

Abstract Submitted
for the DPP06 Meeting of
The American Physical Society

Neoclassical Tearing Modes and Fast Ions Confinement in AS-DEX Upgrade¹ PIERO MARTIN, (a), H. -U. FAHRBACH, (b), M. GARCIA MUNOZ, (b), S. GUENTER, (b), H. ZOHN, (b), A. FLAWS, (b), M. GOBBIN, (a), V. IGOCHINE, (b), M. MARASCHEK, (b), L. MARRELLI, (a), E. STRUMBERGER, (b), R. B. WHITE, (c), ASDEX UPGRADE (B) TEAM — We present new ASDEX Upgrade (AUG) results on fast ion losses (FIL) caused by NTMs. A new detector provides energy and pitch-angle resolved FIL measurements (1 MHz bandwidth). Lost particles, of NBI origin, are mostly passing, and are lost basically with their birth energy (100 keV). Their transit frequency (approx. 200 kHz) is higher than the mode frequency (typically less than 20 kHz). We observe a good coincidence between the frequency and phase of the mode and those of the losses and a strong correlation between the NTM amplitude and the amount of FIL. This is discussed as a result of orbit stochasticity: small magnetic perturbations, which do not cause magnetic field lines ergodicity, can nevertheless result in drift islands in the fast particles phase space. Simulations of this mechanism with the Hamiltonian guiding center code ORBIT give results consistent with experimental data.

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Date submitted: 20 Jul 2006

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