ARTIFICIAL INTELLIGENCE LABORATORY

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

PHYSICS OF COMPUTATION SEMINAR

Date: Monday, August 25, 1997
Time: Talk at **2:00pm**
Refreshments after the talk
Place: NE43, 8th-floor AI Playroom

An Algebraic Approach To Discrete Mechanics

John Baez
University of California, Riverside

Using basic notions from algebraic geometry, one can extend the methods of Lagrangian and symplectic mechanics to treat a large class of discrete mechanical systems, that is, systems such as cellular automata in which time proceeds in integer steps and the configuration space is discrete. In particular, one can derive an analog of the Euler-Lagrange equation from a variational principle and prove an analog of Noether's theorem. One can also construct a symplectic structure on the analog of the phase space, and prove that it is preserved by time evolution.

Hosts: Mark Smith and Norm Margolus

This talk is part of a seminar series on adapting computers and computations to the constraints of, and opportunities afforded by, microphysics; and on the development and application of the physical theory of computation and information. If you would like to receive electronic notice of these seminars, send email to "poc@mit.edu."