

COE Lecture Note Series

Volume No. : 32

Title : Forum "Math-for-Industry" 2011

"TSUNAMI - Mathematical Modelling"

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

Editors : Institute of Mathematics for Industry, Kyushu University

Written In : English

ISSN : 1881-4042

Published In : 2011年9月30日

Contents:

October 24, 2011

Hydroelastic impact models for water-borne debris · · · · · 1
Marcelo KOBAYASHI (University of Hawai'i)

2-D viscoelastic modeling and simulation on the Longmen Shan Fault zone which ruptured in the 2008 Wenchuan earthquake · · · · · 4
Cheng HUA (Fudan University)

The 2011 Tohoku Earthquake and Tsunami · · · · · 7
Kwok Fai CHEUNG (University of Hawai'i)

Distributions on the Disc and annulus with fit to earthquake magnitude data · · · · · 10
Kunio SHIMIZU (Keio University)

Computation Applications in Seismology · · · · · 12
Qi-fu CHEN (Institute of Earthquake Science (CEA))

Tsunami as KP-solitons · · · · · 13
Yuji KODAMA (Ohio State University)

October 25, 2011

Nucleus: A Unified Dynamics Solver · · · · · 16
Jos STAM (Autodesk Research)

| | |
|--|----|
| Tsunami modelling: making mathematics relevant to emergency managers | 19 |
| Jane SEXTON (Geoscience Australia) | |
| Continuous and discrete crack propagation models with energy gradient property | 25 |
| Masato KIMURA (IMI, Kyushu University) | |
| Mathematical Modelling in the Science and Technology of Food Security | 27 |
| Bob ANDERSSEN (CSIRO, Australia) | |
| Creating an Interdisciplinary Platform for Taking Aim at Mathematical Innovation -A Case of Soil Contamination - | 30 |
| Junichi NAKAGAWA (Nippon Steel Corporation) | |

October 26, 2011

| | |
|--|----|
| Cloud Computing: Hedging against Disaster | 33 |
| Kristin LAUTER (Microsoft Research) | |
| Improving Dependability Using Secret Sharing | 35 |
| Kirill MOROZOV (IMI, Kyushu University) | |
| Transport network which is robust for disaster but inexpensive learned by organism | 37 |
| Atsushi TERO(IMI, Kyushu University) | |
| Solving log-determinant optimization problems by a Newton-CG primal proximal point algorithm | 38 |
| Kim Chuan TOH (National University of Singapore) | |

| | |
|--|----|
| Seismic risk for underground mines and the determination of the seismic moment tensor: theoretical and numerical results | 39 |
| Alejandro JOFRÉ (CMM, Universidad de Chile) | |

October 27, 2011

| | |
|---|----|
| Towards Statistical Modeling of Tsunami Occurrence with Regional Frequency Analysis | 41 |
| Jonathan HOSKING (IBM T. J. Watson Research Center) | |
| Linearized Alternating Minimization Method for a New Multiplicative Denoising Model | 44 |
| Sangwoon YUN (KIAS) | |

