IEEE Student Branch @ Aalborg University

We would like to invite you to a guest lecture, by **Prof. Mary Ann Ingram**, currently visiting Aalborg University in summer 2006, permanently at the Georgia Institute of Technology:

Topic: Adaptive Array and Multi-Satellite Tracking Ground Stations for LEO Satellites

Date: 11 August 2006, Friday
Time: 11-12 hours
Location: NJV14 4-111

Earth environmental satellites and other remote sensing satellites deliver significant amounts of valuable data from their positions in low earth orbit (LEO). NASA's current ground network for these satellites consists of a few large (e.g. 10m) dish antennas in or near polar regions, such as McMurdo Station, Antartica, to maximize satellite contact because the LEOs have polar orbits. Simply delivering repair parts to these locations is slow and costly. Another drawback of the current network is that a large dish can track only one LEO satellite at a time. There are enough satellites now, and enough demand for their data, that tracking conflicts often arise. Multi-satellite tracking capability would alleviate these conflicts. This talk gives an overview of a 3yr project, funded by NASA, to investigate the use of adaptive array ground stations in place of the large dish antennas. The talk will include a description of the synchronization algorithm, the two demonstrations at X-band – one using an array of inflatable dish antennas and the other using an array of space-fed lenses – and finally some results concerning the use of space-fed lenses for multi-satellite tracking.

Mary Ann Ingram received the B.E.E. and Ph.D. degrees from the Georgia Institute of Technology, in Atlanta, Georgia, in 1983 and 1989, respectively. From 1983 to 1986, she was a Research Engineer with the Georgia Tech Research Institute in Atlanta, performing studies on radar electronic countermeasure (ECM) systems. In 1986, she became a graduate research assistant with the School of Electrical and Computer Engineering at the Georgia Institute of Technology, where in 1989, she became a Faculty Member and is currently Professor. Her early research areas were optical communications and radar systems. In 1997, she established the Smart Antenna Research Laboratory (SARL), which emphasizes the application of multiple antennas to wireless communication systems. The SARL performs system analysis and design, channel measurement, and prototyping, relating to a wide range of wireless applications, including wireless local area network (WLAN) and satellite communications, with focus on the lower layers of communication networks. Dr. Ingram is a Senior Member of the IEEE.

Everyone is welcome.

Contact person: ssd@kom.aau.dk; imr@kom.aau.dk