



7th Marseille Winter School on Multi-Scale Porous Materials

January 21-25 2019, Derrien theater, Polytech-AMU,
Aix-Marseille University, Campus de Luminy, 13288 Marseille

Organized under the auspices of the 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): pellenq@mit.edu
- Prof. Philippe Dumas (Polytech-AMU and Centre Interdisciplinaire des Nanosciences de Marseille, CINaM, AMU-CNRS): philippe.dumas@univ-amu.fr, dumas@cinam.univ-mrs.fr
- Dr. Christophe Bichara (Centre Interdisciplinaire des Nanosciences de Marseille, CINaM, AMU-CNRS): bichara@cinam.univ-mrs.fr

Lecturers (institution/contact info):

- 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. Emanuela Del Gado (Dpt of Physics, Georgetown U., Washington DC, US): ed610@georgetown.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 (Dpt 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
- Prof. Edo Boek, (Dept. of Chemistry, University of Cambridge, UK): esb30@cam.ac.uk
- Dr. Marc Barthelemy, (Theoretical Physics, CEA-Saclay): marc.barthelemy@cea.fr
- Prof. Konstantin Sobolev (dpt of Civil Engineering, University of Wisconsin at Milwaukee): sobolev@uwm.edu

Program / Curriculum

- **Henri Van Damme:** Multiscale porous materials science for food, water and health: Setting-up the scene
- **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 (Parts I/II/III)
- **Emanuela Del Gado:** Soft Matter Physics; glass Physics, jamming transition and arrested dynamics, insights for numerical simulations (Parts I/II)
- **J r mie Berthonneau:** Electron microscopy for multi-scale porous materials, application to clays, cement, shale-gas...
- **Timm Weitekamp:** Tomography with Synchrotron light and the texture of multiscale porous materials
- **Pierre Levitz:** Multi-scale Porous and colloidal materials, texture and transport properties (Parts I/II)
- **Virginie Marry:** Atomistic scale simulations of porous multiscale materials (Parts I/II)
- **Edo Boek:** Meso-scale simulations of porous multiscale materials (Parts I/II)
- **Marc Barthelemy:** Statistical Physics applied to Urban problems
- **Konstantin Sobolev:** Nanotechnology in construction materials

Monday Jan. 21st:

8h30-9h00: Registration

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

09h15-10h45: Henri Van Damme, 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: Emanuela Del Gado, Soft Matter Physics; glass Physics, jamming transition and arrested dynamics, insights from numerical simulations (Part I)

16h00-16h30: Coffee break

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

Tuesday Jan. 22nd:

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

12h30-14h00: Lunch (CROUS)

14h00-15h30: Virginie Marry, Statistical physics and computer simulation techniques at the nanoscale (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. 23rd:

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 at the mesoscale (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. 24th:

09h00-10h30: Pierre Levitz, Multi-scale porous and colloidal materials, texture and transport properties (Part II)

10h30-11h00: Coffee break

11h00-12h30: Virginie Marry, Statistical physics and computer simulation techniques at the nanoscale (Part II)

12h30-14h00: Lunch (CROUS)

14h00-15h30: Edo Boek, Statistical physics and computer simulation techniques at the mesoscale (Part II)

15h30-16h00: Coffee break

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

17h00-18h30: Marc Barthelemy and Franz Ulm: Urban Physics...

18h30-20h00: Cocktail reception

Friday Jan. 25th:

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: Konstantin Sobolev, Nanotechnology in construction materials

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):

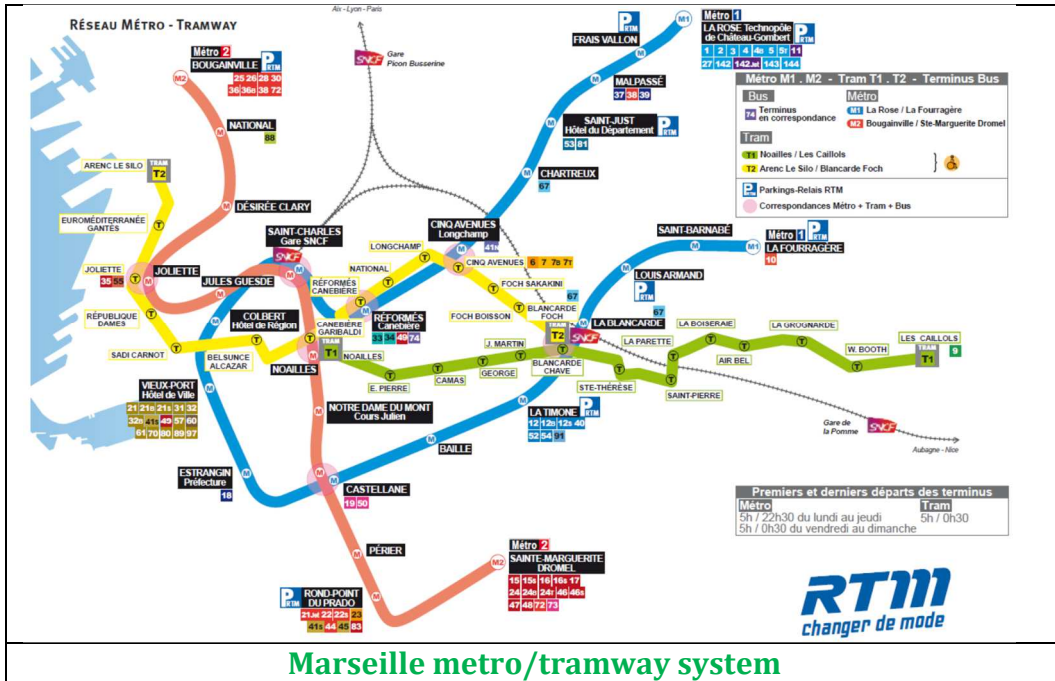
- Go to metro station “Noailles (orange line/ Line #2)”
- Get on train, direction Bougainville/St Marguerite-Dromel
- Get off at Stade Vélodrome/Rond Point du Prado
- Get on bus B1 or 21 JET
- “Campus de Luminy” is the final stop (Polytech School will be on your left, [see map](#))
- Follow the signs to Derrien theater (building C)

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
- “Campus de Luminy” is the final stop (Polytech School will be on your left, [see map](#))
- Follow the signs to Derrien theater (building C)

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





Marseille metro/tramway system



Luminy Campus, Aix-Marseille University