


Scientific Event – November 2019, 21 & 22
Laboratoire de Mécanique et d'Acoustique - Marseille



From Seismology  to Medical Imaging



Dimitri Komatitsch's scientific journey



8:45 **Welcome**

9:00 **Introduction talks** (Dominique Eyheramendy (Director of LMA) and the organizing committee)

Session 1 - Applied maths, Computing science...

Chairman: Vadim Monteiller (LMA)

9:10 – 10:00 IPGP Old friends « **Everything has started at IPGP... »**

10:00 – 10:40 H el ene Barucq (*INRIA MAGIQUE3D Pau, France*) « **Advanced modeling for 3D problems in geophysics »**
Daniel Peter (*KAUST, Saudi Arabia*) « **Seismic wave propagation simulations on HPC architectures »**

10:40 – 11:10 Coffee break

11:10 – 12:30 Julien Diaz (*INRIA MAGIQUE3D Pau, France*) « **Local time-stepping methods and SEM/DG coupling for elastic-acoustic problems »**

Jean-Fran ois M ehaut (*LIG Grenoble, France*) « **BOAST: A metaprogramming framework to produce portable and efficient computing kernels for HPC applications »**

Roland Martin (*GET Toulouse, France*) « **Optimized boundary conditions for seismics and data inversion using potential methods »**

Dominik G oddeke (*IANS, Univ. Stuttgart, Germany*) « **Global seismic wave propagation on GPU and ARM clusters »**

12:30 – 13:45 Lunch break

Session 2 - Seismology

Chairman: Roland Martin (GET)

13:45 – 14:35 Jeroen Tromp (*Princeton Univ., USA*) « **Dimitri Komatitsch : Computational Visionary »**

14:35 – 15:55 Emmanuel Chaljub (*ISTerre Grenoble, France*) « **Numerical prediction of Earthquake ground motions : state-of-knowledge and perspectives »**

Jean-Paul Ampuero (*G eoAzur Nice, France*) « **The dynamics of very large earthquakes »**

Tarje Nissen-Meyer (*Oxford Univ., UK*) « **Dimitri's inspirations and legacy for axisymmetric wave propagation methods »**

Yann Capdeville (*LGP Nantes, France*) « **Point sources, Spectral Elements and homogenization »**

15:55 – 16:25 Coffee break

16:25 – 17:25 Emanuele Casarotti (*INGV Roma, Italy*) « **IMAGINE_IT, imaging of the Italian Litosphere based on adjoint tomography** »

Sébastien Chevrot (*GET Toulouse, France*) « **Hybrid numerical methods for the modeling and inversion of short period teleseismic waves** »

Vadim Monteiller (*LMA Marseille, France*) « **Full-waveform inversion based on spectral-element method** »

Friday, November 22

Session 3 – Engineering Sciences

Chairwoman : Hélène Barucq (MAGIQUE 3D)

9:30 – 10:30 Paul Cristini (*LMA Marseille, France*) « **Dimitri and the Ocean : the not-so-silent world** »

Nathalie Favretto-Cristini (*LMA Marseille, France*) « **Seismic surveying and imaging at laboratory scale: a framework to cross-validate experiments and simulations** »

Eric Rosenkrantz (*IES Univ. Montpellier, France*) « **A flexible numerical approach for non-destructive ultrasonic testing based on a time-domain spectral-element method: applications with SpecFem** »

10:30 – 11:00 Coffee break

11:00 – 12:00 Masaru Nagaso (*LMA Marseille, France*) « **4D simulation of acoustic wave propagation in liquid sodium with a realistic temperature field** »

Ting Yu (*EDF Paris, France*) « **Developments in numerical and experimental methods for Non-Destructive Evaluation of concrete with Dimitri** »

Simon Bernard (*LOMC Univ. Le Havre, France*) « **Adjoint Tomography and Full-Waveform Inversion : from Earth sciences to medical imaging ?** »

12:00 – 13:15 Lunch break

13:15 – 15:15 Round table : « **Next challenges for numerical simulations in the Waves world** »

15:15 End of the Scientific Event