Abstract Submitted
for the DPP06 Meeting of
The American Physical Society

Excitation and Detection of Drift Waves in TORPEX toroidal plasma[1] A. DIALLO, A. FASOLI, I. FURNO, B. LABIT, S. MULLER, G. PLYUSHCHEV, M. PODESTA, F. POLI, CRPP-EPFL — Low frequency $\omega \ll \omega_{ci}$ electrostatic fluctuations are ubiquitous in laboratory plasmas and play an important role in anomalous cross-field transport. In TORPEX plasmas, Langmuir probes covering the whole plasma cross-section are used to determine the local dispersion relation. The low frequency fluctuations are identified as drift interchange-modes. Coupling to the stable modes using an antenna is a first step in understanding the underlying excitation mechanism. Moreover, this may lead to methods that alter the instability spectrum. The antenna consists of a movable poloidal arrangement of four electrodes. Each electrode is phased independently and is driven with a sinusoidal potential. The wave field is obtained using a synchronous detection technique applied to the probes in the ion saturation regime. Results of the wave field dependency on the launched frequency, on the relative phase shift between electrodes, and on the driving amplitude are presented. On the passive side (with no excitation), an investigation of the energy transfer between distinct frequency bands on the unstable modes is conducted. The status of the implementation of non-pertubative optical diagnostics on TORPEX will also be discussed.

[1]This work is partly funded by the Fonds National Suisse de la Recherche Scientifique

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Date submitted: 19 Jul 2006 Electronic form version 1.4