



Snow Business

SCIENTIFIC COMPUTING IN THE MOVIES AND BEYOND

Joseph Teran, University of
California, Los Angeles

Institute for Mathematics
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Applications of scientific computing for solid and fluid mechanics problems include simulation of virtual materials in visual effects for movies and virtual surgery. Both demand physically realistic dynamics for materials like water, smoke, fire, and soft tissues, with each requiring new algorithms. Teran will speak about the simulation techniques required in these fields and share some recent results, including: simulated surgical repair of biomechanical soft tissues; extreme deformation of elastic objects with contact; high resolution incompressible flow; and clothing and hair dynamics. He will also discuss a new algorithm used for simulating the dynamics of snow in Disney's animated feature film *Frozen*.

Tuesday, December 5, 2017 / 7:00 p.m.

Coffman Memorial Union Theater - 300 Washington Ave. SE
East Bank, University of Minnesota, Minneapolis

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Joseph Teran is a professor of applied mathematics at the University of California, Los Angeles. His research is focused on numerical methods for partial differential equations arising in classical physics, which includes computational solids, computational fluids, multi-material interactions, fracture dynamics, and computational biomechanics. Teran has received a 2011 Presidential Early Career Award for Scientists and Engineers (PECASE) and a 2010 Young Investigator award from the Office of Naval Research. In 2008, Discover Magazine named him one of the 50 “Best Brains in Science.”

For more information: 612-624-6066 • www.ima.umn.edu

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