



PRESS RELEASE

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FUSION STUDENTS GET THEIR REWARD ...

On 26 September, the first group of twenty students were awarded their FuseNet European Fusion Master's / Doctorate certificates in a ceremony at Europe's leading fusion experiment JET at Culham in the UK. The certificates are a recognition of excellence in fusion science and technology, and can be awarded to European MSc and PhD students who fulfil academic criteria that have been jointly established by universities and fusion research centres throughout Europe.

This first batch of certificates were presented to the nominated students by the EFDA leader Prof. Francesco Romanelli, the chair of the Academic Council of FuseNet Prof. Ambrogio Fasoli and the chairman of FuseNet Prof. Niek Lopes Cardozo. Afterwards the students were treated to a spectacular 'after hours' tour of JET - including access to the torus hall itself.

The European Fusion Education Network FuseNet – with over 40 members including universities, research institutes and companies that are active in the development of fusion energy – supports and coordinates the education and training of the 'ITER generation' of fusion scientists and engineers. It's aim is to ensure a core of highly skilled scientists and engineers for future fusion devices - most notably the international successor to JET and stepping stone to fusion power plants, ITER. Prof. Niek Lopes Cardozo, FuseNet chair explains: 'The ceremony and JET visit are our way of showing these students that we highly appreciate the effort they have put into their studies of fusion; that we recognize the high level of expertise they have acquired and that it is young, smart and dedicated people like these that are going to make fusion energy happen'.

From now on, students can continuously apply for a European Fusion Master or Doctorate Certificate through the FuseNet website (www.fusenet.eu). Applications will be evaluated twice per year.

ENDS

For more information and photographs please contact Nick Holloway, Media Manager at EFDA-JET / Culham Centre for Fusion Energy – email: nick.holloway@ccfe.ac.uk / Tel: 44 (0)1235 466232. For more information on FuseNet and the new European Master's and Doctorate Certificates, see the website: <http://www.fusenet.eu/>

Notes to Editors:

FUSENET

The European Fusion Education Network FuseNet was established in response to the emerging need to 'educate the ITER generation'. With fusion research going through a major transition (moving from the laboratory to the industrial scale) engineering is playing an increasingly important role. Hence, in addition to the physicists that are going to scientifically explore ITER, a broad range of engineers (including nuclear engineers) are required in the future .

The members of the FuseNet Association (universities, fusion research centres including ITER as well as industry), have joined forces and resources to attract the brightest students to fusion and offer them the best possible education programme. FuseNet has received financial support from the European Commission to undertake this important work.

One of FuseNet's flagship programmes has been the European Fusion Master / Doctorate initiative – rewarding students on fusion educational programmes, with recognition from the fusion research community. To be awarded a FuseNet certificate, students need to follow a comprehensive programme of fusion modules and projects, that ensures a knowledge and understanding of the field that has both breadth and depth.

EFDA-JET

European research developing magnetic confinement fusion as a sustainable energy source is co-ordinated through the European Fusion Development Agreement (EFDA – www.efda.org). The flagship of this programme is the Joint European Torus (JET). JET is the largest and most powerful fusion research facility in the world and the only machine capable of operating with the deuterium-tritium fuel mixture that will be used in commercial fusion power stations. Scientists and engineers from associated laboratories across Europe and international collaborators carry out experiments on JET within an integrated and co-ordinated EFDA programme. The machine operation and on-site services are provided by Culham Centre for Fusion Energy (www.ccfef.ac.uk) in Oxfordshire, United Kingdom on behalf of its partner European fusion laboratories.

Research at JET is focused on scientific and technical preparations for the operation of ITER (www.iter.org), a major international project that should provide a full scientific demonstration of fusion in power plant-like conditions. ITER construction started in 2008 at Cadarache, France, and the first plasma is scheduled for 2020.

ABOUT FUSION

Energy is released when two light atomic nuclei are fused together to form one heavier atom. This process takes place in the Sun and the stars. In a fusion reactor nuclei of two hydrogen isotopes, deuterium and tritium, fuse at high temperatures and produce helium and high-energy neutrons. A commercial power station will use the heat generated by the neutrons when slowed down by a blanket of denser material (lithium) to generate electricity.

To produce enough fusion reactions to make a useful energy source the fuel must be heated to temperatures in excess of 100 million degrees. At these temperatures the extremely thin gaseous fuel exists in the form of plasma that can be confined by means of magnetic fields to keep it from being contaminated and cooled by contact with material surfaces. Most magnetic confinement systems are toroidal (doughnut-shaped) and the most advanced is called the tokamak. JET is the largest tokamak in the world.

The fuels used are virtually inexhaustible. Deuterium is extracted from ordinary water and tritium can be produced from lithium, a common metal found in the earth's crust. Combined in a fusion power plant, the lithium in a phone battery and three litres of water would give a European person all the electricity they need for seven years. Fusion is inherently safe and environmentally responsible. No greenhouse gas or long-lived radioactive waste is produced and not even the worst accident would require evacuation of the surrounding population.



Annalisa Cardellini receives her certificate from Ambrogio Fasoli of FuseNet.



All the FuseNet students with their certificates and FuseNet organisers.



EFDA's Phil Dooley explains the inner workings of JET to the students.