

**THURSDAY
SEPTEMBER 23, 2004**

**Scaife Hall Auditorium
Room 125**

**4:00 PM
Refreshments—3:30 PM**



Anthony Ephremides

**UNIVERSITY OF MARYLAND
ELECTRICAL AND COMPUTER ENGINEERING
AND INSTITUTE FOR SYSTEMS RESEARCH**

Anthony Ephremides received his B.S. degree from the National Technical University of Athens (1967), and M.S. (1969) and Ph.D. (1971) degrees from Princeton University, all in Electrical Engineering. He has been at the University of Maryland since 1971, and currently holds a joint appointment as Professor in the Electrical Engineering Department and in the Institute of Systems Research (ISR) of which he is a founding member. He is co-founder of the NASA Center for Commercial Development of Space on Hybrid and Satellite Communications Networks established in 1991 at Maryland as an off-shoot of the ISR. He served as Co-Director of that Center from 1991 to 1994.

He was a Visiting Professor in 1978 at the National Technical University in Athens, Greece, and in 1979 at the EECS Department of the University of California, Berkeley, and at INRIA, France. During 1985-1986 he was on leave at MIT and ETH in Zurich, Switzerland. He was the General Chairman of the 1986 IEEE Conference on Decision and Control in Athens, Greece and of the 1991 IEEE International Symposium on Information Theory in Budapest, Hungary. He also organized two workshops on Information theory in 1984 (Hot Springs, VA) and in 1999 (Metsovo, Greece). He was the Technical Program Co-Chair of the IEEE INFOCOM in New York City in 1999 and of the IEEE International Symposium on Information theory in Sorrento, Italy in 2000. He has also been the Director of the Fairchild Scholars and Doctoral Fellows Program, an academic and research partnership program in Satellite Communications between Fairchild Industries and the University of Maryland. He won the IEEE Donald E. Fink Prize Paper Award (1992) and he was the first recipient of the Sigmobility Award of the ACM (Association of Computer Machinery) for contributions to wireless communications in 1997. He has been the President of the Information Theory Society of the IEEE (1987) and has served on its Board of Governors almost continuously from 1981 until the present. He was elected to the Board of Directors of the IEEE in 1989 and 1990.

For more information:

<http://www.ece.cmu.edu/seminar>

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SOME INTRIGUING ISSUES IN AD HOC WIRELESS NETWORK PROBLEMS

We will review a number of novel aspects of ad hoc wireless networking. Specifically, we will look at the problem of simultaneous activation of wireless links and show that, depending on the value of the required SINR threshold for successful reception, there can be no more than one feasible matching of transmitters and receivers, or there can be more than one (and all the way up to all) possible matchings feasible, if the threshold is sufficiently small. This is an important issue in the design of MAC protocols.

We will also consider the issue of covert channels in the wireless environment and show how the ubiquitous nature of the medium permits a number of possible ways in which a covert pair of nodes can communicate between each other undetected.

Finally, we will consider one type of sensor network and outline the energy-efficiency and detection performance measures and the corresponding link metrics that are needed for their design.

The discussion of these seemingly separate topics will go into varying levels of depth while displaying the ways in which they are fundamentally related.