



With the support of the  
Erasmus+ programme  
of the European Union

# MaMaSELF+

## MASTER IN MATERIALS SCIENCE

For Energy applications using Large Scale Facilities



MASTER OF EXCELLENCE

STUDY IN EUROPE  
AT HIGHLY RANKED UNIVERSITIES

FRANCE - GERMANY - ITALY - POLAND



UNIVERSITÉ  
DE MONTPELLIER

UNIVERSITÉ DE  
RENNES 1



UNIVERSITÀ  
DEGLI STUDI  
DI TORINO

## WHY STUDY MATERIALS SCIENCE ?



Strategic development of industrialized countries, including Energy considerations, requires the design of new materials with increasing complexity and performance specifications. Designing, processing and controlling such smart materials is a multidisciplinary field that requires highly qualified experts, capable of understanding, characterizing, processing and engineering these materials.

### BECOME SKILLED SCIENTISTS

The main objective of the Mamaself Master Course is to form skilled scientists & engineers in Materials science, offering a training program with the most advanced experimental techniques for the characterization of high-tech materials. During the Master, students will benefit and be part of the intense international collaboration among High level Universities, Large Scale Facilities and Industry in the framework of the Mamaself program. The two-year MaMaSELF Master's Course covers 120 ECTS credit points. Students obtain a double or multiple diploma from renowned universities in Europe.

### MAMASELF KEYFACTS

- **150** SCHOLARSHIPS FOR STUDENTS
- **6** EUROPEAN UNIVERSITIES
- **11** ASSOCIATED PARTNERS
- **100%** LECTURES IN ENGLISH
- **4th** ERASMUS MUNDUS LABEL OF EXCELLENCE
- **2 TO 3** DIPLOMA HANDED TO EACH STUDENT
- **6 TO 8** MONTHS INTERNSHIP
- **95%** OF THE STUDENTS FIND A POSITION  
WITHIN THE 3 MONTHS FOLLOWING GRADUATION
- **46** COUNTRIES REPRESENTED



## UNIVERSITY OF RENNES 1

UNIVERSITY OF MONTPELLIER

## GERMANY

TU MUNICH

LMU

## ITALY

UNIVERSITY OF TURIN

## POLAND

ADAM MICKIEWICZ UNIVERSITY

2D WAXS profiles of PS-b-PEO, PS-b-PEO with  $[I]/[EO] = 0.1$  and BCP/[I] = 0.1 system with ionic liquid [I][EO] of 0.04, 0.1, 0.2, 0.3. Solid black lines are in-plane scattering peaks of PEO and PEO/LiClO<sub>4</sub> crystals.

a) bare PS-b-PEO, b)  $[I]/[EO] = 0.04$ , c)  $[I]/[EO] = 0.1$ , d)  $[I]/[EO] = 0.1$  and BCP/[I] = 0.1

log intensity (a.u.)

q (nm<sup>-1</sup>)

0.20 wt% BCP/[I]  
0.10 wt% BCP/[I]  
0.05 wt% BCP/[I]  
0.025 wt% BCP/[I]  
0.0125 wt% BCP/[I]  
pure PEO

With new scattering peaks of crystalline PEO complexed with ionic liquid [I][EO] = 0.04, 0.1, 0.2, 0.3. At an ionic liquid [I][EO] = 0.3 the PEO d-spacing is 1.7 nm.





Erasmus  
Mundus



## ERASMUS MUNDUS PROGRAM

The Master Mamaself course has been built in the framework of the Erasmus Mundus European program of excellence. The European Erasmus Mundus program stands for the promotion of the European Union as a centre of excellence in the field of higher education. It strongly supports high quality Master courses to enhance visibility and attractiveness of European higher education all around the world. Master Mamaself benefits from the support of EACEA and of the Erasmus Mundus label of excellence since 2007.

[https://eacea.ec.europa.eu/erasmusplus/library/scholarships-catalogue\\_en](https://eacea.ec.europa.eu/erasmusplus/library/scholarships-catalogue_en)

## SCHOLARSHIPS

For each academic year the consortium selects a limited number of Non-EU and EU students, who will receive a grant up to

- 43.000 € for 2 years for Non-EU students (*Partner countries students*)
- 37.000 € for 2 years for EU students (*Program countries students*)

Selected students can participate in the Master's course without EM grant or apply for other grants (for more information see website). Pay attention to the deadline for Mamaself scholarship applications !

