



INSTITUTE FOR PURE AND APPLIED MATHEMATICS
Los Angeles, California

SCIENTIFIC APPLICATIONS IN SURGICAL SIMULATION OF SOFT TISSUES

• **January 7-11, 2008**

ORGANIZING COMMITTEE: JOSEPH TERAN, CHAIR (UCLA, MATHEMATICS), SILVIA SALINAS-BLEMKER (UNIVERSITY OF VIRGINIA, MECHANICAL AND AEROSPACE ENGINEERING), COURT CUTTING (NYU SCHOOL OF MEDICINE, DEPARTMENT OF PLASTIC SURGERY), DWIGHT MEGLAN (SimQuest LLC)

Scientific Overview

Surgical simulation of soft tissues is an increasingly viable tool for predicting surgical outcomes and in training medics and residents. Simulated procedures include laproscopic surgery, craniofacial reconstruction, z-plasty, breast reduction, gastrointestinal surgery and reconfiguration of musculoskeletal geometry. In these and many other scenarios, a subject specific simulation environment in which procedures can be practiced is of immeasurable value for training as well as for actual research and development of surgical techniques. Several technological and algorithmic problems currently limit the applicability of surgical simulation. The solutions to these problems require collaboration between mathematicians, computer scientists, engineers and clinicians. In this workshop, we will be investigating the most promising directions for algorithm design, use of architectures, surgical simulation interface design and procedures that lend themselves to simulation by encouraging interdisciplinary cooperation between medicine, engineering, applied math and computer science.

Confirmed Speakers

Mark Abel (University of Virginia), **Court Cutting** (NYU), **Suvranu De** (RPI), **Benjamin Fregly** (University of Florida), **Gene Grossi** (NYU), **Matthias Harders** (ETH Zurich), **Julien Lenoir** (LIFL), **Ming Lin** (University of North Carolina), **Dwight Meglan** (SimQuest, LLC), **Kevin Montgomery** (Stanford), **Aaron Oliker** (CyberFiber, Inc.), **Stan Osher** (UCLA), **Mark Ottensmeyer** (The Sim Group), **Dinesh Pai** (University of British Columbia), **Joe Rosen** (Dartmouth University), **Markus Schill** (VRMagic), **Thomas Sangild Sorensen** (CAVI), **Rick Satava** (University of Washington), **Eftychios Sifakis** (Stanford University), **Mandayam Srinivasan** (MIT), **Joseph Teran** (UCLA), **Demetri Terzopoulos** (UCLA), **Matthias Teschner** (University of Freiburg)

Participation

Additional information about this workshop including links to register and to apply for funding, can be found on the webpage listed below. Encouraging the careers of women and minority mathematicians and scientists is an important component of IPAM's mission, and we welcome their applications.

• www.ipam.ucla.edu/programs/vs2008



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