



ESE Seminar Announcement

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Friday, May 22, 2015
Green Hall, Room 0120
11:10AM

SYNCHRONIZATION IN SPARSE NETWORKS OF OSCILLATORS

Abstract: Sparse networks of attractively coupled identical oscillators can support a variety of dynamical states beside complete, identical synchronization. Decreasing the mean number of neighbors or increasing cross coupling terms, the network may exhibit persistent phase turbulence, partial synchronization or a stationary, complex pattern of phase waves. We have studied the transition between these states in small ($N=20$) ring networks of chemical oscillators with few random short cut connections and could observe long transients to synchronization as expected from larger scale numerical simulations of phase oscillators.

Bio: Dr. Ralf Toenjes received his BS in Physics from Humboldt University, Berlin, Germany in 2003, a M.Sc. at Michigan State University in 2001, and his PhD degree from University of Potsdam, Germany, in 2007 on Synchronization and Pattern Formation. He then spent three years as a Postdoctoral Research Assistant at Ochanomizu University, Tokyo, Japan, from 2009-2012, and is currently a Postdoctoral Research and Teaching Assistant in the Statistical Physics and Theory of Chaos group at the University of Potsdam. His research interests are in synchronization of nonlinear dynamical systems.