

Aditya up-gradation equilibrium study

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The ADITYA tokamak device is used to produce circular plasma for few hundreds of milli-seconds. The edge physics study in this device is led to significant contributions. The upgradation of this device is focused to address issues relevant to heat removal capability at the plasma edge. This requires to construct plasma equilibrium with divertor configuration. In this regard, additional pair of coils at the inboard and outboard are used to construct plasma equilibrium. The inboard pair mainly creates the divertor configuration while the outboard pair provides flexibility in increasing the size of the plasma. This study has shown that plasma equilibrium with double null configurations can be produced for plasma current up to 100 kA and with plasma poloidal beta of 0.3. The limit on the plasma parameter is due to restriction on the allowable divertor coil current which is limited to 150 kAt. The radial distance of divertor null point is kept at least 3 cm away from the circular shaped vacuum vessel so that the divertor configuration can be ensured.

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