



Padova University (Italy)



INSTITUTO SUPERIOR TÉCNICO
Universidade Técnica de Lisboa

Instituto Superior Tecnico (Portugal)



**Max-Planck-Institut
für Plasmaphysik**
EURATOM Association

Ludwig Maximilian University (Germany)

**Joint European Research Doctorate
in Fusion Science and Engineering**

and

**Joint European Research Doctoral Network
in Fusion Science and Engineering**

INTRODUCTION

A European Doctoral initiative on Fusion Science and Engineering has been undertaken among the Universities of Padova, Lisbon and Munich aiming at combining two formal participation modalities in the same Doctoral programme course.

In Europe both Doctorates with PhD students on a grant and Doctorates with PhD young employed researchers exist.

In the first case, education is received and independent research activity is carried out; in the other case, independent research activity is carried out and PhD students are full employees. Even the duration of Doctorate courses varies, according to the different country rules.

The present initiative is intended to take account of these differences, by giving the possibility of a formal differentiated participation in the same Doctoral programme.



The above mentioned universities of [Padova](#) and [Lisbon](#) recognize Doctorates with PHD students on a grant, on a three-year course, and will be able to join the European Doctoral initiative through the Joint Research Doctorate, jointly set up on the basis of an Agreement between Padova and Lisbon Universities and with a final Joint Doctoral Degree Diploma.



[Munich University](#) will confer its own PhD diploma on its students and will be able to join the European Doctoral initiative, through an European Doctoral Network, set up on the basis of an Agreement, with a final Joint Certificate of attendance (no diploma is conferred).

In the future, within the above scheme, further Universities could join either the Joint Doctorate or the Doctoral Network.



START of the initiative

First cycle will start from 2007 / 2008 academic year

Participating Universities are:

Padova University (Italy)

*both Joint Doctorate and Joint Doctoral **Network***
(reference : A. Buffa)



Lisbon Instituto Superior Tecnico (Portugal)

*both Joint Doctorate and Joint Doctoral **Network***
(reference : C. Varandas)



INSTITUTO SUPERIOR TÉCNICO
Universidade Técnica de Lisboa

Ludwig Maximilian University, Munich (Germany)

*Joint Doctoral **Network***
(reference: H. Zohm)

