

Abstract Submitted
for the DPP08 Meeting of
The American Physical Society

Stability of a new toroidal magnetized plasma device with permanent poloidal field induced by a central conductor STEVE JAEGER, THIERY PIERRE, CNRS and Aix-Marseille University, France — A new toroidal device has been recently established at the Institute for Fusion Physics, CNRS-Univ. Marseille, including a central conductor on the secondary axis of the torus. The large radius is 60 cm and the small radius is 20 cm. The central conductor is made of three toroidal turns of a copper bar bearing 400 Amps. The toroidal magnetic field is lower than 400 Gs, leading to a security factor $q=1$ at radius r close to 6 cm. The plasma is produced using a small tungsten filament (4 cm length, 0.2 mm diameter) at radius $r=2$ cm and applying the discharge voltage between the filament and the central conductor. A high density plasma is obtained due to the efficient confinement and in typical discharges, no instability is recorded in the core plasma. The stability is studied changing both the gas pressure (argon gas) and the shear rate of the poloidal field.

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Date submitted: 19 Jul 2008

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