Gyrokinetic study of electron transport in NSTX using XGC
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, Princeton Plasma Physics Laboratory — Electron anomalous transport may play a significant role in the plasma confinement in NSTX. In such a situation it becomes important to identify the origin of the electron heat and particle transport and find ways of reducing it. Among the possible electron modes, the electron temperature gradient mode (ETG) can be important both in the core and edge pedestal plasmas. Here we aim to study the role of ETG on the anomalous loss of electrons in the NSTX tokamak with the gyrokinetic code XGC. XGC is an X-point included full-f gyrokinetic code which can also be run in the delta-f limit. We present a benchmark study of the ETG mode against those from existing flux tube gyrokinetic codes in the limit of simple circular ad hoc model similar to the cyclone base case. Simulations for actual experimental profiles and parameters corresponding to the NSTX will also be reported.

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