

**Title: Unmanned Air Vehicles and Autonomy**

**Speaker: Dr. Siva S. Banda**

**Venue: LH-2**

**Date: 20/02/2012**

**Time: 11:30 AM – 1:00 PM**

**Abstract:** Research and development in support of Unmanned Air Vehicles (UAV) has been on the rise in many countries around the world. The number of potential applications of UAVs has been rapidly expanding both for civilian and military uses. These vehicles are not remotely piloted vehicles. They are expected to have mission dependent flexible level of autonomy. Control theory, computer science, mathematics and many other disciplines play significant roles in autonomy research. This presentation discusses the technical challenges of autonomy within the context of single and multiple UAVs. Specific topics for discussion include collision avoidance, air-air refueling, automated terminal area operations, and integration into the national air space.

**Biographical Summary:** Dr. Siva S. Banda is the Chief Scientist of the Air Vehicles Directorate, Air Force Research Laboratory (AFRL), Wright-Patterson Air Force Base, Ohio, USA. He serves as the principal technical advisor to the director. Technology thrusts in the directorate include: hypersonic flight and space access, autonomous air vehicles, sustainment and energy efficient aircraft.

Dr. Banda's personal professional contributions have been recognized in multiple forums and in multiple ways, most notably through: IEEE Control Systems Technology Award; the Royal Aeronautical Society (RAeS) Silver Medal; IFAC Nathaniel Nichols Medal, the Meritorious Presidential Rank Award; the Distinguished Presidential Rank Award; election as a Fellow of AIAA, IEEE, and IFAC; and Membership of the National Academy of Engineering. He serves on Advisory Boards at the University of Southern California, the University of Central Florida, University of Michigan, and SIAM. He serves as an Advisor to AFOSR, ONR, ARO, DARPA, NSF, and leads several international technical activities within the NATO Research and Technology Organization. He has served on the Editorial Boards of the IEEE Transactions on Control Systems Technology, the International Journal of Robust & Nonlinear Control, and the AIAA Journal of Guidance, Control & Dynamics. He also has served as thesis adviser and adjunct professor at the Air Force Institute of Technology, Wright State University, and University of Dayton.

Dr. Banda received his B.E. in Electrical Engineering from the Regional Engineering College, Warangal, India; his M.E. in Aeronautical Engineering from the Indian Institute of Science, Bangalore; an M.S. in Systems Engineering from Wright State University; and a PhD in Aerospace Engineering from the University of Dayton in 1974, 1976, 1978 and 1980 respectively. He has authored over 200 technical papers, reports and books, holds two patents, and has delivered more than 120 invited lectures worldwide.

