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**Seed Magnetic Islands Effect on Turbulence and Transport**

HONGYING FENG, WENLU ZHANG, Institute of Physics, Chinese Academy of Science, Beijing 100190, China, ZHIHONG LIN, Department of Physics and Astronomy, University of California, Irvine, California, 92697, USA — Micro-turbulence is of great significance on the particle and energy transport, which have been widely investigated theoretically, experimentally and computationally. Its interaction with tearing mode, which can change the topology by creating a magnetic island and cause destructive consequences, have drawn a long-time interest among researchers. The pressure flattening within the magnetic island can decrease the bootstrap current, and thus influence the island evolution by triggering the neoclassical tearing modes. On one hand, turbulence strongly effects the density, temperature, and bootstrap current perturbations, which plays a key role in island physics. On the other hand, the flattened profiles within the island changes the density and temperature gradient, and the drive for turbulences in turn. In this work, self-consistent density, temperature profiles are constructed in presence of a seed magnetic island, and its effect on the turbulence is investigated.

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