

COLLOQUIUM

DEPARTMENT OF MATHEMATICS AND STATISTICS
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Stability and bifurcation of additive neural networks
with multiple time delays

Abstract

A system of delay differential equations representing a model for an additive neural network with time delayed connections between the neurons is studied. Necessary and sufficient conditions for the local and global stability of fixed points of the network are discussed. It is shown that both Hopf and steady state bifurcations may occur when a fixed point loses stability. Codimension two bifurcations are shown to exist and numerical simulations reveal the possibility of quasiperiodicity and multistability near such bifurcations.

372 Science and Engineering Building
Thursday, March 21st, 2002
3:00 to 4:00 P.M.
(Refreshment at 2:30 to 3:00 P.M. in Room 368,
Science and Engineering Building)

About the speaker

Professor Sue Ann Campbell is currently an associate professor in the Department of Applied Mathematics at the University of Waterloo. She earned a B.Math. in Applied Mathematics from the University of Waterloo in 1986 and a Ph.D. in Theoretical and Applied Mechanics from Cornell University in 1991. After a postdoctoral appointment at the University of Montreal and an assistant professorship at Concordia University (Canada), Dr. Campbell moved back *home* to the University of Waterloo in 1993. Her current research interests include dynamical systems, delay differential equations applications in biological and mechanical systems. She is currently the managing editor of the journal *Dynamics of Continuous, Discrete and Impulsive Systems* and she is on the editorial board of the Journal of The Franklin Institute