

Master of Science Degree in Civil Engineering

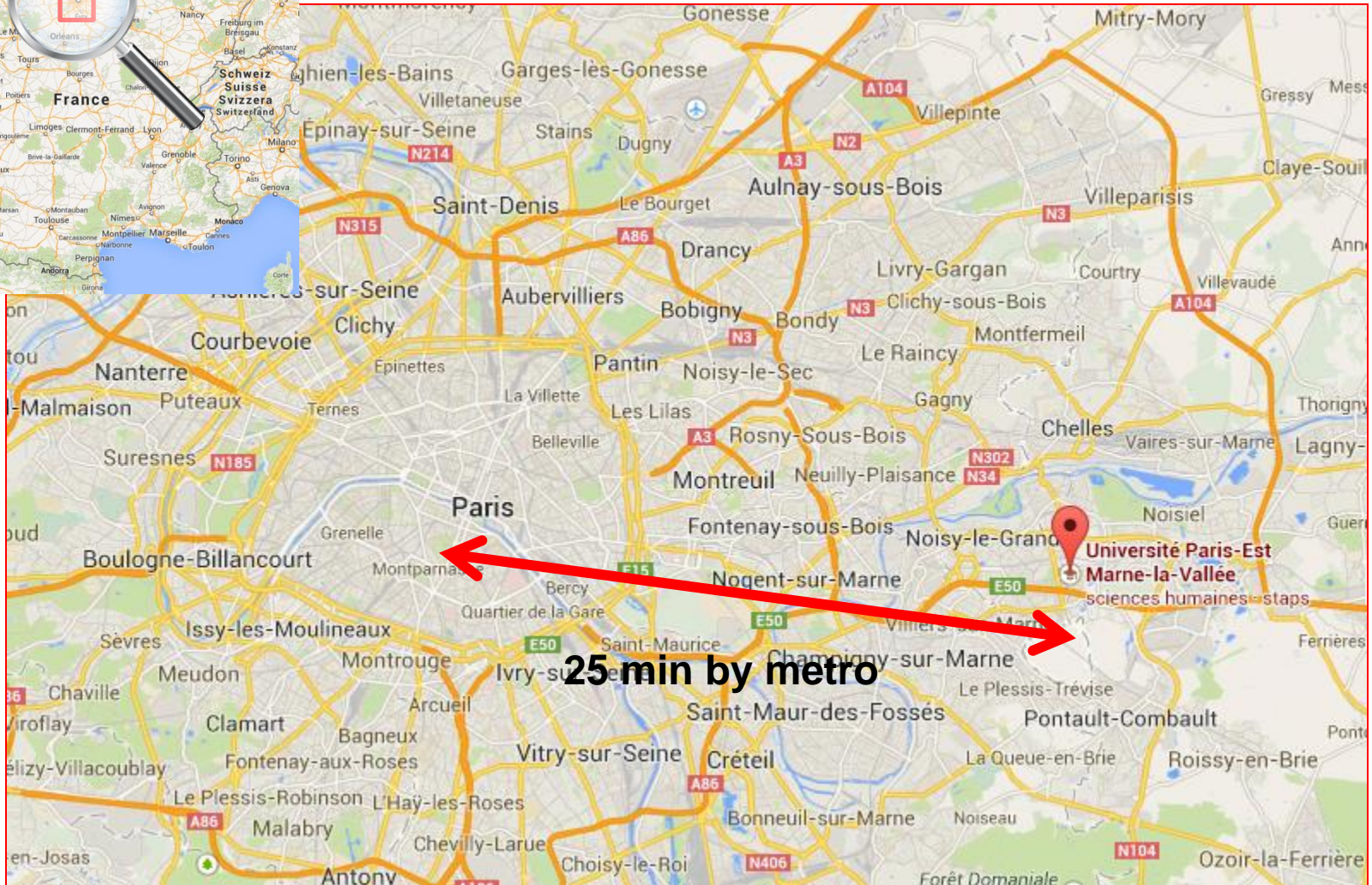
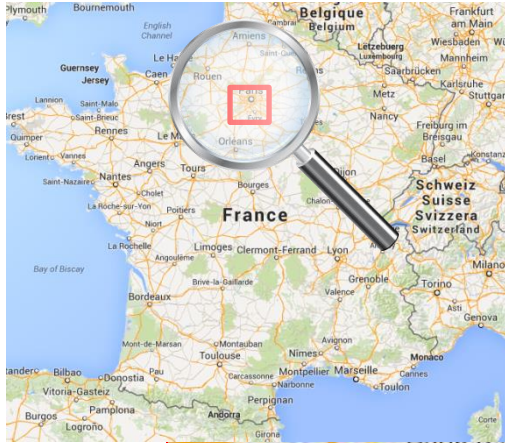
**Speciality: Mechanics of Materials and Structures for
Civil Engineering and Transportation Systems**



