

Scientific Computing

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CBC Workshop 7. - 14. June 2007

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A new Norwegian Center of Excellence, called "Center for Biomedical Computing", is in the process of starting up at the Simula Research Laboratory in Oslo. The Center will organize a workshop on modeling and computation of biomedical processes in the period June 7-14 with the purpose of bringing together collaborators of the center and international scientists working with topics of relevance for the center.

Invited Speakers

Invited speakers include:

- Mr. Christer Ahlström - Linköping University
- Dr. Øyvind Andreassen - Norwegian Defence Research Establishment (FFI)
- Prof. Per Ask - Linköping University
- Prof. Scott Baden - University of California, San Diego
- Prof. Torill Berg - University of Oslo
- Dr. Bindi Brook - University of Nottingham
- Dr. Simone Deparis - École Polytechnique Fédérale De Lausanne
- Mr. Novak Elliott - University of Warwick
- Prof. William K. George - Chalmers University of Technology, Gothenburg
- Dr. Nils-Erik Hörlin - KTH, Stockholm
- Prof. Tor Ingebrigtsen - (Regional Health Authorities of North Norway and University of Tromsø)
- Mr. Trygve K. Karper - University of Oslo
- Prof. Robert C. Kirby - Texas Tech University
- Dr. Matthew Knepley - Argonne National Laboratory
- Senior Scientist Trond Kvamsdal - SINTEF, Norway
- Prof. Mats G. Larson - Umeå University
- Prof. Andrew McCulloch - University of California, San Diego
- Dr. Mikael Mortensen - Norwegian Defence Research Establishment (FFI)
- Dr. Hari Radhakrishnan - University of Cyprus, Nicosia
- Dr. Anders Pettersson Reif - Norwegian Defence Research Establishment (FFI)
- Dr. Tiina Roose - Oxford University
- Prof. Robert Schroter - Imperial College, London
- Dr. Jennifer Siggers - Imperial College, London
- Prof. Bjørn Skallerud - Norwegian University of Science and Technology (NTNU), Trondheim
- Mr. Murat Tutkun - Chalmers/FFI
- Dr. Carl Erik Wasberg - Norwegian Defence Research Establishment (FFI)
- Dr. Sarah Waters - University of Nottingham
- Dr. Robert J. Whittaker - University of Nottingham

Program

Thursday, June 7 - Building, Installing and Distributing Scientific Software

Place: "Alburommet" at Simula

12.00-12.45 Ilmar Wilbers (Simula) and Arve Knudsen (Simula): *Various Techniques for Distributing Software Consisting of Python, Fortran, C and C++*

12.45-13.00 Coffee

13.00-13.45 Åsmund Ødegård (Simula): *Challenges with Distributing the PyCC Environment*

13.45-14.30 Matthew Knepley (Argonne National Laboratory): *Experiences with the Build System for PETSc*

14.45 Discussion

Friday, June 8 - Numerical Methods for Fluid Flow

Place: "Storstua" at Simula

10.30-11.15 Mats G. Larson (Umeå Univ.): *Multiscale Modeling of Turbulent Flow*

11.15-12.00 Mats G. Larson (Umeå Univ.): *Adaptivity and Error Estimation for Multiphysics Problems*

12.00-13.15 Lunch

13.15-14.00 Trygve Karper (Univ. of Oslo): *Unified Finite Element Discretizations of Coupled Darcy-Stokes Flow*

14.00-14.45 Emil Lovgren (Simula): *Reduced Basis Modeling of Complex Flow Systems*

14.45-15.00 Coffee

15.00-15.45 Robert Kirby (Texas Tech): *From Functional Analysis to Preconditioning: Connecting Hilbert space to Matrix methods* - abstract

Dinner

Monday, June 11 - Modeling and Simulation of Biomedical Processes

Place: "Storstua" at Simula

9.00-9.15 Hans Petter Langtangen (Simula, Univ. of Oslo): *Welcome & introduction*
9.15-10.00 Torill Berg (Univ. of Oslo): *Basic Cardiovascular Physiology for Dummies*

