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Measurements of Turbulent Transport in Simple Interchange Turbulence KENNETH GENTLE, WILLIAM ROWAN, CHAD WILLIAMS, University of Texas at Austin, MARK KOEPKE, SAM NOGAMI, University of West Virginia — The Helimak is an approximation to the infinite cylindrical slab with a size large compared with turbulence transverse scale lengths, but with open field lines of finite length. It is also an excellent simplified model of a tokamak SOL. Interchange modes are the dominant instability, characterized by a very high level of nonlinearly saturated fluctuations, ∼50%. Flow velocity profiles and shear can be greatly modified by the application of radial electric fields through external biasing of the flux surfaces – cylindrical shells. Using newly-developed novel baffled probes that can directly measure the actual plasma potential, a multi-tip configuration optimized for local inference of the electrostatic particle flux has been built for the Helimak. The first radial profiles of the particle flux and the changes with bias will be presented. The contrast between the baffled probe measurements of plasma potential and conventional probe measurements of floating potential will be shown.
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