ACCESS TO EPFL

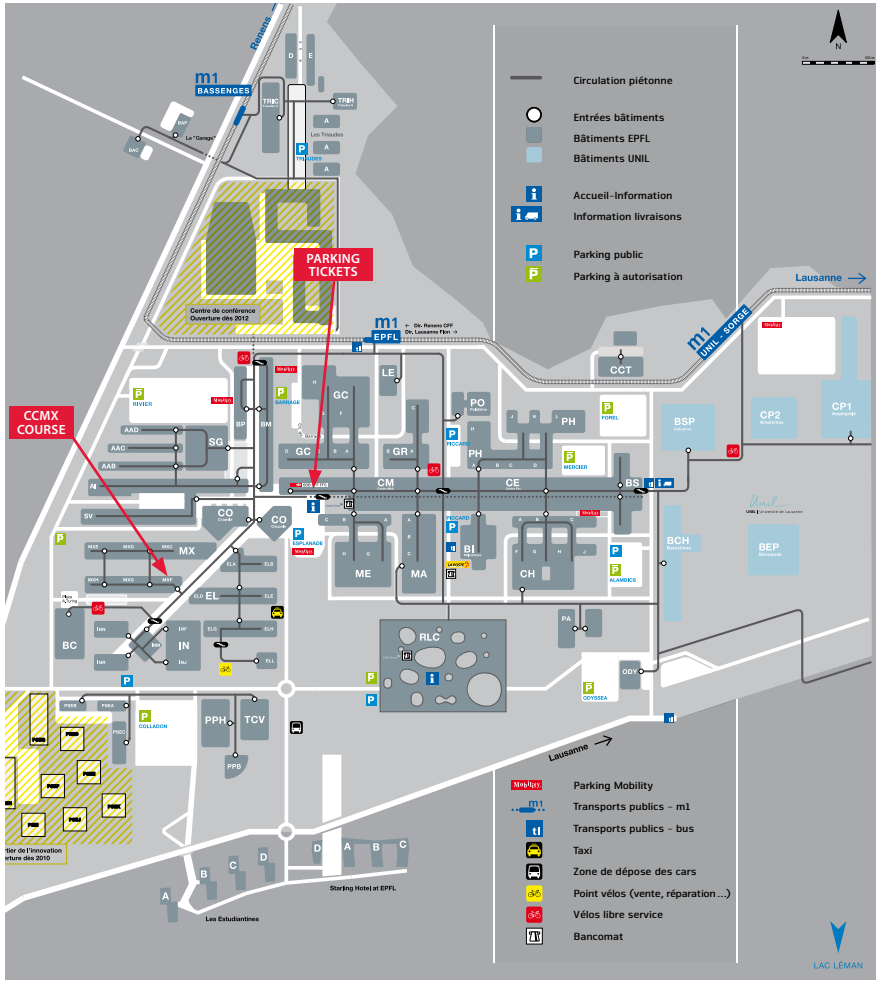
By the motorway

From Vevey or Genève, exit at Lausanne-Sud/EPFL. Parking is available on-site EPFL, one-day tickets (5 CHF) are available from the “Accueil-information” Office

By Metro m1

From Flon/Lausanne or the CFF train station in Renens, metro stop EPFL.

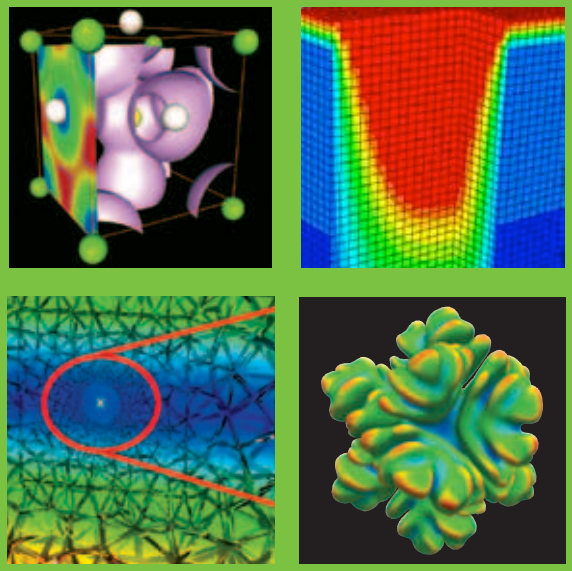
Signposting will be available on site.



