

# Forum "Math-for-Industry" 2011 TSUNAMI - Mathematical Modelling

Using Mathematics for Natural Disaster Prediction, Recovery and Provision for the Future

Venue: East-West Center, University of Hawai'i

Date: October 24-28, 2011

## Keynote Address

**Jonathan HOSKING** (IBM T.J. Watson Research Center, USA)

Towards Statistical Modeling of Tsunami Occurrence with Regional Frequency Analysis

**Marcelo KOBAYASHI** (Mechanical Engineering, University of Hawai'i at Manoa, USA)

On the Modeling of Debris Impact on Structures on Tsunami Events

**Kristin LAUTER** (Microsoft Research, USA)

Cloud Computing: Hedging against Disaster

**George PAPANICOLAOU** (Mathematics Department, Stanford University, USA)

Stochastic Aspects of Modeling Shallow Water Waves over Random Topographies with Application to Tsunamis

**Jos STAM** (Autodesk Research, CANADA)

Nucleus: A Unified Dynamics Solver

## Organizing Committee

**Monique CHYBA** (Department of Mathematics, University of Hawai'i at Manoa)

**Yasuhide FUKUMOTO** (IMI, Kyushu University)

**Thomas HANGELBROEK** (Department of Mathematics, University of Hawai'i at Manoa)

**Kenji KAJIWARA** (IMI, Kyushu University)

**H. Ronald RIGGS** (Civil and Environmental Engineering, University of Hawai'i at Manoa)

**Osamu SAEKI** (IMI, Kyushu University)

**Tsuyoshi TAKAGI** (IMI, Kyushu University)

**Masato WAKAYAMA** (IMI, Kyushu University)



### Organized by

Kyushu University  
University of Hawai'i at Manoa

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### Contact

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## Invited Talks

**Bob ANDERSSON (CSIRO, AUSTRALIA)**

The Role of Plant Breeding in Avoiding Food Famine

**Armin BRUDERLIN (Sony Pictures Imageworks, USA)**

Digital Hair and Other Tools for Entertainment

**Qi-fu CHEN (Institute of Earthquake Science, CHINA)**

Computation Applications in Seismology

**Kwok Fai CHEUNG (Department of Ocean and Resources Engineering, University of Hawai'i at Manoa, USA)**

The Tohoku-oki Earthquake and Tsunami of March 11, 2011

**Yasuaki HIRAOKA (IMI, Kyushu University, JAPAN)**

Applications of Sheaf Cohomology and Exact Sequences to Network Coding

**Cheng HUA (Department of Mechanics and Engineering Science, Fudan University, CHINA)**

2-D Viscoelastic FEM Simulation on the Longmen Shan Fault Zone which Ruptured in the 2008 Wenchuan Earthquake

**Alejandro JOFRÉ (Centro de Modelamiento Matemático, Universidad de Chile, CHILE)**

Seismic Risk for Underground Mines and the Determination of the Seismic Moment Tensor: Theoretical and Numerical Results

**Masato KIMURA (IMI, Kyushu University, JAPAN)**

Continuous and Discrete Crack Propagation Models with Energy Gradient Property

**Yuji KODAMA (Department of Mathematics, Ohio State University, USA)**

Tsunami as KP-Solitons

**Jae Ryong KWEON (Department of Mathematics, POSTECH, KOREA)**

Compressible Viscous Navier-Stokes Flows over Corners and Some Numerical Examples

**Hiroki MASUDA (IMI, Kyushu University, JAPAN)**

Very Simple Estimation of a Non-Gaussian Process Model

**Geoffrey MERCER (National Centre for Epidemiology and Population Health, Australian National University, AUSTRALIA)**

The three 'R's of Disease Modelling for Disasters: Readiness, Response and Retrospection

**Kirill MOROZOV (IMI, Kyushu University, JAPAN)**

Improving Dependability Using Secret Sharing

**Junichi NAKAGAWA (Nippon Steel Corporation, JAPAN)**

Creating an Interdisciplinary Platform for Taking Aim at Technological Innovation Based on Mathematics - A Case of Soil Contamination -

**Ryuei NISHII (IMI, Kyushu University, JAPAN)**

Statistical Modeling of Hyper-Dimensional Data and Spatio-Temporal Data

**Boris PAVLOV (New Zealand Institute for Advanced Study, NEW ZEALAND)**

A Solvable Model for Boundary Stress on Tectonic Plates Under Dissipative Boundary Conditions

**Jane SEXTON (Geoscience Australia, AUSTRALIA)**

Tsunami Modelling: Making Mathematics Relevant to Emergency Managers

**Kunio SHIMIZU (Department of Mathematics, Faculty of Science and Technology, Keio University, JAPAN)**

Distributions on the Disc and Annulus with Fit to Earthquake Magnitude Data

**Atsushi TERO (IMI, Kyushu University, JAPAN)**

Transport Network Which is Robust for Disaster but Inexpensive Learned by Organism

**Kim Chuan TOH (Department of Mathematics, National University of Singapore, SINGAPORE)**

Solving Log-Determinant Optimization Problems by a Newton-CG Primal Proximal Point Algorithm

**Masahiro WATANABE (Fujitsu Ltd., JAPAN)**

Tsunami Simulation on 3D Geographical Data and Realistic Visualization Techniques

**George WILKENS (Department of Mathematics, University of Hawai'i at Manoa, USA)**

Geometric Methods in the Control of Mechanical Systems

**Sangwoon YUN (School of Computational Sciences, KIAS, KOREA)**

Linearized Alternating Minimization Method for a New Multiplicative Denoising Model

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