Picture of Descartes campus



Université Paris-Est



5 km

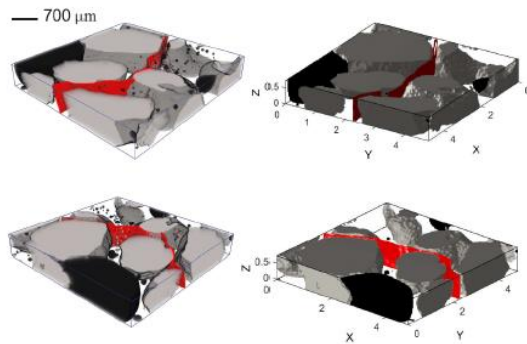
Université Paris-Est

Descartes campus

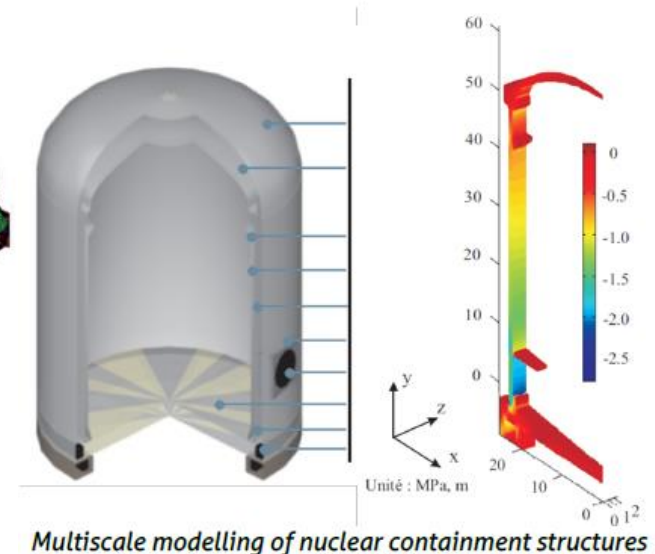
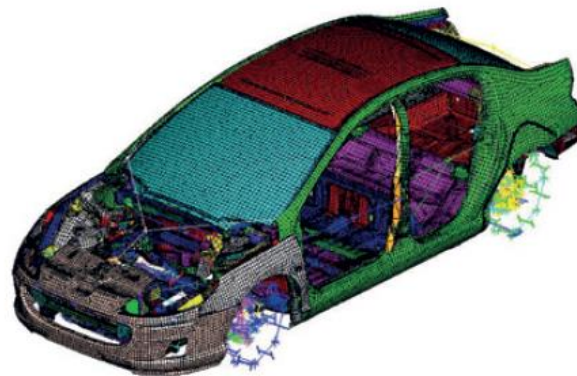


Overview and key features of the Master program

- **1-year program (Master M2)** offered at UPEM – **Université Paris-Est Marne-la-Vallée**
- Aims at providing the students with **deep scientific and technical knowledge about the multiscale modelling**, over a broad range of scales, of complex materials and structures.
- Mixture between advanced aspects of **theoretical modelling** and practical use and/or implementation of state-of-the-art **computational approaches**,
- Typical covered applications are the multiscale and multiphysical modelling of highly heterogeneous linear and non-linear microstructures (**concrete, polymer-based materials**, simulation of damage evolution in random media)



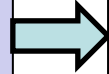
Crack propagation simulation in concrete materials



Multiscale modelling of nuclear containment structures

Description

Semester 1 (October-February)
Theoretical courses



Semester 2 (From March 1st, 4 to 6 months): **research project** at MSME lab, in another lab in France, or in a company

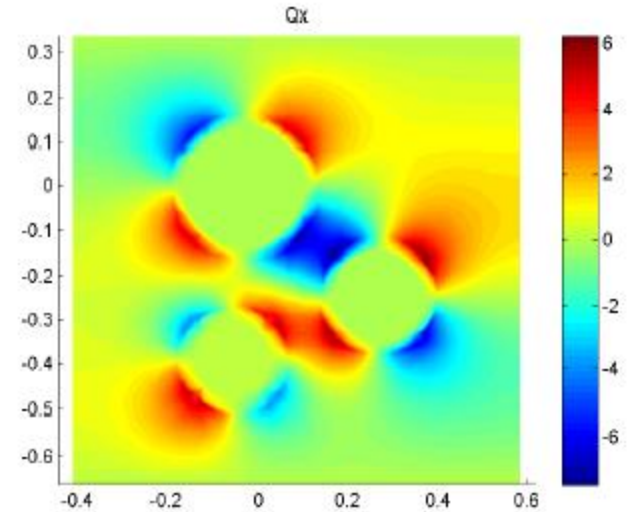
- **All courses are taught and evaluated in English.**

