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THE AUSTRALIAN NATIONAL UNIVERSITY

National Europe Centre Public Lecture Series

The Status of Fusion Research and Development

WEDNESDAY 28 OCTOBER 2009, 12.30 – 2.00pm

RSVP by Friday 23 October 2009 12.00pm - E: europe@anu.edu.au

Speaker: Dr Barry Green – School of Physics, University of Western Australia

Chaired by: Professor Jim Williams, Research School of Physical Sciences, ANU College of Physical Sciences

Abstract: Fusion energy promises to be a major contributor to future global energy supplies because of the ready availability and affordability of the basic fuel, Deuterium, which makes it a 'sustainable' resource. In addition, fusion appears to be safe, environmentally-friendly and cost-competitive with other forms of energy. Its potential to provide high temperature heat makes it useful for industrial processing as well as for electricity production. Although the fusion process was discovered before fission, the latter has been successfully developed into power-producing systems which have produced significant amounts of electricity in many parts of the world for more than 50 years. The development of fusion has been much more difficult.
This lecture will discuss the development of fusion energy (based on the magnetic confinement of fusion fuel) with emphasis on the ITER Project, the large international fusion experiment at present under construction in the south of France. It also considers the international programme not directly tied to the ITER Project and the future design of a demonstration/prototype fusion reactor. Finally, it looks at the opportunities for Australia to become more closely involved with the international work, in particular, ITER.

Biography: Dr. Barry Green holds a PhD in theoretical plasma physics from the University of Sydney and for the last 40 years has been involved in the fusion research programme in the USA, Europe and Japan. He has held research positions at the Princeton Plasma Physics Laboratory at Princeton University and the Max-Planck Institute for Plasmaphysics in Garching, Germany and until 1992 was involved in the design, construction and operation of the European fusion experiment, JET (the Joint European Torus) at Culham in the UK. From 1992-2003 he was part of the engineering design activity of the ITER Project in Japan. Dr Green has also worked as a scientific officer in the European Commission Directorate for Energy within the Directorate-General for Research in Brussels, coordinating the fusion programmes of the 12 most recent member states of the European Union. Returning to Australia in 2007, he is now working part-time at the School of Physics, University of Western Australia.

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