ARTIFICIAL INTELLIGENCE LABORATORY

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

PHYSICS OF COMPUTATION SEMINAR

Date: Tuesday, November 14, 1995
Time: Talk at **2:00pm**
Refreshments after the talk
Place: NE43, 8th-floor AI Playroom

The Past and Future of Reversible Computing

Edward Fredkin

Recent work on quantum information theory and quantum computation theory, as well as recent work on low-power logic, has led to a resurgence of interest in reversible computation. Unfortunately, even though most of the basic results in reversible computation were worked out in the late 70's, many of these results have never been disseminated in any comprehensive form. This has led to some misconceptions about the supposed difficulty of building reversible computers. In this talk, I will present some of the main results of reversible logic, including a discussion of a classical mechanical model of reversible digital computation called the Billiard Ball Model. I plan to conclude with some comments on the relationship between theoretical progress in understanding the physics of computation, and theoretical progress in understanding nature.

Host: Tom Knight

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@im.lcs.mit.edu."