

## **FUSION-EP**

### **European Master in Nuclear Fusion Science and Engineering Physics**

**Duration:** 2 years

**Course description:**

The aim of the EMMC FUSION-EP is to provide a high-level international research-oriented education in magnetic fusion-related engineering physics, in close collaboration with outstanding EU and non-EU fusion research institutes, together with a well-integrated language and cultural experience. The combined and harmonized teaching & research in four EU countries offers a large variety of competences in the field of fusion science and engineering physics.

The FUSION-EP programme offers a genuine opportunity for international master level studies in a field which is of crucial importance to contribute to the solution of the ever more urgent and vital problem of world energy supply. In view of the expertise of the partners, the programme offers three tracks to the student (1) Plasma physics (fusion-oriented); (2) Computational methods in physics; and (3) Plasma and Fusion Technology & Engineering. The programme structure is combined with a mandatory stay at two universities in three countries: semesters 1 and 2 at University A; semester 3 and 4 at B and during semester 4 at a common training event at the ITER site in Cadarache (France). Semesters 3 and 4 are dedicated to a selected track which is also the track for the master thesis. After semester 2 a Summer Event is organized in which the tracks and master thesis topics are proposed. Student mobility is an inherent part of the programme structure and philosophy.

FUSION-EP is based on existing European research and education networks (FUSION-EP running since 2006, Coordinated Support Action FUSENET; EU and non-EU fusion research institutes in ITER member countries). The core partners are: Ghent University, Belgium (coordinator), Université Henri Poincaré (France), Universidad Complutense de Madrid & Universidad Carlos III de Madrid (Spain), and Universität Stuttgart (Germany). Other EU (Associate) academic and research partners are Eindhoven University of Technology (Netherlands), Trilateral Euregio Cluster TEC (B, D and NL), CIEMAT Madrid (Spain), Czech Technical University Prague & IPP.CR (Czech Republic) which form an attractor for the new EU countries, CEA Cadarache (where ITER is located) and IPP Max-Planck Garching and Greifswald (Germany). Non-EU Associate partners are Southwestern Institute of Physics, Chengdu (CN); Tsinghua University, Beijing (CN); University of Science & Technology of China, Hefei; National Research Nuclear University Moscow (MEPhI, RU); St. Petersburg State Polytechnic University (RU); UCLA, Los Angeles (US); and University of Wisconsin, Madison (US).

Admission criteria: bachelor degree in physics, engineering physics, applied physics, or equivalent degrees. Sufficient bachelor level knowledge in classical and modern physics is mandatory together with the necessary mathematical and computer programming skills. Applicants (students and scholars) from non-EU countries (applying for a grant or not) will be subject to a well defined selection procedure that aims for high quality.

**Website:** [www.em-master-fusion.org](http://www.em-master-fusion.org)

**Partners:**

GHENT UNIVERSITY, Belgium (Co-ordinating Institution)  
UNIVERSITY OF STUTTGART, Germany  
CARLOS III UNIVERSITY, Spain  
COMPLUTENSE UNIVERSITY OF MADRID, Spain  
UNIVERSITY HENRI POINCARÉ, NANCY I, France

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**Maximum grant:**

695 000 € (30 000 € consortium + 665 000 € scholarships), 2011  
593 400 € (30 000 € consortium + 563 400 € scholarships), 2012  
546 800 € (30 000 € consortium + 516 800 € scholarships), 2013