

Abstract Submitted
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GTC simulations of ion temperature gradient driven instabilities in W7-X and LHD stellarators HONGYU WANG, Fusion Simulation Center, Peking University, Beijing 100871, China; University of California, Irvine, CA 92697 — We report GTC linear simulations of ion temperature gradient (ITG) instabilities in Wendelstein7-X (W7-X) and Large Helical Device (LHD) stellarators. GTC has recently been updated to treat 3D equilibria by interfacing with MHD equilibrium code VMEC. GTC simulations of ITG have been carried out in both full torus and partial torus taking into account the toroidal periodicity of the stellarators. The effects of toroidal mode coupling on linear dispersions and mode structures in W7-X and LHD are studied. The mode structure in W7-X is more localized in the toroidal direction, and LHD is more extended in the toroidal direction and tokamak-like. Linear growth rates, real frequencies, and mode structures agree reasonably with results of EUTERPE simulations. In collaboration with I. Holod, J. Riemann, Z. Lin, J. Bao, L. Shi, S. Taimourzadeh, R. Kleiber, and M. Borchardt.

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