

PARAMETER ESTIMATION FOR DYNAMICAL SYSTEMS

**Eindhoven, The Netherlands,
8-10 June 2009**

Systems of ordinary differential equations (ODEs) play an important role in modelling various phenomena that arise in fields as diverse as physics, biology, engineering, chemistry, meteorology, pharmacology and others. In many cases these systems are nonlinear, which means that in general no analytic solution exists and one has to rely on numerical solutions. Such systems usually depend on constants, or parameters in statistical terminology. For instance, in biomolecular applications these parameters describe interaction rates and initial concentrations of various molecules relevant to a given biomolecular process. In order to obtain a model useful in practice, it is critical to know these parameters. Since in most cases they are not known beforehand and cannot be measured directly in the lab, they have to be inferred based on measurements of various variables related to the process at hand. However, measurements in general are subject to some measurement error. It also might be the case that not all relevant variables are observed due to technical complications, high cost of experiments, and other reasons. Typically, problems are complicated further by the fact that the dimensions of both the ODE system as well as the parameter space are high, while data are relatively scarce. Hence estimation of parameters of ODE systems is a challenging problem that lies at an intersection of several theoretical and applied fields. The aim of the workshop is to provide a meeting place for researchers in the area, who will review different methods used to tackle the problem, assess the achieved progress, and identify future research directions.

Invited speakers

- Nicolas **Brunel**, L'université d'Évry, Évry
- Dave **Campbell**, Simon Fraser University, Vancouver
- Dave **Lunn**, Imperial College, London
- Kim **McAuley**, Queen's University, Kingston
- Eric **Mjolsness**, University of California, Irvine
- Jim **Ramsay**, McGill University, Montreal
- Eberhard **Voit**, Georgia Institute of Technology, Atlanta
- Victor **Zavala**, Argonne National Laboratory, Argonne

Important dates

- **May 15**, 2009 deadline for abstract submission
- **May 29**, 2009, notification for acceptance

Registration

Please register by filling in the FORM. There is no closing date for registration, but the number of places is limited. There is no registration fee.

Practical information

The workshop location is EURANDOM, Den Dolech 2, 5612 AZ Eindhoven, Laplace Building, 1st floor, LG 1.105.

EURANDOM is located on the campus of Technische Universiteit Eindhoven in the Laplace building (marked with LG on the map). The building is at 15 minutes walking distance from the Eindhoven railway station (take the northern exit and walk in the north-eastern direction until you reach a crossing at Fellenoord. The campus is located on the other side of that street). For travel information to Eindhoven, please check www.eurandom.tue.nl/contact.htm

Contact

For more information please contact Mrs. Lucienne Coolen, the workshop officer of EURANDOM, at coolen@eurandom.tue.nl

Organisers

Chris Klaassen, Universiteit van Amsterdam and EURANDOM, c.a.j.klaassen@uva.nl

Shota Gugushvili, EURANDOM, gugushvili@eurandom.tue.nl

Bart Bakker, Philips Research, bart.bakker@philips.com