

The CES program and C-SAFE, in conjunction with the Physics Department, are pleased to present a colloquium lecture by:

Steven Gottlieb, Professor of Physics from Indiana University

Thursday, 12 January 2006

101 JFB

3:30 refreshments

4:00 lecture

Lattice QCD Comes of Age



The 2004 Nobel Prize in Physics was awarded to David Gross, David Politzer and Frank Wilczek for the discovery that QCD is asymptotically free. This property enables us to use perturbation theory to study the theory in the high energy regime. However, many of the interesting properties of quarks and QCD, like confinement and flavor mixing, require a nonperturbative understanding of QCD.

In 1975, Ken Wilson established a nonperturbative approach to QCD using a space-time grid or lattice. We shall consider recent advances in the formulation of lattice QCD and in computer power that have allowed significant advances. Some recent calculations and their implications will be described along with expectations for future progress.

