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**Finite Larmor Radius Effects at the Tokamak Edge**

**and the Associated MHD Equilibria**

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We will present a novel mechanism for producing the equilibrium potential well near the edge of a tokamak [1]. Briefly, because of the difference in gyroradii between electrons and ions, an equilibrium electrostatic potential is generated in the presence of spatial inhomogeneity of the background plasma due to [2],



which, in turn, produces a well associated with the radial electric field, Er, as observed at the edge of many tokamak experiments. We will show that this theoretically predicted Er field, which can be regarded as producing a long radial wave length zonal flow, actually agrees well with recent measurements on JET [3], NSTX [4], and C-MOD [5]. The relationship between the equilibrium pressure balance due to the Finite Larmor Radius effects used in the study [1, 2],



and the associated MHD equilibria based on the SPEC code [6] will also be explored.

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