

| PhD Course: FUSION SCIENCE AND ENGINEERING<br>in agreement with Università degli Studi di Napoli Federico II |  |       |  |
|--|--|-------|--|
| Department   | Centro di Ateneo "Centro Ricerche Fusione"                           |       |  |
| Duration   | 3 years  |       |  |
| Number of positions  | Scholarships funded by the University                                | n. 1  |  |
|  | University Scholarships co-funded by the Department                  | n. 1  | Co-funding Department: Centro di Ateneo "Centro Ricerche Fusione"  |
|  | Scholarships funded by the partner University                        | n. 2  | 1 scholarship funded by Università degli Studi di Napoli Federico II;<br>1 scholarship funded by Università degli Studi di Napoli Federico II;   |
|  | Scholarships funded by external public or private bodies/Departments | n. 11 | 1 scholarship funded by Consorzio RFX -<br><b>Topic:</b> Advanced signal conditioning and data acquisition electronics for fusion devices;<br>1 scholarship funded by Consorzio RFX -<br><b>Topic:</b> Design and development of Thomson scattering diagnostic systems on DTT;<br>1 scholarship funded by Consorzio RFX -<br><b>Topic:</b> Design and optimization of thermal and mechanical contacts in vacuum between structural components in neutral beam injectors;<br>1 scholarship funded by Consorzio RFX -<br><b>Topic:</b> Development of the injector for the DTT Neutral Beam Injection system;<br>1 scholarship funded by Consorzio RFX -<br><b>Topic:</b> Experimental tests on advanced power supply prototype and application studies to large fusion experiments;<br>1 scholarship funded by Consorzio RFX -<br><b>Topic:</b> High radiative power exhaust scenario modeling;<br>1 scholarship funded by Consorzio RFX -<br><b>Topic:</b> Movable diagnostics for spatially resolved measurements in negative ion beams and sources;<br>1 scholarship funded by Consorzio RFX -<br><b>Topic:</b> Non linear MHD Physics and correlations with 3D fields in view of DTT;<br>1 scholarship funded by Consorzio RFX -<br><b>Topic:</b> Physics informed deep learning MHD plasma representation for real-time control of tearing instabilities in magnetic confined nuclear fusion experiments;<br>1 scholarship funded by ENI S.p.A. -<br><b>Topic:</b> Modelling and Analysis of the MAST-U divertor: opportunities toward the design of an innovative divertor for ARC and DEMO;<br>1 scholarship funded by SAES Getters S.p.A. -<br><b>Topic:</b> Integration, characterization, optimization of the Non-Evaporable Getter technology in large |

|   |  |                |  |
|---|--|----------------|--|
|   |  |                | vacuum systems for fusion applications: the case of SPIDER beam source;  |
|   | Positions without scholarship  | n. 1           |  |
|   | <b>Total number of positions</b>   | <b>n. 16</b>   |  |
| <b>Selection criteria</b>                     | PRESELECTION ON THE BASIS OF EVALUATION OF QUALIFICATIONS AND ORAL EXAMINATION   |                |  |
| <b>Oral examination via remote interview:</b> | Applicants who have requested it in the application form will take the oral exam via remote interview using the ZOOM videoconference tool. |                |  |
| <b>Evaluation criteria</b>                    | Qualifications: points max 70<br>Oral examination: points max 30   |                |  |
| <b>Documents to be submitted</b>              | Thesis:  | Points: max 10 | (Applicants waiting to be awarded the entrance qualification: those waiting to be awarded the entrance qualification by 30th September 2024 will submit a summary of the master thesis project (max. 4 pages) signed by the applicant and the supervisor)  |
|   | Curriculum:  | Points: max 30 | The CV (please use the Europass CV template) must include the following information: - Grade Point Average (GPA) for every degree obtained (attach copy of the Transcript of Records) - Time spent abroad during your studies (e.g. Erasmus grants, Time, Erasmus Placement, thesis abroad, etc.) - Relevant work experience (research grants, scholarships, internship periods, period of employment) - Awards - Knowledge of foreign languages (certifications)  |
|   | Scientific publications:   | Points: max 5  | Manuscripts accepted for publication can also be considered if suitable documentation is provided (conference programme, acceptance letter, DOI etc.)  |
|   | Other documents:   | Points: max 25 | The candidate must submit a RESEARCH PROJECT among the research topics reported at: <a href="https://crf.unipd.it/phd/admission">https://crf.unipd.it/phd/admission</a> The description of constrained research topics funded by external partners (if any) are reported at: <a href="https://crf.unipd.it/phd/admission">https://crf.unipd.it/phd/admission</a> If the candidate is applying for a scholarship with constrained research topic, the proposed project must be related to that specific research topic. The research project must include: 1) Project title and abstract (max 500 words) 2) State of the Art of the subject of the project (max one page) 3) Project objectives and scientific and personal motivations for undertaking the specific research proposed and for choosing the PhD course in Fusion Science and Engineering (max one page) 4) Methods proposed to achieve the project objectives, and sequence of activities (max one page) 5) References (max 10) The project should be written in English using an A4 page format, |

