McMaster University | University of Toronto | University of Waterloo

THE FIELDS INSTITUTE FOR RESEARCH IN MATHEMATICAL SCIENCES

Lecture Series on

Patterns, Symmetry and Dynamics

SPEAKER:

IAN STEWART
University of Warwick

On the Topic:

Periodic Solutions of Hamiltonian Systems with Symmetry

Under suitable technical conditions, equilibria of Hamiltonian systems are surrounded by families of periodic solutions. The simple pendulum is an example. When the Hamiltonian is invariant under a group of transformations, these families possess characteristic symmetries. Thus the spherical pendulum has oscillatory motions in a vertical plane, but also 'rotating wave' motions in a horizontal plane.

The situation is closely analogous to Hopf bifurcation with symmetry; but the constraints imposed by the symplectic structure of a Hamiltonian system require careful treatment. The lecture will discuss basic examples, the main existence and stability theorems, and some applications. No previous knowledge of Hamiltonian dynamics or symplectic formalism will be assumed - but it probably will help.

Thursday, April 1, 1993

9:30 -10:30 am and 11:00 - 12:00, room 3018

at

The Fields Institute

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