## TUITION FEES

- NON-EU students (*Partner countries students*): 6000 €/year.
- EU students (*Program countries*): 3000 €/year
- Health and liability insurance, accommodation insurance, language courses, integration week, summer-school... are included in the tuition fees.



## LANGUAGE POLICY

### ALL LECTURES IN ENGLISH

- Instruction language is English for all lectures and any other communication.
- We offer level-adapted language courses of about 40 hours in French, German, Italian and Polish language at the respective consortium sites.



The Mamasef Consortium includes 6 primary European Universities in the field of Materials sciences, Physics, Chemistry. These renowned universities are situated in culturally rich cities in Europe. They stand for global knowledge, exchange, shaping the future with talent, excellence and responsibility.

## STUDY AT PRESTIGIOUS UNIVERSITIES IN EUROPE



### FRANCE

#### UNIVERSITY OF RENNES 1

University of Rennes 1, coordinating institution of the program, hosts 30000 students and covers most of the scientific disciplines, 17 of them appear in the top 500 world universities, chemistry and physics being 201-300 in the AWRU Shanghai ranking. Rennes is among the top French universities, internationally recognised in terms of its attractiveness, the quality of training and student life, as well as professional integration. Coordinator : Pr Phlippe RABILLER



#### UNIVERSITY OF MONTPELLIER

Established in the 12 century, the University of Montpellier is a multidisciplinary university with and a particular focus on sciences and technological research, renowned and internationally well ranked in particular in chemistry and physics. Montpellier is ideally located in the South of France. Coordinator : Pr Werner PAULUS



### MUNICH, GERMANY

#### LUDWIG MAXIMILIANS UNIVERSITÄT

In the "World University Ranking 2021" LMU is once again rated as the best university in Germany. As one of Europe's leading research universities, LMU sets out to inspire students with enthusiasm for science and scholarship, and the critical thinking they demand. Coordinator : Pr Wolfgang SCHMAHL



#### TECHNISCHE UNIVERSITÄT MUNICH

TUM is ranked as one of the best universities in Europe. As a leading entrepreneurial university, inspires and develops talents in all their diversity to become responsible, broad-minded individuals and empower them to shape the progress of innovation, with the highest scientific standards and technological expertise. Coordonator : Pr Peter MÜLLER BUSCHBAUM



### ITALY

#### UNIVERSITY OF TURIN

University of Turin is ranked among the first 15 Italian universities and among the best 500 universities worldwide. The MaMaSELF program in Turin is hosted within the Chemistry Department, in a dynamic environment enriched by internationally recognized excellences in the field of materials science, catalysis and environmental chemistry, as proven by two recently awarded ERC grants. Coordinator: Pr Silvia BORDIGA



### POLAND

#### ADAM MICKIEWICZ UNIVERSITY

Adam Mickiewicz University, Poznan is a research university, one of the best academic centres in Poland. The cornerstones of its reputation are a time-honoured tradition, outstanding scientific achievements of its academic staff, students and graduates, and an attractive curriculum. AMU is a member of the European consortium of universities EPICUR. Coordinator : Pr Jacek KUBICKI

# A 2 YEAR MASTER WITH MOBILITIES IN EUROPE



## MAMASELF EVENTS

3 main events will punctuate the program during the 2 years and will allow the students to meet and interact with other cohorts, alumni and professors.

### WELCOME WEEK

At the start of the program an intense integration week is organised for all Master 1: cultural visits, sport activities, scientific presentations, meeting with professors, registration... This is the occasion to discover and meet: build your network !

### SUMMER SCHOOL

A 2 weeks summer school is organized for all Mamaself students in the beginning of the second year at University of Montpellier. Objective of the summer school is to obtain a wide background in exploring materials using neutron, synchrotron and free electron laser radiation. An exam (7 ECTS) is scheduled at the end of the summer school.

