

Thomson Scattering in the World's Largest Tokamaks

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Thomson scattering is a powerful technique for measuring electron temperature and density in fusion plasma devices. Recent steps forward in Tokamak design and in particular towards huge machines such as ITER are bringing new challenges to the diagnostic design. These burning plasmas present issues such as high electron temperatures, high power loads, long pulse operation and neutron damage effects. Suitable lasers and detectors are also required. Significant effort is being put in to R&D and design in this area to ensure successful systems are deployed. As well as outlining some of the principles of the techniques involved such as LIDAR, the talk will concentrate on various challenges of the systems and what is required to implement a design that is robust and reliable in operation.