

HKBU 60th Anniversary
Shun Hing Distinguished Lecture Series
香港浸會大學60周年校慶
信興傑出學人講座

Physically Based Simulation for Film and Entertainment

Distinguished Lecture

4:30-5:30 p.m. | February 16, 2016 | Tuesday

RRS 905, Sir Run Run Shaw Building
Ho Sin Hang Campus

Physically based simulations have become an essential tool for a variety of special effects in movie production and computer animation. Unlike conventional computational science, where simulation is conceived as a tool to replace experiments, the algorithms we develop for computer animation focus onto visual plausibility, robustness and art direct ability. The underlying governing equations are well understood in continuum mechanics and include linear or non-linear elasticity, plasticity and the Navier-Stokes equations. The numerical methods we employ encompass state of the art Eulerian or SPH type solvers for fluids, or discontinuous Galerkin FEM for elasticity. I will present various algorithms to achieve high visual fidelity at low computational cost by either synthesizing details into the computation or by combining high resolution geometry with low resolution simulations. I will also demonstrate how we compromise the laws of physics to achieve controllability of the simulation by the artist.



Prof. Markus Gross
Department of Computer Science, ETH Zurich
Vice President Research and Development
The Walt Disney Company

Markus Gross is a Professor of Computer Science at the Swiss Federal Institute of Technology Zürich (ETH), Head of the Computer Graphics Laboratory, and the Director of Disney Research, Zürich. He joined the ETH Computer Science faculty in 1994. His research interests include physically based modeling, computer animation, immersive displays, and video technology. Before joining Disney, Gross was director of the Institute of Computational Sciences at ETH. He received a master of science in electrical and computer engineering and a PhD in computer graphics and image analysis, both from Saarland University in Germany in 1986 and 1989. Gross serves on the boards of numerous international research institutes, societies, and governmental organizations. He received the Technical Achievement Award from EUROGRAPHICS in 2010, the Swiss ICT Champions Award in 2011 and the IEEE Visualization Technical Achievement Award in 2015. He is a fellow of the ACM and of the EUROGRAPHICS Association and a member of the German Academy of Sciences Leopoldina as well as the Berlin-Brandenburg Academy of Sciences and Humanities. In 2013 he received a Technical Achievement Award from the Academy of Motion Picture Arts and Sciences, the Konrad Zuse Medal of GI and the Karl Heinz Beckurts prize.



ENQUIRY

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