

replacing DPP16-2016-000419.
Membership pending

Abstract Submitted
for the DPP16 Meeting of
The American Physical Society

Density and magnetic fluctuations at JET: experimental observation and numerical characterization¹ GIANLUCA DE MASI, ITALO PREDEBON, SILVIA SPAGNOLO, Consorzio RFX, C.so Stati Uniti 4, 35127 Padova, Italy, IVAN LUPELLI, JON HILLESHEIM, LUIS MENESES, COSTANZA MAGGI, CCFE, UK Atomic Energy Authority, Culham Science Centre, Abingdon, OX14 3DB, UK, EPHREM DELABIE, Oak Ridge National Laboratory, Oak Ridge, Tennessee 37831-6169, USA, JET CONTRIBUTORS TEAM — Density and magnetic fluctuations have been experimentally observed on JET in the inter ELM phases in low beta discharges. They have been characterized in terms of typical frequency range (60-80 kHz), wavenumber ($0.01 \leq ky \rho_i \leq 0.1$), radial localization (pedestal top) and correlation with the relevant kinetic quantities [1]. A linear simulation with gyrokinetic code GENE [2], matching the experimental edge condition has been performed to gain insight on their possible physical interpretation. ITG modes turn out to be the most unstable modes for $0 \leq ky \rho_i \leq 1$, while microtearing modes (MTMs) are the dominant instabilities for $ky \rho_i \leq 0.1$. A typical oscillation frequency of about 50-100 kHz is associated to both unstable modes, with opposite propagation direction. Different considerations suggest an interpretation in terms of MTMs for the observed magnetic fluctuations, while density fluctuations appear to be dominated by ITG instabilities. [1] G. De Masi et al., 57th DPP APS Conference, 2015, Savannah (GA) [2] <http://www.genecode.org>

¹EUROfusion Consortium, JET, Culham Science Centre, Abingdon, OX14 3DB, UK

Gianluca De Masi
Consorzio RFX, C.so Stati Uniti 4, 35127 Padova, Italy

Date submitted: 13 Jul 2016

Electronic form version 1.4