High Power Microwave Diagnostic for the Fusion Energy Experiment ITER

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Publication date:
2016

Document Version
Publisher's PDF, also known as Version of record

Link back to DTU Orbit

Citation (APA):
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Abstract
Microwave diagnostics will play an increasingly important role in burning plasma fusion energy experiments like ITER and beyond. The Collective Thomson Scattering (CTS) diagnostic to be installed at ITER is an example of such a diagnostic with great potential in present and future experiments. The ITER CTS diagnostic will inject a 1 MW 60 GHz gyrotron beam into the ITER plasma and observe the scattering off fluctuations in the plasma – to monitor the dynamics of the fast ions generated in the fusion reactions. Delivery of complete design of the ITER CTS diagnostic is expected by 2019 including performance and engineering analysis etc..

Schematic of the full ITER CTS diagnostic system

Acknowledgment
The work leading to this publication has been funded partially by Fusion for Energy under F4E-FPA-393. This publication reflects the views only of the author(s), and Fusion for Energy cannot be held responsible for any use which may be made of the information contained therein.

IPFN activities received financial support from “Fundação para a Ciência e Tecnologia” through project UID/FIS/50010/2013.