

Предавање: САНУ, Свечана сала, 13. јуни у 11.00 часова

Nuclear Fusion: from Science Fiction to Science Fact

Нуклеарна фузија: Од научне фикције до научне чињенице

Lecturer: Professor Tony Donné, Programme Manager EUROfusion Consortium

Introductory note: Professor Jerome Pamela, Chairman EUROfusion Consortium

Moderator: academician Nikola Konjević

‘Nuclear Fusion: an eternal promise’ or ‘Nuclear Fusion, always 50 years away’ are texts one can read regularly in newspapers and journals. For the layman it is difficult put a finger behind the progress in the field of fusion research. This is especially because, after more than 50 years of research, still not even a milliwatt of electricity has been delivered to the grid. But are the abovementioned slogans correct?

In his presentation, Tony Donné will first shortly explain the principle behind nuclear fusion. Subsequently, he will take the audience through several of the challenges which have been overcome in magnetic confinement fusion. He will present an overview of the challenges that are still remaining, along with a strategy to find adequate solutions. The focus of the presentation will be on the international ITER tokamak. This device which is being erected in Cadarache in Southern-France is one of the world’s largest scientific experiments and is designed to get 10 times more fusion power as input power.

Prof. Donné will explain how fusion research is organised in Europe, with two main actors: Fusion for Energy, which is the European Domestic Agency for ITER and essentially a procurement agency, and EUROfusion, which is coordinating research and development in the field of fusion research in 27 European countries.

Prof. Tony Donné worked from 1985-2014 for the Dutch FOM-Institute DIFFER (Dutch Institute for Fundamental Energy Research). He started as post-doc, and slowly moved up the ladder via group leader, deputy division head to head of fusion research of the Association EURATOM-FOM. From 2009 – 2014 he coordinated the Dutch research activities in the field of fusion research. He established and directed the Dutch-Russian Centre of Excellence for Fusion Physics and Technology and he was Programme Director of the ITER-NL consortium. Since June 2014 he is Programme Manager of EUROfusion; one of the largest scientific research organizations in Europe. He is professor at Eindhoven University of Technology. Almost his whole scientific

career Tony has worked in the field of plasma diagnostics at a great range of fusion devices. During almost 20 years he was closely involved in the design and developments of diagnostics for ITER.

Prof. Jerome Pamela received his PhD degree from Ecole Polytechnique, France. From 1977-84 worked as particle physicist at CEA, Saclay and DESY, Hamburg and in 1984-90 moved to negative based neutral ion beam development at the Fusion Department, CEA, France. From 1991-96 served as a Group leader at CEA, Cadarache, also involved in France site bid for ITER. From 1999-99, Head of Fusion Department at CEA, Cadarache. From 1999-2006, Leader (under EFDA) of JET in Culham, UK. From 2006-2009 Leader of the European Fusion Development Administration (EFDA) based in Garching, Germany. Director Agence ITER France from 2010-2016. Since 2015, Chairman of the EUROfusion General Assembly.