Particle simulation of field reversed configuration XISHUO WEI,
WENHAO WANG, PENGFEI LIU, JIAN BAO, ZHIHONG LIN, University of California, Irvine — We have developed a GTC-X code (based on GTC) to study global
turbulent transport in FRC. A coupled simulation of scraped-off-layer (SOL) and
core regions is realized in the code with the help of a carefully designed grid system, and the ITG instability in SOL has been verified. Drift kinetic electron (DKE)
model has been implemented to understand the influence of trapped electrons on
drift waves. We will implement the gyroaveraging algorithm as in previous GTC
code and study the influence of radial electric field to the linear ITG mode. Furthermore, to simulate high frequency waves, we have developed a fully kinetic ion
(FKI) model to examine the weak magnetic field region and the beam ions. Finally,
we have derived the self-consistent equations for FKI with fluid elections, which is
used to produce the numerical equilibrium ion distribution of FRC in GTC-X.

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