

VACANCY NOTICE FOR A TRAINEESHIP

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| AREA OF ACTIVITY | REMOTE HANDLING - IVVS |
| REFERENCE | F4E/TRA/2019/083 |
| START AND END DATE - DURATION | 01/10/2019 – 30/06/2019 - 9 MONTHS |
| LOCATION | BARCELONA (SPAIN) |
| RESERVE LIST – MAXIMUM NUMBER | 5 |
| PUBLICATION DATE | 29/04/2019 |
| CLOSING DATE FOR APPLICATIONS | 20/05/2019 AT 12:00 NOON (BARCELONA TIME) |

1. DESCRIPTION OF THE DEPARTMENT/PROJECT UNIT

Remote Handling systems are a key part of the ITER machine, and have been designed to make changes, conduct inspections, or repair any of the Tokamak components in the radiation-activated areas.

The In-Vessel Viewing System (IVVS) is a remote handling system which uses a laser-based scanning head to take both 2D and 3D images of the inside of the Tokamak. The IVVS is a key tool for identifying damage and erosion of first wall components that can occur after loss of control of the plasma inside the vessel.

2. DESCRIPTION OF TASKS

The specific tasks assigned to the trainee will be adapted to their skills and experience, but will fall under one of these three main project lines:

- An IVVS simulator has already been developed in Blender/Python which can calculate the reflected signal and 3D point cloud measurements from ITER components. The student could be asked to upgrade the code of this simulation to include extra features, such as variation of the surface textures, or addition of certain noise sources in the IVVS measurement system;
- Viewing & Lighting of in-vessel robotic operations is a critical part of planning of remote handling operations. The student may be asked to use Blender raytracing software to simulate the in-vessel viewing using real measured surface reflectivity and representative camera positions and lighting positions. The studies will be used to inform the position of lighting in the real RH systems that will be deployed in ITER. Knowledge of CAD and/or Blender software would be highly useful for this task;
- System engineering, functional analysis and fault analysis. F4E apply best practice systems engineering to manage the specifications and requirements for their systems. The student could assist in the review of the systems engineering and management of the requirements database. This task can be done with no previous experience and could be a good learning opportunity for the trainees.

3. ELIGIBILITY CONDITIONS

- Be a national of one of the Member States of the European Union or of a Third state fully associated with the Euratom fusion programme (Switzerland);
- The candidate must have finished his/her university degree of at least 3 years attested by a diploma. The university degree must have been obtained within the last 3 years before the closing date for applications;
- In order for the trainee to fully profit from the traineeship and to be able to follow meetings and perform adequately, candidates must have good knowledge of English, the main working language of F4E.

Applications will not be accepted from candidates who:

- have already benefited from any kind of in-service training within a European institution or body, or
- who have had or have any kind of employment within a European institution or body.

4. QUALIFICATIONS REQUIRED

- Bachelor's or Master's degree in Computer Science, Physics or Optics/Metrology;
- Essential: Good skills and experience in writing code & calculation of physical phenomena with computer software;
- Good aptitude for problem solving;
- Advantageous qualifications:
 - Knowledge of metrology software;
 - Experience with analysis of point clouds;
 - Knowledge of Enterprise architect;
 - Knowledge of graphical representation of software functional architecture;
 - Knowledge of Discrete Event Simulation.

5. WHAT WE OFFER

Trainees are awarded a monthly maintenance allowance. The monthly allowance for 2019 amounts to € 1.097,50 (Spain).

Additionally, trainees may receive a travel allowance, subject to budget availability, to compensate for travel expenses incurred from the place of residence to the seat of F4E and vice versa. Trainees whose place of recruitment is less than 50 km from F4E's offices shall not be entitled to a travel allowance.

Detailed information about the F4E traineeship procedure as well as trainees' rights and duties can be found in the Decision of the Director of 'Fusion for Energy' on the Acceptance of Traineeships published on our website. We strongly recommend applicants to read them carefully.

Accommodation costs will be covered by the trainee.

6. SUBMISSION OF APPLICATIONS

The online application process starts upon clicking "**CLICK TO APPLY**" on the traineeships page: <http://www.fusionforenergy.europa.eu/careers/traineeships.aspx>

Applicants must register their applications online through the F4E traineeship's tool by creating a valid F4E user account and choosing the vacancy notice they wish to apply to.

Please note that the online traineeship application tool is the only acceptable means of sending applications. Applicants are responsible for keeping their e-mail addresses and personal details up to date in their profile in F4E online application tool.

The mandatory fields in the profile marked with an asterisk should be duly filled in. Candidates are requested to submit the following 2 documents:

- A detailed Europass curriculum vitae in **English** (can be obtained at the following address: <http://europass.cedefop.europa.eu/en/documents/curriculum-vitae>)
- A motivation letter of 2 pages maximum in English

Applications must be sent by 20/05/2019 (closing time 12:00 pm Barcelona time).

In case you encounter technical problems when trying to submit your application via the traineeship application tool, please make a screenshot and send it to: traineeships@f4e.europa.eu.

It is the responsibility of the applicant to inform 'Fusion for Energy' about any technical problem without delay within the deadline mentioned above.

Please, do not send any supporting documents (i.e.: copies of your ID-card, educational certificates, etc.) **with your application at this stage if not specified in the Traineeships Notice.**