### STATUS MEETING

The Mamaself status meeting is organized in Switzerland during the 4th semester and brings together all second-year Mamaself students and representatives of Partner Institutions. During the status meeting the students present the preliminary results of their Master-thesis work. Additionally, scientific topics are presented by specialists from research centres and universities.

## MOBILITIES

The two year Mamaself program is split in 4 semesters :

### Semester 1 + 2

- The first year is entirely enrolled at one out of the universities

### Semester 3

- The semester 3 is a study semester at a different university.

### Semester 4

- The semester 4 is dedicated to the Master thesis and can be carried out at any university, large scale facility or at partner institutions situated in Switzerland, Japan, India, USA, Brazil or Russia (for details refer to our website [www.mamaself.eu](http://www.mamaself.eu)).



## PARTNER INSTITUTIONS

The Mamaself program is supported by internationally recognised universities and research centers. The Master thesis during the 4th semester can be conducted partially/entirely at consortium universities or at associated partners outside Europe or at Large Scale Facilities.

### ACADEMIC PARTNERS

Academic partner institutions are located in Switzerland (PSI, Zurich), Japan (Kyoto University, Tokyo Institute of Technology), India (IIT Madras), USA (University of Connecticut, Cornell University), Russia (Southern Federal University), Brazil (University of Sao Paulo).

### LARGE SCALE FACILITIES

Several Large Scale Facility partners strongly support the summer school and the Master thesis : ILL or ESRF (Grenoble, F), LLB (CEA-Saclay, F), Synchrotron Soleil (Saclay, F), FRM-II (Munich, D), DESY (Hamburg, D), XFEL (Hamburg, D), PSI (Villigen, CH), Elettra (Trieste, I), Alba (Barcelona, E).



## MASTER'S BENEFITS

The partnership with Non-European institutions and Large Scale Facilities offers the chance to gather professors and experts specialized in different disciplines, offering a wide range of opportunities for students.

After completion of the program the student will demonstrate solid knowledge and skills allowing him/ her to solve problems related to materials and their technological applications or process.

Students joining the program will also join a network build with academic institutions, non-academic partners, research centers, industry and alumni, that offers outstanding academic and professional opportunities.

Multidisciplinary :  
Physics, Chemistry,  
Materials science,  
Modelisation

Close contact with  
industrial and aca-  
demic research

Open vision of  
innovation in  
Materials science

Intenational Master  
& network : profes-  
sors, researchers,  
students, alumnis

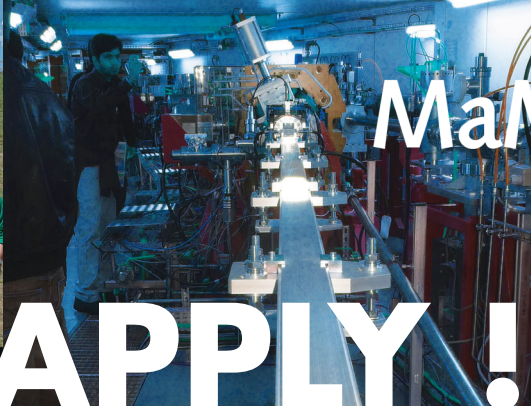
MASTER'S  
OUTCOMES

Internships, Master  
thesis proposals

Work with high level  
research groups

Enhanced communi-  
cation in English





# MaMaSELF+ APPLY !!



## ADMISSION CRITERIA

Students must have a Bachelor (180 ECTS or equivalent) in Materials Science or related disciplines (chemistry, physics, geo-science, ... ) and good English competencies, e.g. TOEFL 230 CBT, PBT 550, IBT 80, IELTS 6.5 or equivalent.

## APPLICATION

Mamaself application is fully online. Electronic submission on : <http://application.mamaself.eu>

Application deadlines for scholarships Partner countries students (Non-EU students), Program countries students (EU and Non-EU students) and Self-funded students : please refer to the website [www.mamaself.eu](http://www.mamaself.eu).

## CONTACT

Program manager : [christiane.cloarec@univ-rennes1.fr](mailto:christiane.cloarec@univ-rennes1.fr)



[www.mamaself.eu](http://www.mamaself.eu)