Core courses:

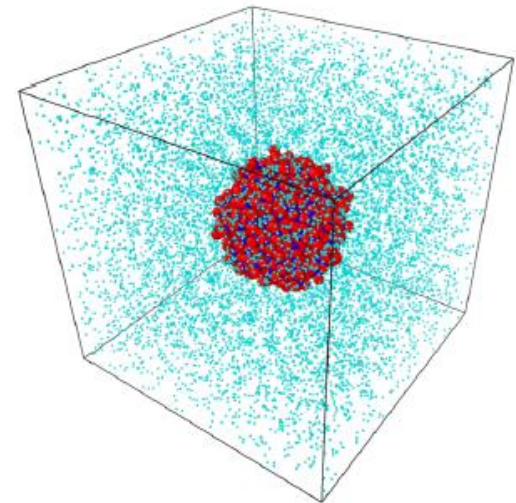
- Numerical methods and **finite element** analysis for multiphysics and non-linear problems.
- **Damage mechanics.**
- Finite elasticity.
- **Homogenization** in continuum mechanics.
- **Probabilistic modelling of uncertainties** in mechanics.
- **English for scientific communication.**

Additional courses :

- Mechanical modelling of manufacturing processes and thermal coupling.
- **Dynamics and wave propagation** in complex structures.
- Interface problems.
- Computational homogenization of heterogeneous materials.
- **Reliability analysis of mechanical systems.**
- Stochastic modelling and computational analysis for random media.



*FE simulation of heat flux in a periodic microstructure
(extracted from a student's technical report)*



*Atomistic modelling of an amorphous polymer reinforced
by a nanoscopic filler*

Procedure for admission

Step 1 : electronic file submission (deadline: January 15)

- CV
- Marks
- 1 recommendation letter from a professor or a program coordinator



Step 2: interviews by visio conference (February-March)

FRENCH Classes : Interviews
in French*

English Classes : Interviews in
English



Selection of the candidates by a Committee



Decision given to the candidates (a few days after auditions)



Step 3: registration through the website of UPEM (May)

*** Note that even though the interviews are in French for the French classes, all courses will be provided in English unless there are only French-speaking students in the room**

Entrance requirements and admission

- International applications to the Master program are accepted from persons who have **completed** (or will have completed upon arrival) a **Master's degree** (or equivalent, like an **engineering diploma**) in a foreign country.
- Candidates who have **completed** (or are about to complete) a **first year in a Master's program**, or are currently enrolled in a PhD program and are seeking for complementary skills, are also encouraged to apply
- Applicants from **other related branches of science and engineering** (such as applied **mathematics, material science or physics**) may also gain entry
- **About 15-20 students accepted each year**
- **Fees: 300 €/year (after admission)**
- **The training period (4-6 months from March is funded (salary of 400 €/month)**
- **Continuation in PhD: salary of 1400 €/month minimum at Univ. Paris-Est (request funding)**

Vietnamian students candidates for PhD at Univ. Paris-Est, MSME Lab. Since 2008 (ESCT et Nat. Univ. Civil Eng. Hanoi)

PhDs completed since 2008:

DO Quoc Viet (2011)
DO Thanh Trung (2011)
HOANG Duc Hieu (2011)
HOANG Minh Tan (2012)
LE Ba Anh (2013)
LE Huy Toan (2011)
LE Quoc Viet (2008)
NGUYEN Manh-Tu (2013)
NGUYEN Minh Tuan (2010)
NGUYEN Quoc Bao (2009)
NGUYEN The Duong (2009)
NGUYEN Trung Kien (2010)
PHAN Tuan Linh (2009)
THAI Minh Quan (2012)
TRAN Anh Binh (2011)
LE Thi Thu Huong (2011)
PHAN Minh Tuyen (2012)

TRAN Thu Huong (2013)
HOANG Minh Tuan (2014)
DANG Thang Tran (2015)
TO Viet Thanh (2015)
TRAN Anh Tuan (2015)

Ongoing PhDs:

HOANG Trung Hieu
LE Thinh Tien
LUU Hoang Tuan
NGUYEN Dinh Hai
NGUYEN Thanh Tung
TRAN Vinh Phuc
TRINH Van Hai

Contacts

Applications: send electronic files (by January 15) to:

Mr Johann GUILLEMINOT (Graduate officer) :
johann.guillemintot@u-pem.fr

Contacts and information:

Mrs. Cécile AMPHIARUS (Secretariat) :
Cecile.Amphiarus@univ-mlv.fr

Mr. Julien YVONNET (Master coordinator) :
julien.yvonnet@univ-paris-est.fr