Status of the 5D gyrokinetic code COGENT and its initial applications[1] WONJAE LEE, UCSD, M. DORF, M. DORR, LLNL, R. COHEN, CompX, D. GHOSH, T. ROGNLIEN, J. HITTINGER, M. UMANSKY, LLNL, S. KRASHENINNIKOV, UCSD — We report recent progress with the development of the 5D (3D configuration and 2D velocity space) version of the full-f continuum gyrokinetic code COGENT. The original 2D configuration space has been successfully extended to 3D, with the Cartesian (slab) geometry chosen for verification and initial applications. The code has been successfully verified with drift-wave simulations including drift-kinetic equations for both electrons and ions coupled to the long-wavelength limit of the Gyro-Poisson equation. The initial application of the 5D COGENT is focused on addressing kinetic effects of drift-wave instabilities (e.g., universal instability) on blob dynamics in tokamak edge plasmas.

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