

Abstract Submitted
for the DPP08 Meeting of
The American Physical Society

Assessment on TF ripple KOUJI SHINOHARA, Japan Atomic Energy Agency — The TF ripple can reduce fast ion confinement and reduce plasma performance. Additionally, recent experiment results from JT-60U and JET imply that ripple can affect bulk plasma confinement. Here, the characteristics of TF ripple and its effect on fast ion confinement is reported. The TF ripple amplitude in ITER is $\sim 1.2\%$ in case of TF coil alone at the separatrix. This ripple will be compensated by ferritic inserts (FIs), placed between the vacuum vessel shells. In the current design, the ripple amplitude is 0.4% at the separatrix at full field. It should be noted that, in this case, the ripple is overcompensated at half field and that the ripple amplitude is -0.4% . A test blanket module (TBM), some of whose components are ferromagnetic, is another source of TF ripple. TBMs will be installed at three mid-plane ports. The TF ripple induced by TBMs is localized in the poloidal direction as well as in the toroidal direction. The ripple is $\sim 1\%$ at the mid-plane. Fast ion confinement was evaluated. The fast ion loss was small $< 2.5\%$ in the Scenario 2 and 4. However, at half field, the effectiveness of FI is reduced and the TBM enhances the loss; the loss is larger than half of that in case of TFC alone.

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Date submitted: 18 Jul 2008

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