Pressure driven tearing modes in the Reverse Field Pinch

ROBERTO PACCAGNELLA, Consorzio RFX and CNR — In a recent paper [1] experimental measurements of magnetic field perturbations in the RFX-mod Reverse Field Pinch device has been compared with stability calculations and interpreted as resistive g modes. In this paper a deeper analysis reveals that the modes discussed in [1] although as correctly stated in the paper are effectively mainly driven by the pressure gradient, they have a clear tearing parity. We analyze the dependence of the growth rate of these modes on several physical parameters including the Lundquist number, S, the plasma beta and also the changes in the equilibrium current and pressure profiles. The work confirms a previously published result [2] showing that these modes are converted to ideal interchange instabilities at very high beta.