Contribution ID: **296** Type: **Oral**

Global stabilization effect of Shafranov shift on the edge pedestal plasmas in JET and JT-60U

Wednesday, 19 October 2016 15:00 (20 minutes)

Here we report the global stabilization effect of Shafranov shift on the edge pedestal plasmas. Experimental observations show that (i) the increased Shafranov shift stabilizes the ballooning component of the peeling-ballooning mode (PBM) so that the edge pressure gradient is raised together with the expansion of the edge transport barrier (ETB) and (ii) when the Shafranov shift is fixed the increased collisionality reduces the edge pressure gradient whereas the ETB expands. This physics process has been examined using JET and JT-60U, in both of which the Shafranov shift stabilizes the pedestal most effectively because the pedestal plasmas in these devices are constraint systematically by the ballooning component of the PBM instability. The results will give a physics picture of H-mode edge and core interplay which contributes to an accurate prediction of the ETB structure in ITER.

Paper Number

EX/3-4

Country or International Organization

Japan

Primary author: Dr URANO, Hajime (JAEA)

Co-authors: Dr GIROUD, Carine (CCFE); Dr CHALLIS, Clive (Culham Centre for Fusion Energy); Dr MAGGI, Costanza (CCFE); Dr CHAPMAN, Ian (CCFE Fusion Association); Dr LUPELLI, Ivan (CCFE); Dr KAMIYA, Kensaku (JAEA); FRASSINETTI, Lorenzo (KTH, Royal Institute of Technology); Dr BEURSKENS, Marc (CCFE); Dr LEYLAND, Matthew (University of York); Dr AIBA, NOBUYUKI (Japan Atomic Energy Agency); Dr SAARELMA, Samuli (CCFE); Dr PAMELA, Stanislas (CCFE - UKAEA)

Presenter: Dr URANO, Hajime (JAEA)

Session Classification: Pedestal & ELM Physics

Track Classification: EXC - Magnetic Confinement Experiments: Confinement