

Joint CQSE and CASTS Seminar

Weekly Seminar
Oct. 18, 2013 (Friday)

TIME Oct. 18, 14:30 ~ 15:30
TITLE Shadow Hamiltonians and Symplectic Integrators
SPEAKER Prof. Anthony Kennedy
University of Edinburgh, UK
PLACE Rm716, CCMS & New Physics Building, NTU

Abstract

Symmetric Symplectic Integrators are needed for Hybrid Monte Carlo computations in Lattice Quantum Field Theory. We shall explore some of the unexpected and useful properties of such integrators, such why such approximate integrators exactly conserve a Shadow Hamiltonian, and explain how these properties can be used to optimize the algorithmic parameters automatically. We shall also show how the extension of these results to complicated systems such as gauge fields and fermions is an elegant application of differential geometry.

