Abstract Submitted
for the DPP19 Meeting of
The American Physical Society

Recommissioning the KA2 Fast Ion Loss Detector on JET in Preparation for DT-Campaign[1] P. J. BONOFIGLO, M. PODESTA, Princeton Plasma Physics Laboratory, V. KIPTILY, P. BEAUMONT, Culham Centre for Fusion Energy, JET CONTRIBUTORS COLLABORATION — The KA2 Faraday cup fast ion lost detector has been recommissioned on JET in preparation for the upcoming DT-campaign. The detector consists of five particle collector receptacles spaced poloidally along a fixed toroidal location from the midplane to ∼0.7 m below. Each receptacle contains three radially displaced apertures which consist of a stack of alternating current collecting foils and insulating material. The detector provides 15% incident particle energy resolution from ∼0.5-7 MeV with limited pitch discrimination, allowing for the measurement of lost energetic ions from ICRH, NBI heating, and alpha particle production. Initial results and measurements are presented from JETs 2019 deuterium campaign in preparation for recording alpha losses during the upcoming DT-campaign. New cabling and signal filtering have been implemented on the detectors to reduce ambient plasma pickup and electrical noise for an improved signal-to noise ratio. Emphasis has been placed on assessing the systems performance to study Alfén mode resonant transport of energetic ions which is particularly detrimental to the confinement of the ion population.

[1]This work has been carried out within the framework of the EUROfusion Consortium and has received funding from the Euratom research and training programme 2014-2018 and 2019-2020 under grant agreement No 633053. The views and opinions expressed herein do not necessarily reflect those of the European Commission.

Phillip Bonofiglo
Princeton Plasma Physics Laboratory

Date submitted: 03 Jul 2019 Electronic form version 1.4