10.00-10.15 Coffee

10.15-11.00 Andrew McCulloch (Univ. of California, San Diego): *Multi-scale Modeling of Cardiac Electromechanical Interactions*11.00-11.45 Bjørn Skallerud (NTNU): *Modeling of the Mitral Valve in the Heart*

11.45-13.00 Lunch

13.15-14.00 Malin Siklosi (Simula): *Multiscale Modeling of the Acoustic Properties of Lung Parenchyma*14.00-14.45 Robert Schroter (Imperial College): *How Do We Model Lung Tissue Behavior?*

14.45-15.00 Coffee

15.00-15.30 Tor Ingebrigtsen (Regional Health Authorities of North Norway, Univ. of Tromsø): *Medical Aspects of The Circle of Willis*15.30-16.15 Per Ask (Linköping Univ.): *Some Experience from Cardiovascular Engineering at Linköping University*

19.00: Dinner at Ekebergrestauranten

Tuesday, June 12 - Modeling and Simulation of Biomedical Processes

Place: "Storstua" at Simula

9.00-9.45 Anders Logg (Simula) and Ola Skavhaug (Simula): *Software Tools for Partial Differential Equations*

9.45-10.00 Coffee

10.00-10.45 Trond Kvamsdal (SINTEF) and Kent-Andre Mardal (Simula): *Computation of Hemodynamics in the Circle of Willis*10.45-11.30 Glenn Terje Lines (Simula): *Cardiac Computing at Simula*

11.30-13.00 Lunch

13.00-13.45 Sarah Waters (Univ. of Nottingham): *Flow and Nutrient Transport in Rotating Bioreactors*13.45-14.30 Nils-Erik Hörlin (KTH, Stockholm): *Vibro-acoustic Modeling of Porous Elastic Materials*

14.30-14.45 Coffee

14.45-15.30 Bindi Brook (Univ. of Nottingham): *An Integrative Modeling Approach for Targeting Drug Delivery to the Lungs*15.30-16.00 Novak Elliott (Univ. of Warwick): *Coughing Up a Storm: Syringomyelia and Wave Propagation In The Spinal Cord*

16.10-20.00 Trip around the Oslo fjord by boat (food included)

Wednesday, June 13 - Modeling and Simulation of Biomedical Processes

Place: "Storstua" at Simula

9.00-9.45 Jennifer Siggers (Imperial College): *A Mathematical Model of Blood Flow in Curved Arteries*

9.45-10.00 Coffee

10.00-10.45 Robert Whittaker (Univ. of Nottingham): *Fluid-Structure Interaction in Collapsible Tubes*10.45-11.30 Simone Deparis (École Polytechnique Fédérale De Lausanne): *LifeV: Application of a Finite Element Library to Hemodynamics Problems*

11.30-13.00 Lunch

13.00-13.45 Tiina Roose (Oxford Univ.): *On Multi-scale Modeling of Biological Branching Structures*13.45-14.30 Christer Ahlström (Linköping Univ.): *Processing of Heart Sound Signals*

14.30-14.45 Coffee

14.45-15.30 Scott Baden (Univ. of California, San Diego): *Overcoming Obstacles with Graph Based Programming Models* - abstract15.30-16.15 Scott Baden (Univ. of California, San Diego): *A Data Centric View of Scientific Computing* - abstract

Dinner

Thursday, June 14 -Workshop on turbulence & aerosol modeling

Place: "Storstua" at Simula

9.00-9.45 Øyvind Andreassen (FFI): *Visualization of Complex Flow Fields*

9.45-10.00 Coffee

10.00-10.45 B. Anders Pettersson Reif (FFI): *Single-Point Turbulence Modeling – Current Status and Challenges Ahead*10.45-11.30 William K. George (Chalmers): *Some Experimental Challenges of Turbulence Studies Related to Dispersion*

