



2012 Fall Physics Colloquium Series

Yang Li, Ph.D.

Assistant Professor of Electrical and Computer Engineering
Baylor University

*Electromagnetic Wave Propagation and
Antenna Radiation in Forested Environment*

In recent years, there is emerging interest in deploying wireless sensor network in the forest for remote surveillance, communications, disaster relief, and environmental monitoring. One challenge in the design of wireless networks is to ensure reliable communication between sensors located near the ground and over short distances. However, the propagation mechanisms in this type of scenario are complex and not well understood. Furthermore, the design of antennas that can exploit the resulting propagation mechanisms for optimal power transfer remains an open question.

In this talk, we will report our study on the wave propagation and antenna radiation in forested environments. First we will introduce various scaled forest models and explore the propagation mechanisms inside them through scaled model measurements in the laboratory, numerical simulations and various effective medium theories. Then the real forest measurement data collected at Bastrop, TX will be presented and correlated with laboratory results. At the end, we will present some directive antenna designs based on the understanding of the propagation mechanisms.

Wednesday, September 19, 2012

4:00 p.m.

Room E.125, Baylor Sciences Building

Reception at 3:40 p.m. in BSB D.311

For more information contact:

Dr. Anzhong Wang 254- 710- 2276