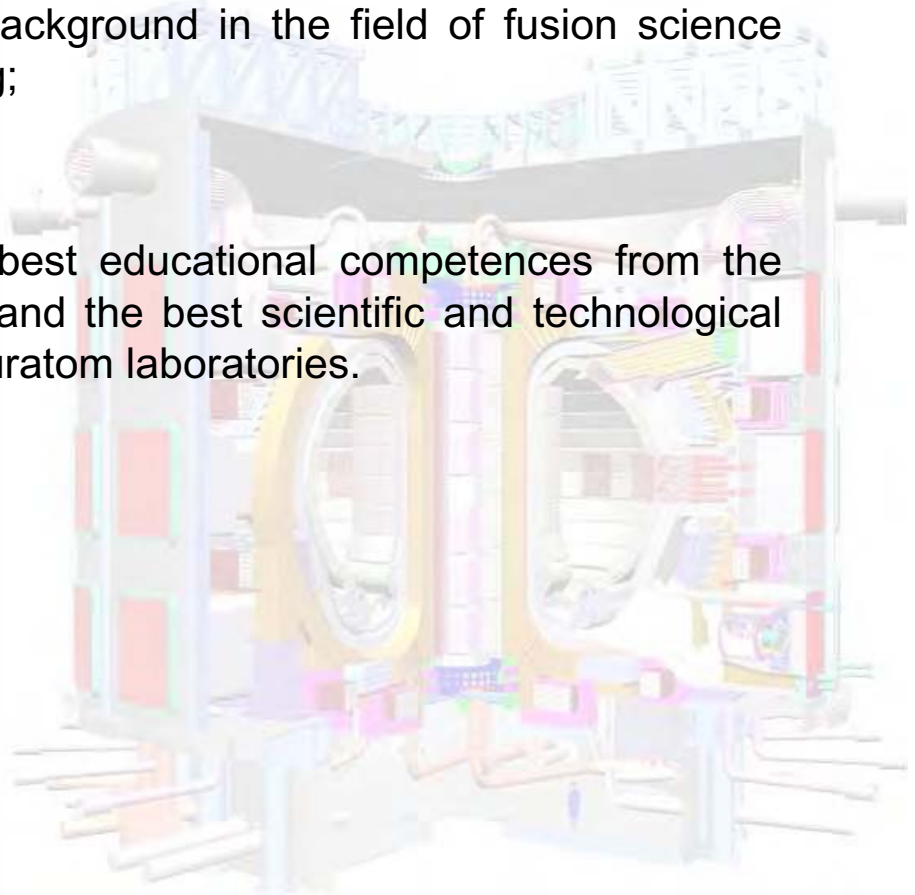


Max-Planck-Institut
für Plasmaphysik
EURATOM Association

Coordinating University for the 1st cycle:
Padova University

DOCTORAL PROGRAM

- **Aim:** to prepare doctoral graduates with a sound and advanced preparation on both physics and engineering; to give contribution to fusion research in a context where the engineering and physics competences complement each other;
- for this reason:
the network has been set-up with a first small group of Universities, already strongly linked with their respective national Fusion Laboratories and with a solid scientific and research background in the field of fusion science and engineering;
- in order to:
guarantee the best educational competences from the university side and the best scientific and technological support from Euratom laboratories.



ADMISSION

Requirements:

2nd cycle of Bologna 3-cycle scheme (master level degree) in engineering or physics

Admission test: - in parallel in each university

Selection basis: - curriculum vitae - oral examination

■ **Joint Research Doctorate (see note*)**

Admission list: at the end of local tests, a unique Admission list will be issued by the Academic Council

Places: in the two different universities, will be awarded on the basis of this general admission list

■ **Joint Doctoral Network**

only PhD students are admitted to this Network

Admission list: a local Admission list will be issued in the Munich University

Places: in the above University, will be awarded on the basis of this specific admission list.

***Note**

Applications should be sent to and should arrive **within 5th November 2007** at one of the following addresses, depending on the University where the applicant wants to take the admission examination. Applications and documents arriving after the deadline will not be considered.

Further details and information can be obtained from the *Servizio Formazione alla Ricerca*, via del Padovanino 9, Padova (open to the public Monday to Friday from 10.00 to 12.30 and Tuesdays and Thursdays from 15.00 to 16.30). Fax 0039 049 8273780
e-mail: formazione.ricerca@unipd.it

Contacts:

University of Padua: Fiorella Colautti - e-mail: fiorella.colautti@igi.cnr.it

Instituto Superior Técnico : Maria Fernanda Pinto - e-mail: mfernanda@cfn.ist.utl.pt

This announcement, along with a facsimile of the application form, **will be available on 2nd October 2007** on the web sites of the University of Padua:

http://www.unipd.it/studenti/Dopo_laurea/dottorati_ricerca/bandi_dottorato_grad/bandidottoratograduatorie.htm

and of Instituto Superior Técnico

http://www.cfn.ist.utl.pt/candidatos_doutoramento_fusion_science

DURATION



- The doctoral degree cycle will last **three years**.
- Every doctoral degree cycle will start on 1st January of each year.



DOCTORAL COURSES

Compulsory: N. 3 Advanced Course-Units

- 1 month duration each.

Scheduled over the three years, each one being held in a different partner University.

To be attended by all students.

On the following subjects:

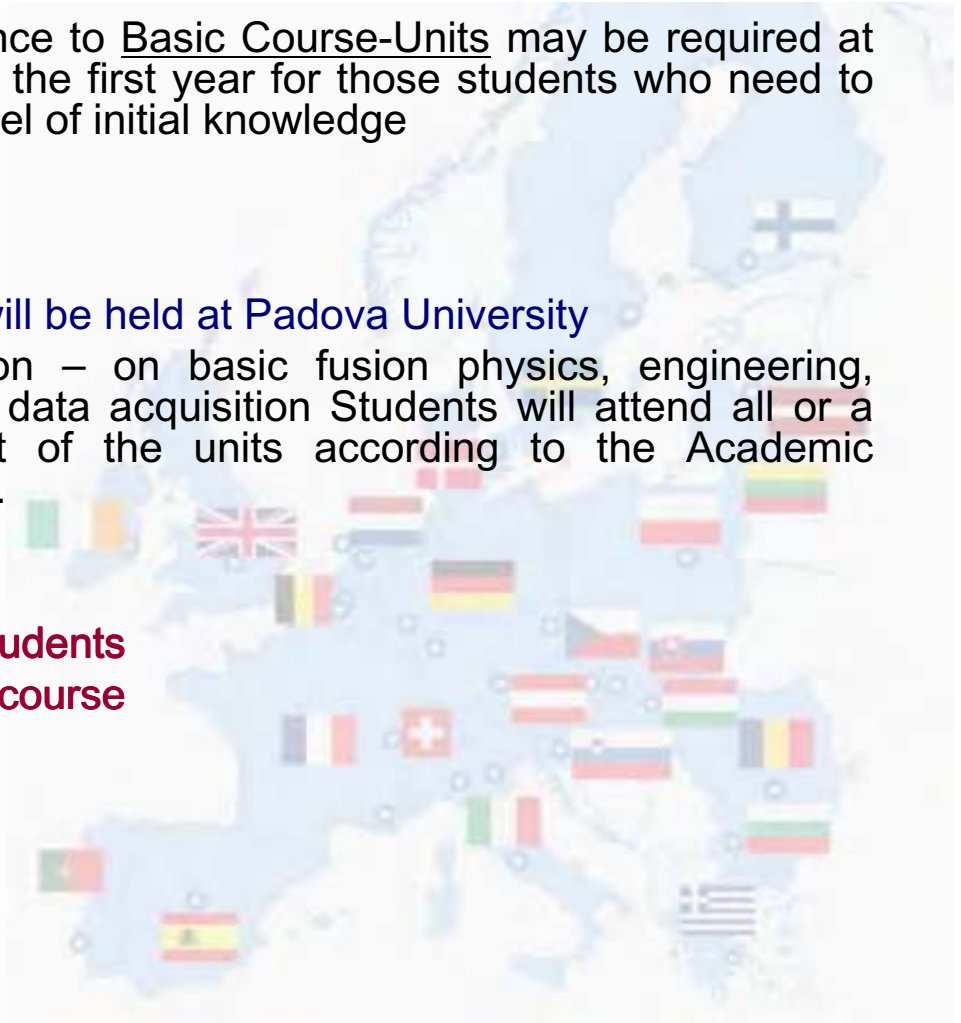
- a fusion physics unit
- a diagnostics, data acquisition and analysis unit
- an engineering unit

