Physics Seminar

Friday 3/1/2013, 3:30 pm
Science & Engineering Building Auditorium

Nicholas W. Hollingshad

Department of Physics
Presbyterian College

Consensus in Complex Systems: Theory and Applications

A brief history and introduction to network science and complexity will be provided. Small world and scale free networks will be described, illustrating why these networks can be considered structurally efficient. The impact of network structure on dynamical processes on networks will be discussed, leading to a description of emergent criticality. A dichotomous decision-making model (similar to the well-known Ising model of ferromagnetism) will be used to create a simple example of critical dynamics. The concept of consensus as a first passage time problem at criticality will be presented. To conclude, an engineering example will be shown that employs time to consensus in scale free networks of mobile wireless sensors to improve system performance and reliability.

Please join us for light refreshments
at 3:15pm outside SEB 203.