



McMaster University



University of Toronto



University of Waterloo

## THE FIELDS INSTITUTE FOR RESEARCH IN MATHEMATICAL SCIENCES

### COLLOQUIUM IN DYNAMICAL SYSTEMS

#### SPEAKER:

**JOHN GUCKENHEIMER**  
Cornell University

On the Topic:

#### "The Dynamics of Bursting Neurons"

Compartmental models of neurons represent the neural membrane as a homogeneous collection of varied channels that mediate the flow of ions across the membrane. The channels open and close in response to voltage and chemical concentration changes, so that the models become complex nonlinear dynamical systems describing the coupling between potential changes across the membrane and the activation and inactivation of channel openings. We shall describe such models, numerical studies of bifurcations of models that are designed to represent a particular neuron (the anterior burster cell of the lobster stomatogastric ganglion), and comparisons between the model and experiments that modify the intrinsic properties of some of the channels.

**Tuesday, March 9, 1993**

**4:30 pm, room 3018**

**at**

**The Fields Institute**