

# KTH Computational Science and Engineering Centre

invites to the

## KCSE Science Day on Numerical Analysis: The Core of e-Science November 15, 2013, 09.30-16.00

### http://agenda.albanova.se/conferenceDisplay.py?confId=4062

Internationally known experts will present their views on history, current status and future of modern numerical methods and its applications in natural and engineering sciences. An integral part of this event will be presentations by KCSE students, which are related to usage of high performance computing in their PhD studies.

The participation is open to everyone.

#### **Keynote Speakers:**

- *Laurette Tuckerman*, Ecole supérieure de physique et de chimie industrielles (ESPCI), Paris: *Bifurcation analysis for timesteppers*
- *Bertil Gustafsson*, Uppsala University: *Scientific Computing from a historical perspective*

Welcome! (no registration necessary)

Philipp Schlatter, Chairman of Science Day (Mechanics) Michael Hanke, Director KCSE (Numerical Analysis) Erwin Laure (PDC) Zilvinas Rinkevicius, Director of Studies (Theoretical Chemistry) Håkan Hugosson (Material Science) Anatoly Belonoshko (Theoretical Physics)

Conference venue: Lecture hall K1, Teknikringen 56



### Program

- 09.30 Welcome (*Philipp Schlatter, Michael Hanke*)
- 09.40 A patient specific finite element model for high performance computer simulation of blood flow in the left ventricle of the human heart (*Jeannette Spühler*)
- 10.00 A numerical investigation of the cell sorting based on the deformability (*Lailai Zhu*)
- 10.20 Coffee
- 10.40 Fast simulation of particle suspensions using double layer boundary integrals and spectral Ewald summation (*Ludvig af Klinteberg*)
- 11.00 **Keynote**: Bifurcation analysis for timesteppers (*Laurette Tuckerman*)
- 12.00 Lunch
- 13.30 Multiscale modeling in Neuroscience: numerical challenges in multiscale simulation framework development (*Ekaterina Brocke*)
- 13.50 **Keynote**: Scientific Computing from a historical perspective (*Bertil Gustafsson*)
- 14.50 Coffee
- 15.10 Inclusion of many-body methods in density functional theory (*Andreas Östlin*)
- 15.30 Density functional theory studies of graphene based humidity sensing (*Karim Elgammal*)
- 15.50 Conclusions (*Philipp Schlatter, Michael Hanke*)

