



The Fall 2006 Condensed Matter Seminar Series presents:

Prof. Roderick V. Jensen (University of Massachusetts, Boston)

*“Synchronization of Nonlinear Oscillators and
Reliable Information Processing in Biological
Neural Networks”*

Abstract:

When nonlinear oscillators with stable limit cycles are subject to periodic forces, these oscillators may become entrained or mode locked to the driving force. Remarkably, a similar phenomenon occurs when the nonlinear oscillators are driven by a random force. In particular, when nonlinear oscillators with different initial conditions are strongly driven with the same random force, their fluctuating behavior may reliably converge to an identical, synchronized response. This analysis suggests experimental procedures for assessing the nonlinear response of biological, chemical, and physical oscillators to fluctuating inputs and provides immediate application to an understanding of the reliable firing of cortical neurons and the processing of neuronal information.

Wednesday, Sept. 13, 2006

Special Seminar

4:00 P.M.

103 Robeson Hall
