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Observation of intermittency with varying toroidal magnetic field in a simple toroidal plasma SHEKAR THATIPAMULA, SURABHI JAISWAL, UMESH KUMAR, RAJARAMAN GANESH, YOGESH SAXENA, RAJU DANIEL, Institute for Plasma Research — In a simple toroidal plasma, self-consistent poloidal flow generation with varying toroidal magnetic field is observed. The toroidal magnetic field is varied in strength and topology. In our previous work, a rapid transition from coherent to turbulent fluctuations in plasma parameters was observed on varying toroidal magnetic field strength from 220 G to 440 G . In the present work, the toroidal magnetic field is varied in strength, topology, and the statistical properties of fluctuations are investigated [Carreras et al, Phys. Plasmas 3, 2664 (1996)]. The successive variation in toroidal magnetic field strength around 220 G is limited to a low magnitude, typically 45 G , to study the transition in intermittency carefully. Further, the external vertical magnetic field is varied with toroidal magnetic field fixed at 220 G and transition in fluctuations is investigated. A comparison of probability distribution functions and deviation from Gaussianity with varying toroidal magnetic field strength and topology is made and the results will be presented.

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