



Workshop at Leibniz Supercomputing Centre

## HPC for Natural Hazard Assessment and Disaster Mitigation

Garching, June 28–30, 2017

### Wed, June 28, Special Session on Xeon Phi (13.00–18.00)

- 13.00–13.30 Luigi Iapichino (IPCC@LRZ):  
*Performance Optimization of Smoothed Particle Hydrodynamics and Experiences on Many-Core Architectures*
- 13.30–14.00 Michael Bader, Carsten Uphoff (Technical University of Munich):  
*Extreme-scale Multi-physics Simulation of the 2004 Sumatra Earthquake*
- 14.00–14.30 Vit Vondrak, Branislav Jansik (IT4Innovations Supercomputing Centre):  
*Development of Intel Xeon Phi Accelerated Algorithms and Applications at IT4I*
- 14.30–15.00 Michael Klemm (Intel)  
*Application Show Cases on Intel Xeon Phi Processors*
- 15.30–16.00 Jan Eitzinger (RRZE):  
*Evaluation of Intel Xeon Phi “Knights Landing”: Initial impressions and benchmarking results*
- 16.00–16.30 Piotr Korcyl (University of Regensburg):  
*Lattice Quantum Chromodynamics on the MIC architectures*
- 16.30–17.00 Nils Moschüring (Max-Planck-Institut für Plasmaphysik)  
*The experience of the HLST on Europe’s biggest KNL cluster*
- 17.00–17.30 Andreas Marek (Max Planck Computing and Data Facility)  
*Porting the ELPA library to the KNL architecture*
- 17.30–18.00 Discussion, wrap-up

The special session on Intel Xeon Phi is collocated with the PRACE PATC Course *Intel MIC Programming Workshop*.

## Informal Dinner on Wednesday

19.00 in Gasthof Neuwirt, Garching (<http://gasthof-neuwirt.org/>)

Please understand that lunch and dinner(s) have to be at your own expenses (unless stated otherwise), as there is no registration fee for the workshop.

## Workshop: HPC for Natural Hazard Assessment and Disaster Mitigation

### Thu, June 29 (9.15–12.00)

- 9.15–9.25 *Welcome address and overview on the workshop*
- 9.25–10.00 Thomas Rummeler (University of Augsburg):  
*Role of surface and subsurface lateral water flows on summer precipitation in a complex terrain region: A WRF-Hydro case-study for Southern Germany*
- 10.00–10.35 Jens Weismüller (Leibniz Supercomputing Centre):  
*Advancing the Understanding of Natural Hazards with High-Level IT Services*
- 10.35–11.05 *Coffee Break*
- 11.05–11.40 Christoph Ertl, Nevena Perovic, Bobby Ginting, Ralf-Peter Mundani (Technical University of Munich):  
*Efficient Load-Balancing Strategies for HPC Flood Simulations*
- 11.40–12.15 Florian Willkofer (Ludwig-Maximilians-University Munich):  
*From RCM to catchment management – a HPC based hydro-meteorological model chain to assess impacts of climate change on extreme events*

### Lunch Break (12.15–14.00)

12.15–14.00 more details t.b.a.

## Thu, June 29 (14.00–17.00)

- 14.00–14.35 Jorge Leandro (Technical University of Munich):  
*t.b.a.*
- 14.35–15.10 Leonhard Rannabauer (Technical University of Munich):  
*Tsunami simulation with sam(oa)<sup>2</sup>*
- 15.10–15.40 *Coffee Break*
- 15.40–16.15 Michael Bader (Technical University of Munich):  
*ExaHyPE – Towards an Exascale Hyperbolic PDE Engine*
- 16:15–16.30 Wrap-up, discussion
- 16:30–17.30 Guided tour to SuperMUC (on demand)

## Recommendation for Thursday Evening: GARNIX 2017

- from 18.00 GARNIX is TUM's student-organized Open Air festival: <https://www.garnix-festival.de/>  
(located on Garching campus)

## **Fri, June 30 (9.00–12.15)**

- 9.00–9.15      *Welcome address*
- 9.15–9.50      Marco Stupazzini (MunichRe):  
*Physics-Based Earthquake Ground Shaking Scenarios in Large Urban Areas*
- 9.50–10.25    Elizabeth Madden (Ludwig-Maximilians-University Munich):  
*Coupled Models of the 2004 Sumatra Earthquake and Indian Ocean Tsunami*
- 10.25–11.00   *Coffee Break*
- 11.00–11.35   Milan Lazecky (IT4Innovations Supercomputing Centre):  
*Satellite radar interferometry system for monitoring of dangerous terrain motion*
- 11.35–12.10   Roger Smith, Gerard Kilroy (Ludwig-Maximilians-University Munich):  
*t.b.a.*

## **Bavarian Brotzeit**

- 12.15–13.00   *Get-together with Leberkäs & Brez'n*