In addition, attendance to Basic Course-Units may be required at the beginning of the first year for those students who need to improve their level of initial knowledge

Basic course units will be held at Padova University

- 12 weeks duration – on basic fusion physics, engineering, diagnostics and data acquisition Students will attend all or a customized part of the units according to the Academic Council's advise.

**Well prepared students
may skip this basic course**



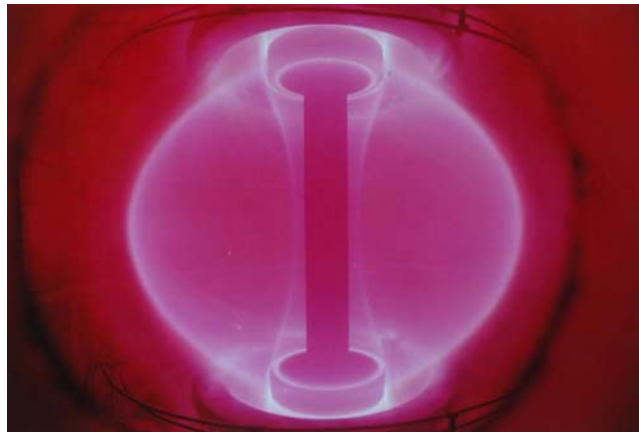
TIME SCHEDULE (only indicative)

| | | |
|------------------|---|-----------------------|
| 1° academic year | Students at Home University | |
| | | |
| | BASIC COURSES (Coordinating University) | |
| | | |
| | Studies and research carried out at home or at different laboratories | |
| | | |
| | 1 st advanced course | all students together |
| | | |
| End of 1° year | | |
| 2° academic year | Studies and research carried out at home or at different laboratories | |
| | | |
| | | |
| | | |
| | 2 nd advanced course | all students together |
| | | |
| | | |
| | | |
| End of 2° year | | |
| 3° academic year | | |
| | 3 rd advanced course | all students together |
| | | |
| | Studies and research carried out at home or at different laboratories | |
| | | |
| | | |
| | | |
| | Students at Home University | |
| | | |
| End of 3° year | | |

RESEARCH PLAN



Besides the time dedicated to the optional basic course-units and to the three Advanced Course-units (attended by all students), time will be devoted to the [thesis research](#) activity and to individual studies, partly spent at Home University, partly in one or more Fusion laboratories/centers as well (with a maximum of 12 months).



GENERAL RULES

Each student will be assigned:

- *a supervisor for the three years*
- *a Co-supervisor for the periods spent in host laboratories*

The Supervisor, in agreement with the student, proposes the three year program of research activities, the subject of the thesis and the mobility plan, to be approved by the Academic Council

Within each advanced course (every year) the student will present in a seminar its ongoing research activity

At the end of each advanced course, the student will be examined

At the end of each year, the student will present a report of activities, to be approved by the Academic Council

At the end of the doctoral degree course, the student will present a thesis

Final examination will take place at the Home University and will consist in a discussion on the thesis

In the case of the Joint Doctorate the Partner Universities will confer to each student a **single doctoral degree diploma**, signed by all Rectors/Presidents

In the case of the Joint Doctoral Network the Partner Universities will confer to each Student a **Joint Certificate**