

Abstract Submitted
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Analytical and numerical solutions of a force-free equilibrium with flow ROBERTO PACCAGNELLA, Consorzio RFX and CNR, Italy, LUCA GUAZZOTTO, University of Rochester — The model of plasma equilibrium in presence of a rigid rotation in toroidal direction and/or in a large aspect ratio approximation with arbitrary poloidal flow is studied for a force-free plasma. With this simplifying assumptions the set of Grad-Shafranov-Bernoulli equations decouples. Assuming further a self-similar solution for the poloidal flow stream function it is possible to find an analytical solution for the problem. This solution is compared with a numerical simulation using the FLOW code [1]. Numerical cases assuming a more general toroidal velocity profile with shear, are also considered.

[1] Guazzotto L, Betti R, Manickam J and Kaye S 2004 *Phys. Plasmas* **11** 604.

Roberto Paccagnella
Consorzio RFX and CNR, Italy

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