



Thematic Actions

Coordinating Universities for the Proposal: UCM and UPM

Title of Action	Development of Support Programmes for the ITER Project		
Participating partners	UPM, CIEMAT, UCM	Other participants	ITER (International Thermonuclear Experimental Reactor) Project Participants
Personnel involved (indicate institution)	CIEMAT UPM (Nuclear Fusion Institute, Technical School of Telecommunications Engineering), UCM (Physical, Chemistry)		
Start date	2009	End date	2025
Cluster	Global Change and New Energies	Other clusters	Materials for the Future
Areas of action	Teaching Improvement and EHEA Deployment / Research / Knowledge Transfer		
Location	CIEMAT, EBM		
Infrastructures involved	ITER, TechnoFusion		
Keywords	Energy Sources; Nuclear Fusion; Physics and Plasma Engineering		
<p>Objectives:</p> <p>To support the technological programme of the EFDA (European Fusion Development Agreement of the European Atomic Energy Agency, EURATOM), within the scope of 'Structural Materials Development'. Namely, by supporting the task entitled 'Development & characterisation of W-V and W-Ti tungsten ODS alloys by Mechanical Alloying (MA) and HIP'.</p> <p>Supporting human capital formation in nuclear fusion. Goals:</p> <ol style="list-style-type: none"> 1. Training researchers and specialised technicians in nuclear fusion, with emphasis on: <ul style="list-style-type: none"> • Instrumentation for nuclear fusion. • Technology and computer simulation of fusion plasmas. • Technologies for fusion, TechnoFusion: high-power accelerator systems, fusion materials. 2. Strengthening and continuing the follow-up of the Erasmus Mundus European Master's programme in Nuclear Fusion Science and Engineering Physics (FUSION-EP). 			
<p>Description of the action:</p> <p>CIEMAT and UPM have signed a partnership agreement within the framework of the Technology Programme of the EFDA (European Fusion Development Agreement between the European Atomic Energy Community, EURATOM, and all labs associated with the European Fusion Programme, one of which is the CIEMAT, through the EURATOM / CIEMAT Association for Fusion, AEC) 2008/2009 in which UPM agrees to develop, within Activity 2, 'Structural Materials Development' the task of the 'Development & characterisation of WV and W-Ti ODS tungsten alloys by mechanical alloying (MA) and HIP'.</p> <p>A second part of this action seeks to enhance the creation of human capital in nuclear fusion through increased participation of professors from UCM and UPM in nuclear fusion research activities and CIEMAT researchers in nuclear fusion teaching activities. This is to be achieved through mobility actions for teachers, scholarships for postgraduate fusion students and administrative support for the strengthening and continuation of the Erasmus Mundus Master's Programme Course, which universities from five European countries participate in. In Spain the UCM, UPM and UC3M participate, with UCM being the coordinating university.</p>			



Title of Action	Development of Support Programmes for the ITER Project
<p>Planned key results:</p> <ul style="list-style-type: none">• Increased participation of the Campus in the International Experimental Nuclear Fusion Reactor (ITER) project.• Increased participation of professors from UCM and UPM in the ITER project and related areas.• Increased participation of CIEMAT in teaching activities in UCM and UPM• Creation of highly skilled human capital in the areas of ITER and nuclear fusion in general.	
<p>Rationale for the action:</p> <p>The International Experimental Nuclear Fusion Reactor (ITER) will conduct the first fusion experiment that will produce net energy, and its technology will serve to prove that nuclear fusion can be a secure, clean and inexhaustible source of energy. The reactor will be based in France and the EU has made a major commitment to this project, which will be one of the major scientific facilities in the world, with a preliminary approved budget of 10,000 million euros. Spain has an important participation in the project, with the headquarters of the European Nuclear Fusion Agency in Barcelona. The large TJ-II (National Fusion Laboratory – EURATOM Association) facility, in CIEMAT, is also located on the Moncloa Campus.</p>	
<p>International aspects:</p> <p>The EU, Russia, USA, Japan, China, South Korea and India participate in the ITER project.</p>	
<p>Planned impact:</p> <p>This project is part of the international ITER project, which aims to test all the elements necessary for the construction and operation of a nuclear fusion reactor that will provide scientific and technical proof of the viability of this technology.</p> <p>The existing facility of the TJ-II National Laboratory Fusion and the future Technofusion ICTS facility will constitute one of the largest nuclear fusion facilities in Europe. The proposed activity integrates these facilities in the CIE Moncloa and enhances the CIE's teaching and research activities in this field, integrating them in a highly internationalised context (Erasmus Mundus, EURATOM Association and ITER Project).</p>	