne microwave and hyperspectral infrared sensors, retrieval of geophysical products from remote radiance measurements, and the application of electromagnetic, signal processing, and estimation theory.

Organizer

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