CCMX
Competence Centre for
Materials Science and Technology

CCMX SUMMER SCHOOL

Multiscale Modelling of Materials



29–31 August 2012

EPFL, Lausanne

OBJECTIVES

The purpose of this course is to provide an overview of the different modelling techniques available to materials scientists and engineers, along with the basics to create such models. Each morning session will cover materials modelling fundamentals, while the afternoon presentations will demonstrate applications of these techniques to various materials problems.

TOPICS

- Ab initio modelling
- Molecular dynamics
- Atomistic modelling
- Phase field modelling
- Phase field crystal
- Monte Carlo and Cellular Automata
- Granular models
- Thermo-mechanics and residual stresses
- Multi-scale modelling of fracture
- Modelling fragmentation and continuum damage
- Multi-scale modelling of polymers flow

WHO SHOULD ATTEND?

The CCMX Summer School is open to materials scientists and engineers, from industry and academia, in particular for PhD students. This course may be validated for 1 ECTS credit in the doctoral programmes of EPFL and ETH Zurich, after acceptance by the corresponding institution. In this case, full attendance and a final examination will be requested. PhD students who give oral presentations in the afternoons will be exempted from the examination.

LOCATION

EPFL, Lausanne – Auditorium MXF1 (see map on page 8).

DEADLINES

Abstracts accepted until 30 June 2012 / **Course registration by 16 July 2012.**

CONTACT INFORMATION

Course Topics

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Registration questions

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Email: nathalie.jongen@epfl.ch
Web: www.ccmx.ch

FRIDAY, 31 AUGUST
MACRO- AND MULTI-SCALE MODELLING

8:30 Thermo-mechanics and residual stresses
J.-M. Drezet (EPFL)

9:15 Multi-scale modelling of fracture
B. Curtin (EPFL)

10:00 Coffee break

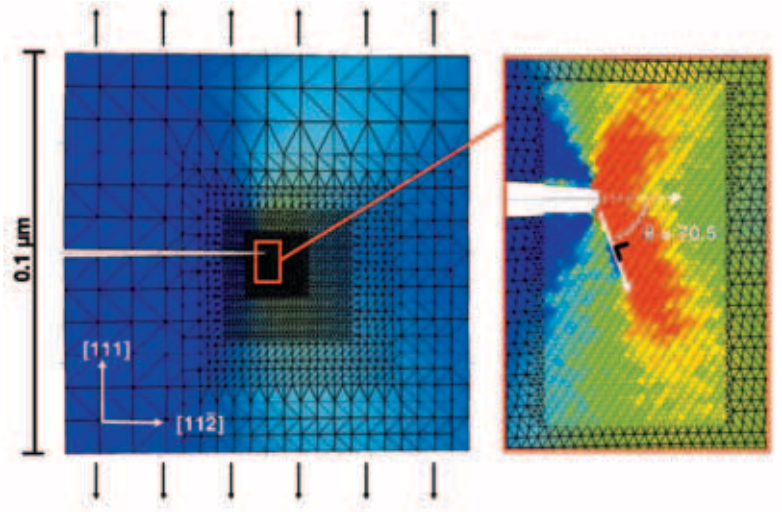
10:30 Cohesive elements for the modelling of fragmentation
M. Chambart (Stucky), J.-F. Molinari (EPFL)

