



IEEE Evening Lecture
Tuesday 8th May 2007
6:30-7:30 pm
(refreshments available from 6:15 pm)

**Imperial College
London**

Room 611 on the 6th Floor
Department of Electrical and Electronic Engineering
Imperial College London

“Heterogeneous Wireless Communication Devices- Present and Future”
Vijay K. Nair, FIEEE
IEEE Distinguished Microwave Lecturer
Intel Corporation (Hillsboro, USA)

Convergence of communication and computing technologies is rapidly changing the requirement of wireless devices. While wireless wide area network (WWAN) based on cellular radios was evolving, a new set of wireless LAN networks which are fundamentally different from cellular networks emerged. Devices for applications in the wireless LAN networks (WLAN), wireless personal area networks (WPAN) and wireless metro area networks (WMAN) are being deployed in increasing numbers. Bluetooth and Ultra Wideband (UWB) technologies have been introduced for high-bandwidth wireless connectivity in personal area networks. Location identification technologies like GPS are getting integrated with wireless products as well. There is no doubt that tomorrow's network environment will be extremely heterogeneous.

However, network heterogeneity also brings with it enormous challenges, as devices will have to be extremely capable in order to intelligently roam around heterogeneous networks operating under a wide range of protocols. As network diversity increases the important challenges of the future communication devices will be coexistence, interoperability and seamless transfer among networks. The vision for ubiquitous computing sees a computational environment where a computer makes decisions and adapts its behavior without being explicitly asked to do so.

This talk will elaborate the vision, the attributes and technical challenges of heterogeneous wireless communication system. In particular advancements of RF component technologies from antennas to baseband ICs will be elucidated. The evolution of different standards and their impact on the mixed network communication will also be discussed.

Biography of the Speaker

Vijay joined Intel Corporation in September of 2003. He currently leads a team researching in novel antennas and the integration of antennas into RF front-end modules for mixed network radio applications. His research areas included RF and Microwave devices, monolithic ICs, and wireless subsystems.

Before joining Intel, he was with Motorola Inc for 19 years. While at Motorola, he held various positions including Research Manager of RF Technologies Group and Fellow of Member Technical Staff at Motorola Labs His group at Motorola developed low power devices, high efficiency power amplifiers, and MMICs for communication applications. He was Motorola's technical lead for the collaborative research with the University of Florence, Italy, on the development of multifunctional quantum MMICs and he also led a collaboration with Arizona State University in active integrated antenna research. His work at Motorola was well decorated and highlighted by his receiving of Motorola's "Distinguished Innovator" award, Gold Quill award and "Product & Process Technology" award.

Vijay holds fifteen (15) US patents. He has published over seventy-five (75) papers in refereed journals and presented papers in many international conferences and workshops. He has written several chapters for technical books and has co-authored a book titled "RF and Microwave Circuit and Component Design for Wireless Systems".

The IEEE - Phoenix Section elected Vijay as the "Senior Engineer of the year-1998". He was elected as an IEEE Fellow in 2000 in recognition of his work in the development of low power device and integrated circuits. He was elected by MTT society as "Distinguished Microwave Lecturer" for a three-year term starting January 2007.

He is a member of IEEE Microwave Theory and Technique Society (MTT-S), the Communication Society, Antenna and Propagation Society. He is currently the chairman of Meeting and Symposia committee of MTT Society's Administrative Committee. He served as the Technical Program Committee Chairman of IEEE International Microwave Symposium (IMS2001), 1997 IEEE RFIC Symposium and 1997 IEEE Vehicular Technology Symposium. He is a member of the Advisory Board and Steering Committee of the RFIC symposium. He also serves as a member of the Technical Program Committee of the IEEE International Microwave Symposium (IMS). He served as the vice chair of the MTT-S publication committee, guest editor of MTT-S Transactions, and as a member of Editorial Board of John Wiley & Son's publications. He has been the Chairman of RF Components and Subsystems Technical Working Group of the National Electronics Manufacturing, Inc. (NEMI) since 1998. He also serves as the Chairman of US National Committee-Commission A of the International Union of Radio Science (URSI).

For more information on this event, please e-mail: stepan@ieee.org