

Abstract Submitted
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Three-dimensional magnetized and rotating hot plasma equilibrium in a gravitational field¹ PETER J. CATTO, MIT Plasma science & Fusion Center, SERGEI I KRASHENINNIKOV, University of California at San Diego, ISTVAN PUSZTAI, Department of Applied Physics, Chalmers University of Technology — We present analytic and numerical solutions for three-dimensional magnetized axisymmetric equilibria confining rotating hot plasma in a gravitational field. Our solution to the full Shafranov-Grad equation can exhibit strong equatorial plane localization of the plasma density and current, resulting in disk equilibria for the plasma density. We find that a toriodal magnetic field is sometimes necessary to find an equilibrium in the presence of gravity for many cases of interest.

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