



5th Marseille Winter School on Multi-Scale Porous Materials

January 23-27 2017, Derrien theater, Polytech-AMU,
Aix-Marseille University, Campus de Luminy, 13288 Marseille

Organized under the auspices of the LabEx ICoME²/CNRS/A*Midex,
M2UN-GdR-i/CNRS and Polytech-AMU

Organizers:

- Dr. Roland Pellenq (Multi-Scale Material Science for Energy and Environment, <MSE>², the joint CNRS-MIT-AMU laboratory, CEE-MIT and Centre Interdisciplinaire des Nanosciences de Marseille, CINaM, AMU-CNRS): pellenq@mit.edu
- Prof. Philippe Dumas (Polytech-AMU and Centre Interdisciplinaire des Nanosciences de Marseille, CINaM, AMU-CNRS): philippe.dumas@univ-amu.fr
- Dr. Christophe Bichara (Centre Interdisciplinaire des Nanosciences de Marseille, CINaM, AMU-CNRS): bichara@cinam.univ-mrs.fr

Lecturers:

- Prof. Alain Baronnet (Centre Interdisciplinaire des Nanosciences de Marseille, CINaM, AMU-CNRS, Marseille): baronnet@cinam.univ-mrs.fr
- Dr. Jérémie Berthonneau (UMI <MSE>², the joint CNRS-MIT laboratory, Cambridge, US): jeremieb@mit.edu
- Prof. Edo Boek, (Dep^t of Chemistry, University of Cambridge, UK): esb30@cam.ac.uk
- Prof. Emanuela Del Gado (Dep^t of Physics, Georgetown U., Washington DC, US): ed610@georgetown.edu
- Prof. Ruben Juanes (Dep^t of Civil and Environmental Engineering, MIT, Cambridge, US): juanes@mit.edu
- Dr. Pierre Levitz (PHENIX, CNRS/Université Pierre et Marie Curie, Paris, France): pierre.levitz@upmc.fr
- Prof. Virginie Marry, (PHENIX, CNRS/Université Pierre et Marie Curie, Paris, France): virginie.marry@upmc.fr
- Prof. Franz Ulm (Dep^t of Civil and Environmental Engineering, MIT and UMI <MSE>², the joint CNRS-MIT laboratory, Cambridge, US): ulm@mit.edu
- Prof. Henri Van Damme (UMI <MSE>², the joint CNRS-MIT laboratory, Cambridge, US): henrivd@mit.edu
- Dr. Timm Weitkamp (SOLEIL Synchrotron, Gif/Yvette, France) weitkamp@synchrotron-soleil.fr
- David Nevicato (Research Program Manager- CO2/CCUS , TOTAL R&D, Paris-La Défense)
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Program / Curriculum

- **Roland Pellenq**: Multi-Scale Porous Materials for Energy and Environment, setting up the stage
- **Virginie Marry**: Atomistic scale simulations of porous multiscale materials
- **Alain Baronnet**: Electron microscopy for multi-scale porous materials, methods
- **Franz Ulm**: Mechanics of multi-scale porous materials, from elasticity to fracture: modeling and experiment (I/II/III)
- **Emanuela Del Gado**: Soft Matter Physics; glass Physics, jamming transition and arrested dynamics, insights for numerical simulations (I/II)
- **Pierre Levitz**: Multi-scale Porous and colloidal materials, texture and transport properties (I/II)
- **Jérémie Berthouneau**: Electron microscopy for multi-scale porous materials, application to clays, cement, shale-gas...
- **Edo Boek**: Atomistic scale simulations of porous multiscale materials (I/II)
- **Timm Weitkamp**: Tomography with Synchrotron light and the texture of multiscale porous materials
- **Henri Van Damme**: CO₂: waste, pollutant, or resource?
- **Ruben Juanes**: Poromechanics of Carbon Capture and Sequestration

Monday Jan. 23rd:

8h30-9h00: Registration

09h00-09h15: Opening remarks, Roland Pellenq / Christophe Bichara / Philippe Dumas

09h15-10h45: Roland Pellenq, Multi-scale porous materials for energy and environment, setting up the stage

10h45-11h00: Coffee break

11h00-13h00: Franz Ulm/Roland Pellenq, Designing research projects through speed dating

13h00-14h30: Lunch (CROUS)

14h30-16h00: Virginie Marry, Statistical physics and computer simulation techniques

16h00-16h30: Coffee break

16h30-18h00: Alain Baronnet, Electron microscopy for multi-scale porous materials, methods

Tuesday Jan. 24th:

09h00-10h30: Franz Ulm, Mechanics of multi-scale porous materials, from elasticity to fracture: modeling and experiment (Part I)

10h30-11h00: Coffee break

11h00-12h30: Emanuela Del Gado, Soft Matter Physics; glass Physics, jamming transition and arrested dynamics, insights from numerical simulations (Part I)

12h30-14h00: Lunch (CROUS)

14h00-15h30: Pierre Levitz, Multi-scale porous and colloidal materials, texture and transport properties (Part I)

15h30-16h00: Coffee break

16h00-17h30: Jérémie Berthonneau, Electron microscopy for multi-scale porous materials, application to clays, cement, shale-gas

Wednesday Jan. 25th:

09h00-10h30: Franz Ulm, Mechanics of multi-scale porous materials, from elasticity to fracture: modeling and experiment (Part II)

10h30-11h00: Coffee break

11h00-12h30: Edo Boek, Statistical physics and computer simulation techniques over time and length scales (Part I)

