

# The Oliver Club

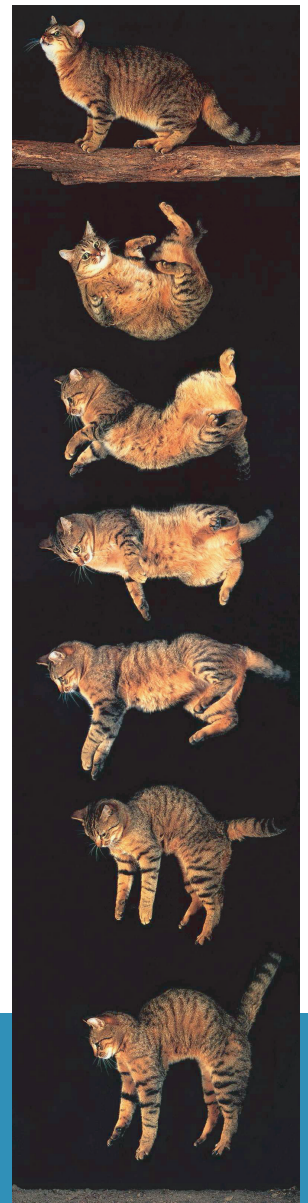
[www.math.cornell.edu/~oliver/](http://www.math.cornell.edu/~oliver/)

**Melvin Leok**, University of California at San Diego

## ***Computational Geometric Mechanics***

*Symmetry, and the study of invariant and equivariant objects, is a deep and unifying principle underlying a variety of mathematical fields. In particular, geometric mechanics is characterized by the application of symmetry and differential geometric techniques to Lagrangian and Hamiltonian mechanics, and geometric integration is concerned with the construction of numerical methods with geometric invariant and equivariant properties.*

*Computational geometric mechanics blends these fields, and uses a self-consistent discretization of geometry and mechanics to systematically construct geometric structure-preserving numerical schemes. In this talk, we will introduce a systematic method of constructing geometric integrators using ideas from geometric mechanics, and discuss generalizations that allow one to systematically model complex hierarchical systems, flows on Lie groups, and field theories.*



**Thursday, February 2, 2012**  
**at 4:00 PM in 532 Malott Hall**

Refreshments will be served at 3:30 PM in the Mathematics Department lounge (532 Malott Hall).