

LOW-FREQUENCY FLUCTUATIONS OF DIVERTED
PLASMA FLOW AND THEIR RELATION TO EDGE
FLUCTUATIONS IN THE URAGAN-3M
TORSATRON

*A.A. Beletskii, L.I. Grigor'eva, E.L. Sorokovoy,
V.V. Chechkin, Ye.L. Sorokovoy, Ye.D. Volkov,
P.Ya. Burchenko, A.Ye. Kulaga, S.A. Tsybenko,
A.V. Lozin, A.S. Slavnyj, Yu.S. Lavrenovich,
N.V. Zamanov*

Institute of Plasma Physics, National Scientific Center
"Kharkiv Institute of Physics and Technology"
(1, Akademichna Str., Kharkiv 61108, Ukraine;
e-mail: beletskii@ipp.kharkov.ua)

S u m m a r y

In the $l = 3/m = 9$ U-3M torsatron with a natural open helical divertor and a plasma produced and heated by RF fields, the joint studies of low-frequency (5–100 kHz) density (ion saturation current) fluctuations at the scrape-off layer (SOL) of the plasma and in the diverted plasma flow (DPF) have been carried out. The knowledge of the relation between fluctuation processes at the boundary and in the divertor region is important as the former are known to induce the anomalous transport, while the level of density fluctuations in some DPF can attain more than 20% of the equilibrium component. The spectral characteristics of DPF fluctuations are compared with those of fluctuations in the SOL, and two characteristic frequency ranges are revealed. Modifications of spectral characteristics due to the spontaneous transition to an improved confinement mode are investigated as well.