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Simulation of Internal Kink Mode using GTC[1] JOSEPH MCCLENAGHAN, ZHIHONG LIN, Unversity of California, Irvine — Magnetohydrodynamic (MHD) instabilities excited by equilibrium current in toroidal fusion devices play important roles in plasma stability and confinement. Kinetic effects are important in the excitation and saturation of the MHD modes, as well as resulting transport. In this work, we have applied Gyrokinetic Toroidal Code (GTC) to study kinetic effects in current-driven MHD modes. As the first step, we have performed GTC simulation of the n=m=1 internal kink mode, which has been studied extensively in tokamak experiments, theory and MHD simulations. We will compare the dispersion relation and mode structure from the simulation to the ideal MHD theory in a low beta, large aspect ratio limit to verify the gyrokinetic simulation of current-driven MHD modes.

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