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Title: Measurement of the Current Profile in Tokamak Fusion Plasmas

Speaker: Sam Gibson, PhD candidate

When: 2020-10-15 16:00:00

Abstract: Measurement of the current distribution in tokamaks is vital for improving plasma confinement and avoiding performance limiting magneto-hydrodynamic (MHD) instabilities. However, directly measuring the current in the plasma core is challenging. Neutral beam injection systems provide external heating and current drive, and a source of neutral atoms which interact with ions and electrons in the plasma. Emission from these neutrals can be measured using spectroscopy. This opens the possibility of localised measurements of key plasma parameters, such as the toroidal current density and the safety factor (q) profile. In this talk, Sam Gibson will discuss the diagnostic techniques used to measure the current profile, how to design and develop experimental spectroscopy diagnostics for a fusion environment, and the important role spectroscopy will play in the success of ITER.

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