12h30-14h00: Lunch (CROUS)

14h00-15h30: Emanuela Del Gado, Soft Matter physics; glass physics, jamming transition and arrested dynamics, the relevance to multi-scale materials insights from numerical simulations (Part II)

15h30-16h00: Coffee break

16h00-17h30: Timm Weitkamp, Tomography with Synchrotron light and the texture of multiscale porous materials

Thursday Jan. 26th:

09h00-10h30: Franz Ulm, Mechanics of multi-scale porous materials, from elasticity to fracture: modeling and experiment (Part III)

10h30-11h00: Coffee break

11h00-12h30: Pierre Levitz, Multi-scale porous and colloidal materials, texture and transport properties (Part II)

12h30-14h00: Lunch (CROUS)

14h00-15h30: Edo Boek, Statistical physics and computer simulation techniques over time and length scales (Part II)

15h30-16h00: Coffee break

16h00-17h00: Transfer by bus to the Jardins du Pharo, Aix-Marseille University headquarter, 58 boulevard Charles Livon, 13284 Marseille, Cedex 7

17h00-19h00: Public conferences:

Ruben Juanes (MIT): Carbon Capture and Sequestration

David Nevicato (Total): CCS technology in the Total Climate Strategy

19h00-20h30: Cocktail reception

Friday Jan. 27th:

09h00-10h30: Ruben Juanes, Carbon Capture and Sequestration (Part II)

10h30-11h00: Coffee break

11h00-12h30: Henri Van Damme, CO₂: waste, pollutant, or resource?

12h30-12h45: Closing Remarks, Roland Pellenq / Christophe Bichara / Philippe Dumas

12h45-14h00: Lunch (CROUS)

Useful tips

How to get to Luminy campus from Marseille old harbor area (Vieux Port) using Marseille public transportation system (RTM, a 40 min trip, [see map](#), ticket can be purchased from automatic machines or front desk):

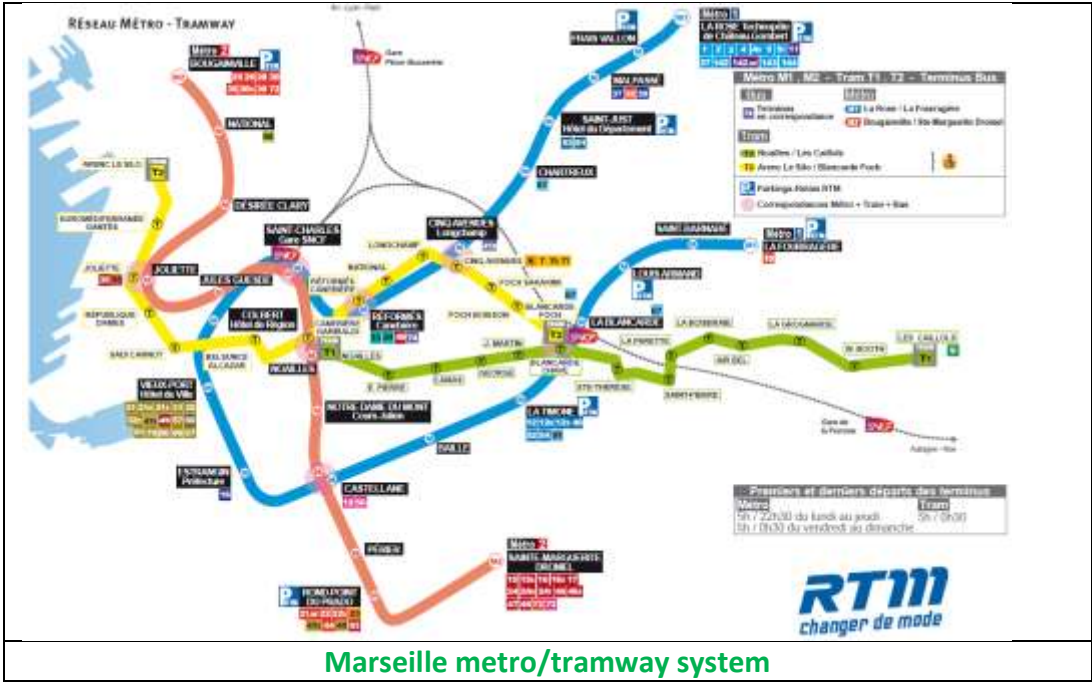
- Go to metro station “Noailles (orange line/ Line #2)”
- Get on train, direction Bougainville/St Marguerite-Dromel
- Get off at Stade Vélodrome/Rond Point du Prado
- Get on bus #21 or Jet-bus
- Luminy is the final stop (campus entrance is straight ahead, go through the gates and straight on, ESIL Polytech School will be on your left after the immense “Faculté des Sciences” building, [see map](#))
- Follow the signs to Derrien theater

Or

- Go to metro station “Noailles (orange line/ Line #2)”
- Get on train, direction Bougainville/St Marguerite-Dromel
- Get off at Bougainville/St Marguerite-Dromel (last stop)
- Get on bus #24
- Luminy is the final stop (you’ll see campus entrance on your right, go through the gates and straight on, ESIL Polytech School will be on your left after the immense “Faculté des Sciences” building, [see map](#))
- Follow the signs to Derrien theater

Contact: +33 6 62 92 28 33 (R. Pellenq's cell phone)





Marseille metro/tramway system



Luminy Campus, Aix-Marseille University