Speaker: **Professor Bard Ermentrout**
(University of Pittsburgh)

Title: **: Double or Nothing:**
Phosphenes and the periodic driving of cortex

Abstract:

In this talk, I examine two different types of phosphenes - patterns in the visual systems evoked from within it. I first study contour phosphenes in which direct stimulation of the eyeball coupled with a moving bar in the visual field produces slowly propagating waves. The mechanism appears to be due to period doubling which produces an intrinsic bistability. Using averaging, I analyze the dynamics of a one-dimensional analog. In the second part of the talk, I study flicker-induced hallucinations in which diffuse stroboscopic light is capable of evoking spatial patterns in the visual field. I use Floquet theory and symmetric bifurcation theory to explain experiments that indicate different patterns are seen with different temporal frequencies.