The Fifth Annual **Structured Integrators Workshop**
California Institute of Technology Control and Dynamical Systems
Thursday, May 7, 2009 Schedule

Morning—Room 214 Steele

08:45-09:00   Welcome and Announcements, Jerry Marsden

09:00-09:40   Mike Holst, Mathematics, UC San Diego
Intrinsic discretization and convergence of adaptive methods for geometric PDE

09:40-10:20   Eric Darve, Mechanical Engineering, Stanford
Long time scale predictions in protein modeling using stochastic and generalized Fokker–Planck equations

10:20-10:40   Break

10:40-11:20   Paul Newton, Aerospace and Mech. Eng. & Center for Applied Math. Sciences, USC
Assembly of particle equilibria on a sphere

11:20-12:00   Ari Stern, Mathematics, UC San Diego
Variational implicit-explicit integration of highly oscillatory problems

Lunch Period—Room 214 Steele

12:00-12:30   2 minute oral poster pitches
12:30-02:00   Poster Viewing and Lunch

Afternoon—Room 214 Steele

02:00-02:40   Robert Haber, ME, University of Illinois:
Spacetime discontinuous Galerkin methods for elastodynamics: energy and variational approaches.

02:40-03:20   Houman Owhadi, ACM, Caltech
Discrete geometric structures in homogenization

03:20-03:40   Break

03:40-04:20   Matt West, Mechanical Engineering, UIUC
Model Reduction and Optimal Prediction for High Dimensional Stochastic Systems

04:20-05:00   Mathieu Desbrun, CS, Caltech
Discrete Fluids: Variational integrators and discrete Kelvin

05:00-05:15   Wrap up discussions for the day

The Fifth Annual **Structured Integrators Workshop**

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Friday May 8, 2009 Schedule

Morning I—Room 102 Steele

08:45-09:00   Welcome and Announcements, Jerry Marsden

09:00-09:40   Michael Ortiz, Aero and ME, Caltech
Energy Stepping schemes in Lagrangian Mechanics
(work with Marcial Gonzalez and Bernd Schmidt)

09:40-10:20   Todd Murphey, ME, Northwestern
Tree based representations of variational integrators

10:20-10:40   Break

Morning II—Room 214 Steele

10:40-11:20   Adrian Lew, ME Stanford
Time-integrators based on discontinuous Hamiltonians with applications to solid dynamics

11:20-12:00   Melvin Leok, Mathematics, Purdue and UCSD
Discrete Dirac Structures and Dirac Mechanics

Lunch Period—Room 214 Steele

12:00-12:30   2 minute oral poster pitches
12:30-02:00   Poster Viewing and Lunch

Afternoon—Room 214 Steele

02:00-02:40   Sina Ober-Blöbaum, CDS, Caltech
Variational Integrators for Electrical Circuits

02:40-03:20   Marin Kobilarov, CDS, Caltech
Discrete geometric motion control of robotic systems

03:20-03:40   Break

03:40-04:20   Nawaf Bou-Rabee, Courant Institute, NYU
Metropolized Integrators for Stochastic Differential Equations

04:20-05:00   Matthew Dixon, CS, UC Davis
Moser–Veselov integrators for a geometrically exact rod model

05:00-05:15   Wrap up discussions for the day