|   |   |  |  |
|---|---|--|--|
|   |   |  | with 2.5 cm margins, single line, font Times New Roman 12pt. |
| <b>Preselection: First meeting of the Evaluating Commission</b>   | 11 JUNE 2024 09:00  |  |  |
| <b>Publication of the results of the evaluation of the preselection</b>   | <p>Within <b>12 JUNE 2024</b> the evaluating Commission will publish the results of the evaluation of the qualifications in the following website: <b><a href="https://crf.unipd.it/phd/admission">https://crf.unipd.it/phd/admission</a></b></p> <p>In order to be admitted to the examination, the candidate must get a score of at least 7/10 in the preselection.</p>   |  |  |
| <b>Publication of the timetable of remote interviews and instructions on how to use the ZOOM video conferencing</b> | <p>By <b>12 JUNE 2024</b> the commission will publish on the course website <a href="https://crf.unipd.it/phd/admission">https://crf.unipd.it/phd/admission</a> the timetable of the remote interviews and the instructions on how to use the ZOOM video conferencing for those applicants who have chosen in the application form to take the oral examination via remote interview and who have passed the preselection on the basis of the qualifications with a pass-mark of at least 7/10.</p> |  |  |
| <b>Oral examination</b>   | 17 JUNE 2024 09:30 - The exam may continue: 18/06/2024 at 9:30 - CRF c/o Consorzio RFX Corso Stati Uniti, 4 35127 Padova  |  |  |
| <b>Language/s</b>   | <p><b>Foreign language/s assessment at the oral examination:</b><br/>At the oral examination the commission will assess the knowledge of the following language/s: English</p> <p><b>Admission exam:</b><br/>The admission exam will be taken in: English</p>   |  |  |
| <b>Examination topics</b>   | Plasma physics and magnetic confinement fusion technology.  |  |  |
| <b>PhD Course Website:</b>  | <a href="https://crf.unipd.it/phd">https://crf.unipd.it/phd</a>   |  |  |
| <b>Further information</b>  | <p><b>Department:</b> Centro di Ateneo "Centro Ricerche Fusione"<br/> <b>Address:</b> Via Corso Stati Uniti - N. 4, 35127 Padova (PD)<br/> <b>Contact person:</b> Minicuci Maurizio<br/> <b>telephone:</b> 0498295891 <b>e-mail:</b> <a href="mailto:maurizio.minicuci@unipd.it">maurizio.minicuci@unipd.it</a></p>   |  |  |
| <b>How to apply</b>   | <p>The application must be submitted only via the online procedure available at: <b><a href="https://pica.cineca.it/unipd/dottorati40">https://pica.cineca.it/unipd/dottorati40</a></b></p> <p>The documents must be attached in pdf format.</p> <p>The application and the attached documents are submitted automatically by closing the online procedure. So no hard copy of the application and of the documents must be sent to the office.</p>   |  |  |
| <b>Deadlines</b>  | <p>Publication of the ranking lists and enrollment from <b>2 July 2024</b></p> <p>Beginning of PhD courses <b>1 November 2024</b></p>   |  |  |
|   |   |  |  |