Discrete Mathematics Seminar

Time: Tuesday, 24 Nov 2009, 10:00-11:00 AM
Room: MCS 473 (Math Library)
Title: Connected Dominating Set in Wireless Ad Hoc Networks
Speaker: Dr. Shuhui Yang, Department of Math, Computer Science, and Statistics,
Purdue University Calumet

Abstract:

Wireless ad hoc networks are infrastructureless multi-hop networks consisting of mobile or stationary wireless devices. They are inherently distributed systems. The popular applications include mobile ad hoc networks (MANETs) and wireless sensor networks (WSNs). The research challenge in this area is the construction of an underlying communication framework. A connected dominating set (CDS) from graph theory is frequently used in ad hoc networks as a virtual backbone to support efficient routing, service discovery, and area monitoring. With the emergence of new applications and technologies, we need to extend the traditional CDS concept to meet new requirements. This talk introduces the basic concepts in the area of wireless ad hoc networks and also discusses the distributed/localized algorithm design for the communication framework construction in such networks.

Bio:

Dr Yang is an assistant professor in Math, Computer Science, and Statistics Department, Purdue University Calumet. Dr. Yang worked as post-doctoral research associate in the Department of Computer Science at Rensselaer Polytechnic Institute from 2007 to 2009. She received her Ph.D. degree in computer science in 2007 from Florida Atlantic University. She received her B.S. and M.S. degrees in 2000 and 2003, respectively, from Jiangsu University, Zhenjiang and Nanjing University, Nanjing, China. She has published more than 25 papers in various journals and conference proceedings. Her research interests include mobile computing, routing protocols, fault-tolerant computing, interconnection networks, and cyber security. She served as Program Committee member for 28th International Conference on Distributed Computing Systems (ICDCS'08), First International Workshop on Wireless Security and Privacy (WiSP'08), and The First International Workshop on Sensor Networks (SN'08). She served as NSF panelist for 2008. She served as reviewer for IEEE INFOCOM, IEEE Transactions on Wireless Communication, IET communications, and IEEE JSAC Special Issue on Game Theory in Communication Systems, Wireless Networks, Computer Networks, et al. She won the best paper award of the 2nd IEEE International Conference on Mobile Ad-hoc and Sensor Systems (MASS).