



Observation of intrinsic toroidal rotation in EAST's plasma with the ion internal transport barrier

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Abstract

The discharge with internal transport barrier (ITB) is expected to satisfy the demand of high beta, high energy confinement time, and a large fraction of bootstrap current. The advanced tokamak scenario with ITB has been achieved on most of major tokamaks. On EAST, a sharp increase of toroidal rotation velocity is observed during the formation of an ion internal transport barrier (iITB) in H-mode plasma. Under the condition that main plasma parameters nearly have no change, this unusual phenomenon shouldn't be the result of the injection of external neutral beams, but the contribution of spontaneous rotation. The experimental analysis also shows a strong correlation between toroidal velocity shear and the formation/collapse of the iITB, proving the shear of spontaneous rotation plays an important role in the formation and stabilization of the iITB.

References

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