11.30-13.00 Lunch

13.00-13.45 Hari Radhakrishnan (University of Cyprus): *Modeling Turbulent Particle Transport in Human Airways*13.45-14.30 Mikael Mortensen (FFI): *Modeling Turbulent Sprays Including Chemical Reactions*

14.30-15.00 Coffee

15.00-15.45 Carl Erik Wasberg (FFI): *Application of a Spectral Element Method in Turbulence Simulation*
15.45 - 16.30 Murat Tutkun (Chalmers/FFI) *Markovian Properties of Passive Scalars in Turbulent Flows*

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- Practical information -

How to get to Simula:

From the airport OSL Gardermoen:

The most convenient way to go from the airport OSL Gardermoen to Simula is to use the Airport express train . The closest train stop is Lysaker, and there is a train departing from Gardermoen to Lysaker every 20 minutes. The train ride from Gardermoen to Lysaker takes 35 minutes and costs NOK 160 (approx. 20 EUR) and you can buy your ticket at the train station.

From *Lysaker train station* , switch to bus 31 towards "Snarøya" or "Fornebu". The bus stop is on your right hand side at the station exit. You can buy a ticket on the bus. There is a bus departing from Lysaker at least every 10 minutes. Take the bus to "IT Fornebu" bus station (approximately 6 minutes) . From the bus stop at "IT Fornebu", you will be able to see the *"IT Fornebu" building* . The entrance is on the other side (the sea side) of the grey and blue colored terminal building. You will find Simula on the fourth floor. (You may use either the entrance at *Martin Linges vei 25* or *17*).

From the city center:

To go from Oslo City center to Simula, take bus 31 towards "Snarøya" or "Fornebu". Bus 31 stops at several places in central Oslo; "Kirkeristen", "Kongens gate" and "Nationaltheateret". Take the bus to "IT Fornebu" bus station (approximately 30 minutes, the ticket you buy from the bus driver should cost 33,- NOK) . From the bus stop at "IT Fornebu", you will be able to see the *"IT Fornebu" building* . The entrance is on the other side (the sea side) of the grey and blue colored terminal building. You will find Simula on the fourth floor. (You may use either the entrance at *Martin Linges vei 25* or *17*).

General information about all public transport in and around Oslo can be found at [Trafikanten](#) .

Our visiting address:

Center for Biomedical Computing
Simula Research Laboratory
Martin Linges vei 17
1367 Snarøya
NORWAY

Phone: +47 67 82 82 00
email: post@simula.no

A more detailed description together with a map can be found at:
www.simula.no/about/contact/coordinates

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- Social activities -

Monday 11/6 at 19:00 there will be a three course dinner at Ekebergrestauranten . A sign up list will be sent around before lunch on Monday, alternatively you can sign up for the dinner by sending an email to martinal@simula.no. Transport from Simula will be arranged for those who wish to stay here. For the rest of you, the address is Kongsveien 15, and you can take the trams 18 or 19 to the stop Sjømannsskolen (Ekebergbanen). The map below shows the path from the tram stop to the restaurant.





Tuesday 12/6 at 16:30-20:00 we will have a boat trip from Lysaker, traveling around the Oslo fjord while eating shrimps and enjoying sun and sea. A sign up list will be sent around before lunch on Monday, alternatively you can sign up for the boating trip by sending an email to martinal@simula.no. Transport from Simula will be arranged right after the last talk on Tuesday, and the boat leaves from Lysaker Brygge ([click here for angular view](#)). Our destination will be Aker Brygge in Oslo.

For the days with no fixed program, a restaurant guide can be found at spisekartet.no . Several excellent restaurants are located at Aker Brygge close to the sea.

For those of you who arrive before or in the weekend, we recommend buying the Oslo Pass for 24 hours of free access to public transports and most museums. The pass can be bought at [tourist information offices](#) .

What	
When	Jun 07, 2007 12:00 PM to Jun 14, 2007 04:30 PM
Where	Simula
Contact Name	Tom Atkinson

Contact Phone	+47 93212854
Add event to calendar	 vCal
	 iCal