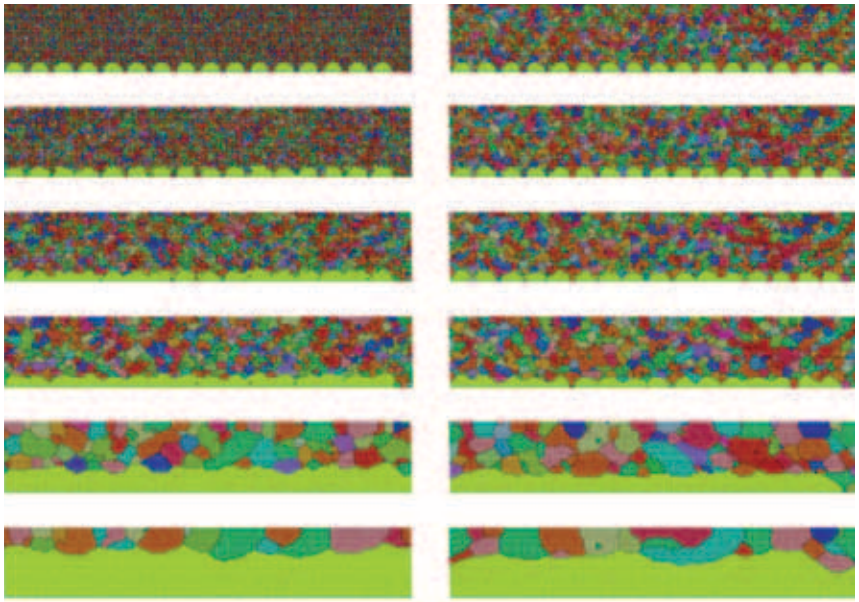
11:15 Multi-scale modeling of polymers flow
M. Laso (Uni. Madrid)

12:00 Lunch

13:30 Presentations on multi-scale modelling
Various speakers

17:00 End of third day





PARTICIPATION FEES

- 150 CHF for PhD students, CCMX industrial members and academic researchers from Swiss universities and research institutions
- 1'000 CHF for all other participants

Fee includes coffee, lunch and VAT. Travel and hotel should be reserved and paid for by the participants.

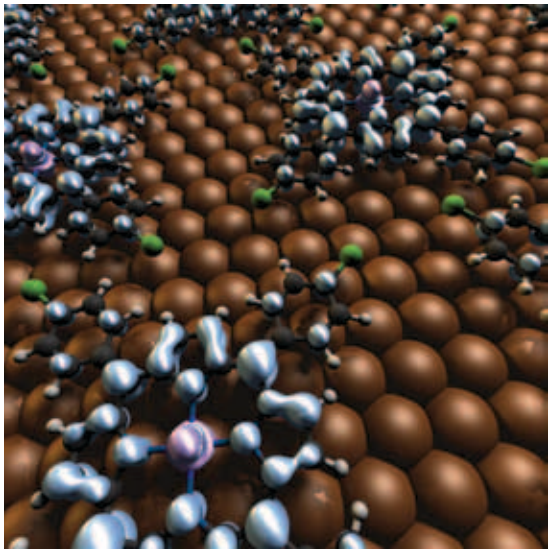
Details for cancellation conditions
www.ccmx.ch/courses-amp-events/conditions-for-participation/

KEYNOTE SPEAKERS AFFILIATIONS

University of Illinois at Urbana-Champaign (UIUC)
Centre National de la Recherche Scientifique (CNRS)
Universidad Politécnica de Madrid (Uni.Madrid)
Paul Scherrer Institut (PSI)
Institut National Polytechnique de Grenoble (INPG)
Stucky LTD Consulting company (Stucky)

WEDNESDAY, 29 AUGUST
ATOMISTIC SCALE MODELLING

9:45	Reception + coffee
10:15	General Introduction P. Di Napoli and M. Rappaz (EPFL)
10:30	Ab initio modelling N. Marzari (EPFL)
11:15	Molecular dynamics P. Derlet (PSI)
12:00	Lunch
13:30	Presentations on atomistic modelling Various speakers
17:00	End of first day



THURSDAY, 30 AUGUST
MESO-SCALE MODELLING

8:30	Phase field modelling J. Dantzig (EPFL and UIUC)
9:15	Phase field crystal M. Plapp (CNRS)
10:00	Coffee Break
10:30	Monte Carlo and Cellular Automata Ch.-A. Gandin (CNRS)
11:15	Granular models Ch. Martin (INPG and CNRS)
12:00	Lunch
13:30	Presentations on meso-scale modelling Various speakers
17:00	End of second day