

Discrete Mathematics Seminar

Time: Friday, 30 September 2011, 12:30-1:30 PM

Room: 238 Derrick Hall

Title: Low Frequency Power Line Communications for the Smart Grid

Speaker: Dr. Stan McClellan, Electrical Engineering, Texas State University

Abstract:

The concept of a “Smart Grid” has gotten a lot of attention recently. With massive government stimulus spending and even larger long-term profit potential, new “Smart Grid” technologies are popping up everywhere. Unfortunately, many of these system concepts are fundamentally flawed. “The Grid” is a huge and enormously complicated mélange of fundamental physics, local government regulations, publicly available service, international technology standards, long-term experiential knowledge, and ... now ... a bunch of hare-brained ideas.

To stay abreast of the hares, this presentation will explore an unusual approach to communication technology for the Smart Grid which involves ultra-low frequency transmissions. The problems / issues / opportunities that arise from this approach will be discussed, and some experimental results will be presented. The primary differentiator between this approach and many other hare-brained schemes is that this one has been funded, tested, and successfully deployed.

To frame the discussion, a brief background on conventional approaches to some Smart Grid technologies will be provided, and applications that may be enabled by the Smart Grid will be highlighted.

Bio:

Dr. McClellan is an Associate Professor of Electrical Engineering at Texas State University in San Marcos, TX. Prior to joining Texas State, Dr. McClellan held positions in academic, computer, telecom, and aerospace industries.

Most recently, Dr. McClellan was a co-founder and Chief Technology Officer at Power Tagging Technologies where he developed a revolutionary approach to Smart Grid systems using novel system architecture and advanced signal processing. He has served as chief technologist, chief architect, or lead engineer or has been a principal contributor to several advanced technologies and/or distributed real-time systems, including the Digital Terrain System of the AFTI/F-16 fighter aircraft, real-time 3D flight simulators using real-imagery reconnaissance data, robotic imaging appliances for remote intra-surgical consultation, the regional implementation of Internet2, and production deployment of telecom networks and systems conforming with industry standards (3GPP/2, PICMG 3 / xTCA, etc.).