



IAEA FEC 2014

Contribution ID: 445

Type: **Poster**

Tokamak with an Ergodic Central Area

Thursday, October 16, 2014 8:30 AM (4 hours)

A possibility to organize in the center of a tokamak the large ergodic area surrounded by nested magnetic surfaces is discussed. The ergodicity of the area dense fulfilled by the magnetic field lines provides the constancy of plasma pressure that mostly removes some drift and current instability in the area. The surrounding magnetic surfaces commonly response for the plasma thermal insulation. The general Hamiltonian approach is used to show that such magnetic configuration can be realized either by external current windings or by the special profiling of plasma current. The charged particles trajectories in the ergodic area can be similar to the trajectories in the conventional tokamak.

Paper Number

ICC/P5-1

Country or International Organisation

Russian Federation

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Session Classification: Poster 5