

Future and Emerging Mathematical Technologies in Europe

Monday 11 December 2017

- 09:30 - 10:00 Arrival and Coffee
10:00 - 10:15 Welcome by Lorentz Center
10:15 - 10:30 Welcome by Organizers
10:30 - 11:30 **Dietmar Hömberg** TBA
- 11:30 - 12:00 **Carlos Pares** (Bilbao, Spain)
HySEA: a numerical tool for simulating geophysical flows.
- 12:00 - 12:30 **Ozan Öktem** (KTH, Stockholm) TBA
- 12:30 - 14:00 Lunch
- 14:00 – 14:30 **José Ferreira**, (Coimbra, Portugal)
Mathematical models in cardiovascular clinic
- 14:30 - 15:00 **Svetozar Margenov** (BAS, Bulgaria)
From Sparse SPD Problems to Nonlocal Fractional Diffusion
- 15:00 - 15:30 Coffee and tea break
15:30 - 17:30 **EU-MATHS-IN meeting**
17:30 - Wine and cheese party

Tuesday 12 December 2017

- 09:30 - 10:30 **Gianluigi Rozza** (Trieste, Italy)
Reduced Order Methods: state of the art and perspectives with focus on parametric offline-online Computational Fluid Dynamics
- 10:30 - 11:00 Coffee and tea break
- 11:00 - 11:30 **Antonino Sgalambro**:
On the Impact of Mathematical Optimization in Logistics and Supply Chain Management
- 11:30 - 12:00 **Peregrina Quintela** (Santiago de Compostela, Spain)
Numerical Simulation of some Thermo-Hydrodynamic Problems arising in a Blast Furnace Runner
- 12:00 - 14:00 Lunch
- 14:00 - 14:30 **Ronny Ramlau** (Linz, Austria) TBA
14:30 –15:00 **Zdenek Strakos** (Prague, CZ)
Approximation of the reflection coefficients in elipsometry using Krylov subspace methods

- 15:00 - 15:30 Coffee and tea break
- 15:30 - 16:00 **Barry Koren** (Eindhoven, The Netherlands)
Computational Science and Uncertainty Quantification for Energy Applications
- 16:00 - 16:30 **Stephen O'Brien** (Limerick, Ireland)
Modelling of some industrial mathematics problems.
- 16:30 - 17:30 Informal discussions

Wednesday 13 December 2017

- 09:30 - 11:00 Presentation of the **Vision paper**, followed by group discussion
(Dirk Hartman, Wil Schilders, Volker Mehrmann)
- 11:00 - 11:30 Coffee and tea break
- 11:30 - 12:00 **Masato Wakayama** (Kyushu, JP)
Activities on mathematics for industry in Japan and Asia-Pacific region
- 12:00 - 12:30 **Diederik Fokkema** (EY, Amsterdam)
- 12:30 - 14:00 Lunch (**different location**: Gorlaeus building)

Public event Challenges and Opportunities (different location!)

14:00- 15:45 Lectures

Dirk Hartmann (Siemens, Germany):

The changing role of simulation: from mathematics to digital twins

Cor van Kruijsdijk (Shell, Amsterdam)

TBA

Patrice Hauret (Michelin, France):

Mathematical modeling, simulation and optimization at the tyre company Michelin

Jose Francisco Rodriguez Calo (Repsol, Spain):

Mathematical modeling, simulation and optimization at an integrated energy company

15:45 - 16:00 Coffee and tea break

16:00 - 16:15 **Wil Schilders** (TUE/EU-MATHS-IN)
*Towards a European technology platform for
Modeling, Simulation, and Optimization (MSO)*

16:15 - 17:15 Panel discussion 'Challenges and Opportunities for MSO in Europe'

Panelists: Diederick Fokkema (EY), Dirk Hartmann (Siemens), Cor van Kruijsdijk (Shell), Jose Francisco Rodriguez Calo (Repsol), Kees Vuik (TUD), Wil Schilders (TUE& EU-MATHS-IN), Volker Mehrmann (TU Berlin & EU-MATHS-IN)

17:15 - 18:15 Closing & drinks

18:15 - Departure to Workshop dinner

Thursday 14 December 2017

MSO4SC session

- 09:30 - 10:30 **Zoltán Horváth** (Szeged, Hungary): MSO4SC
10:30 - 11:00 Coffee and tea break
11:00 - 11:30 **Atgeirr Rasmussen** (SINTEF): OPM Flow
11:30 - 12:00 **Guillaume Dollé** (Starsbourg, FR): Free+
- 12:00 - 14:00 Lunch
14:00 - 14:30 **Constantin Popa** (Constanta, Romania)
RoCAMI - achievements in modelling and numerical solution of PDE's as well as image reconstruction from projections in Computerized Tomography
14:30 - 15:30 **Elena Celledoni** (Trondheim, Norway)
Shape analysis on Lie groups and homogeneous manifolds
- 15:30 - 16:00 Coffee and tea break
16:00 - 16:30 **Karl Meerbergen** (Leuven BE): TBA
16:30 - 18:00 Discussion of the Vision Paper

Friday 15 December 2017

- 09:30 - 10:30 **Christophe Prud'homme** : TBA
10:30 - 11:00 Coffee and tea break
11:00 - 11:30 **Janusz Szwabinski** (Wrocław, Poland)
Opinion dynamics within social communities - insights from simple agent-based models
- 11:30 - 12:00 **William Lee** (University of Huddersfield, UK)
UK Best Practice in Knowledge Exchange in the Mathematical Sciences.
- 12:00 - 12:30 Closing
12:30 - 13:30 Lunch
13:30 - Small group discussion Vision paper