AKE 13: Nuclear Fusion - The ITER Project

Time: Wednesday 16:15–16:45 Location: RW HS

Invited Talk AKE 13.1 Wed 16:15 RW HS

Progress in ITER construction and in the preparations for operation — •David J Campbell — (formerly) ITER Organization, Route de Vinon-sur-Verdon, F-13067 St-Paul-lez-Durance, France

The ITER project is a critical step in the development of fusion energy: its role is to confirm the feasibility of exploiting magnetic confinement fusion for the production of energy for peaceful purposes by providing an integrated demonstration of the physics and technology required for a fusion power plant. At the core of the facility, the ITER tokamak will confine a plasma heated to temperatures in the region of 100 - 200 million K, in which deuterium-tritium fusion reactions will produce up to 500 MW of fusion power for periods of at least several hundred seconds. Rapid progress is being made in on-site construction, in producing components for the tokamak, plant and auxiliary systems, and in preparations for on-site installation. Recently, a major update of the ITER baseline schedule and resource estimate has been undertaken, which was endorsed by the ITER Council in November 2016. The revised schedule foresees an earliest technically achievable date for First Plasma of December 2025 (subject to the Members' budget approval) and a target date for the transition to D/DT operation of late 2035. The presentation will introduce the physics basis for the project, review the current status of construction, highlight the progress which is being made in manufacturing and supporting technology R&D activities, and outline the scientific research programme being planned to advance from First Plasma to significant fusion power production in DT plasmas.