

Abstract Submitted
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Fast Ion Effects During Test Blanket Module Simulation Experiments in DIII-D¹ G.J. KRAMER, R. BUDNY, R. NAZIKIAN, PPPL, W.W. HEIDBRINK, UC-Irvine, T. KURKI-SUONIO, A. SALMI, Helsinki U., M.J. SCHAFER, M.A. VAN ZEELAND, General Atomics, K. SHINOHARA, JAEA, J.A. SNIPES, ITER Org., D. SPONG, ORNL — The fast beam-ion confinement in the presence of a scaled mock-up of two Test Blanket Modules (TBM) for ITER was studied in DIII-D. The TBM on DIII-D has four vertically arranged protective carbon tiles with thermocouples placed at the back of each tile. Temperature increases of up to 200°C were measured for the two tiles closest to the midplane when the TBM fields were present. These measurements agree qualitatively with results from the full orbit-following beam-ion code, SPIRAL, that predict beam-ion losses to be localized on the central two carbon tiles when the TBM fields present. Within the experimental uncertainties no significant change in the fast-ion population was found in the core of these plasmas which is consistent with SPIRAL analysis. These experiments indicate that the TBM fields do not affect the fast-ion confinement in a harmful way which is good news for ITER.

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