

Abstract Submitted
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Density limit in the Reversed Field Pinch M.E. PUIATTI, M. AGOSTINI, S. CAPPELLO, P. INNOCENTE, R. LORENZINI, R. PACCAGNELLA, I. PREDEBON, P. SCARIN, G. SPIZZO, D. TERRANOVA, M. VALISA, Consorzio RFX, Euratom-ENEA Association, Corso Stati Uniti 4, 35127 Padova - Italy — A phenomenological density limit is observed in the Reversed-Field Pinch, arising when the density, normalized to the Greenwald density $n_G = I/\pi a^2$, exceeds values $\simeq 0.4 \div 0.5$. In this paper we connect the presence of toroidally localized patterns of increased radiation and density, observed experimentally in the RFX, to the loss of electrons driven by $m = 0, n \geq 1$ islands in the plasma edge. This loss of electrons causes a toroidally localized inversion of the plasma flow in the edge, which is at the basis of the radiation and density accumulation. This phenomenon will be studied by means of the guiding centre code ORBIT¹, using as input the experimentally inferred eigenfunctions for the MHD $m = 0, 1, n$ modes.

¹R. B. White and M. S. Chance, Phys. Fluids **27**, 2455 (1984)

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