



McMaster University



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THE FIELDS INSTITUTE FOR RESEARCH IN MATHEMATICAL SCIENCES

COLLOQUIUM IN DYNAMICAL SYSTEMS

SPEAKER:

<p>JOHN MALLET-PARET Brown University</p>
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On the Topic:

"Solution Profiles for Differential Equations with State-Dependent Delays"

We study the asymptotic shape of solutions of equations such as

$$(*) \quad \varepsilon x(t) = -x(t) + f(x(t-r)), \quad r = r(x(t)),$$

as $\varepsilon \rightarrow 0$, where f is a given nonlinearity and $r \geq 0$ is a given delay function. The related planar map

$$(t, x) \rightarrow (t + r(f(x)), f(x))$$

is used to show how nontrivial solution profiles of (*) arise. We also prove the (perhaps) paradoxical result that solution profiles of (*) for nonconstant r are simpler than those with constant $r \equiv 1$ delay.

Wednesday, March 17, 1993

3:30 pm, room 3018

at

The Fields Institute