Test Blanket Module Mockup Experiments in DIII-D*
E.J. Strait, N.H. Brooks, R.J. Buttery, R.J. La Haye, M.J. Schaffer, General Atomics; H. Reimerdes, CRPP-EPFL; J.A. Snipes, ITER Organization; J.M. Hanson, Columbia University; W.W. Heidbrink, Y. Zhu, UC-Irvine; Y. In, FAR-Tech; G.J. Kramer, M. Okabayashi, J.-K. Park, W.M. Solomon, PPPL; A.G. McLean, LLNL; N. Oyama, JAER, T. Tala, EURATOM-Tekes – Recent DIII-D experiments have investigated the effects of localized magnetic field perturbations, using coils that approximate the magnetization of the test blanket modules (TBMs) in one ITER port. In H-mode discharges, compensation of the TBM field using an applied $n=1$ field yielded only partial recovery of the plasma rotation, and the compensation field that maximized plasma rotation differed significantly from the field that reduced the resonant magnetic response to a very low value. These results provide insight into the effects of error fields, and suggest an important role for non-resonant magnetic braking. In addition, measurements of localized heat deposition with the TBM field are being compared to orbit following calculations of fast ion loss, and a new fast ion detector has confirmed earlier observations of reduced 1 MeV triton confinement.

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