Cooperative Game Theory and Resource Allocation for Frequency Selective Channels

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Abstract: In this talk I will review several results related to cooperative game theory and its application to resource allocation in frequency selective models. I will discuss Basic game theoretic concepts such as Nash equilibrium and Nash Bargaining Solution. I will discuss the problems of non-cooperative solutions and show that cooperative solutions can be easily obtained in a distributed manner using smart CSMA. I will demonstrate the case of channel assignment using the Stable marriage theorem and show its good performance over frequency selective channels.

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10:00 a.m.
Green Hall, room 0120

Host: Prof. Arye Nehorai

Short Bio: Amir Leshem received the B.Sc. degree (cum laude) in mathematics and physics, the M.Sc. degree (cum laude) in mathematics, and the Ph.D. degree in mathematics, all from the Hebrew University, Jerusalem, Israel. He is one of the founders of the School of Electrical and Computer Engineering, Bar-Ilan University, Ramat Gan, Israel, where he is currently Professor and Head of the signal processing track. In the period 2000-2003 he was director of advanced technologies in Metalink broadband where he was in charge of developing new technologies such as VDSL and wireless MIMO systems. In that capacity he was also involved in standards effort for VDSL, SHDSL, 802.11n and dynamic spectrum management for DSL networks. Prior to that he was with Delft University of Technology where he worked on signal processing techniques for communications and for radio astronomical imaging.

His main research interests include multichannel communication, applications of game theory to communication, array and statistical signal processing with applications to sensor arrays and networks, wireless communications, radio-astronomy and brain research, set theory, logic, and foundations of mathematics.