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Drift-wave Turbulence in the Helimak[1] KEVIN LEE, JAKUB FELKL, KENNETH GENTLE, DYLAN MIRACLE, Fusion Research Center, University of Texas at Austin — We present an experimental characterization of drift-wave turbulence in the Helimak, not only a finite realization of the sheared, cylindrical slab used in turbulence calculations, but also a good approximation for the SOL of a tokamak. Measurements of electrostatic turbulence are made both using an large fixed array of langmuir probes and a moveable array on a motorized probe drive. We examine such non-spatially oriented quantities as turbulence levels, fluctuation frequencies, and phases between density and electrostatic potential fluctuations. Measurements on dispersion relations and coherence lengths in both the radial and vertical directions are used to characterize the turbulence in the plane perpendicular to the magnetic field. In addition to this information, we also present a study of fluctuations parallel to the field lines, including measurements of parallel coherence lengths and parallel wavenumbers. Furthermore, we employ the use of wire coil probes to characterize fluctuations of both radial and vertical magnetic fields. We explore the relationships between density, potential, and magnetic turbulence.

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