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Measurement of Apparent Poloidal Rotation of Ion-Scale Turbulence with the KSTAR Microwave Imaging Reflectometer

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Mean apparent poloidal rotations of ion-scale density fluctuations in the laboratory frame were observed with the microwave imaging reflectometer (MIR) system in KSTAR ohmic and neutral beam (NB) heated L-mode plasmas. The estimated apparent poloidal velocities are 1-2 km/s at $r/a \sim 0.5$ in the electron diamagnetic direction for ohmic plasmas, and 8-10 km/s at $r/a \sim 0.6$ and 5-6 km/s at $r/a \sim 0.7$ in the ion diamagnetic direction for NB heated L-mode plasmas. For NB heated L-mode plasmas, the apparent poloidal velocities often deviate from the poloidally projected toroidal velocities of carbon ions and the difference is 2-3 km/s. Possible sources of the measured difference are under investigation including difference in toroidal velocity between the carbon and main deuterium ions.

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