

Abstract Submitted
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High- n tearing-parity modes in toroidal geometry¹ WILLIAM NEVINS, LLNL, P.O. Box 808, Livermore, CA 94551 — We attempt to elucidate how effects associated with toroidal geometry generate parallel currents through mechanisms absent in slab or cylindrical geometry. In particular, we find that the presence of geodesic curvature introduces a novel mechanism for generating a parallel acceleration from perpendicular electric fields. This effect may be important to the effectiveness of nearly electrostatic tearing-parity modes in generating magnetic stochasticity; the (previously unexpected) instability of micro-tearing modes at low aspect ratio [2, 3]; as well as the unexpectedly large current-channel width observed in recent simulations of microtearing modes [4].

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