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**Asymmetric Magnetic Island Dynamics with Curvature Effects**

M. STEFANY CANCINO, JULIO J. MARTINELL, Universidad Nacional Autónoma de México, FRANÇOIS L. WELBROECK, University of Texas, Austin — Magnetic islands allow heat and particle flow within the separatrix along the closed flux surfaces, thus establishing a connection between inner and outer plasma regions in the toroidal plasma, which in turn deteriorates confinement. In general, magnetic islands are not symmetric, as they can have a certain degree of asymmetry in the radial direction. Such asymmetry affects in turn the stability of tearing modes, through a modification of the temperature profiles. Previous works have studied the influence of the magnetic island asymmetry on density and temperature profiles, but there are some discrepancies among the various results over the actual effect produced. On the other hand, previous studies have shown that the magnetic field line curvature has an influence on the tearing mode instability, modifying the width of the island given by the Rutherford equation. The curvature centrifugal term can have a stabilizing or destabilizing effect, depending on the direction of the average curvature. The present work studies the magnetic island dynamics when it has radial asymmetry taking into account magnetic curvature effects in a slab model complementing the existing discussion about the influence of these effects on the profiles of plasma parameters such as density and temperature.

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