

Residual Zonal Flows in Tokamaks in the Presence of Energetic Ions

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Zonal flow, an axisymmetric potential fluctuation driven by turbulent Reynolds stress, plays a key role in turbulence regulation with its flow shear. It gets reduced by collisionless process in toroidal geometry, but to a non-zero value called the residual zonal flow level [1]. In this study, we investigate the residual zonal flow in the presence of energetic ions using modern gyrokinetic approach[2]. We find that the residual zonal flow can be enhanced for the intermediate radial wavelength range on the order of thermal ion banana width, due to the presence of slowing down energetic ions.

References

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