

Abstract Submitted
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Gyrokinetic Analysis of ASDEX-Upgrade Inter-ELM Pedestal Profile Evolution DAVID HATCH, Institute for Fusion Studies, University of Texas at Austin, M.G. DUNNE, H. DOERK, F. JENKO, D. TOLD, E. WOLFRUM, E. VIEZZER, Max Planck Institute for Plasma Physics, THE ASDEX-UPGRADE TEAM — The gyrokinetic GENE code is used to study Inter-ELM H-mode pedestal profile evolution on the ASDEX Upgrade Tokamak. Four main instabilities are observed during various inter-ELM phases—density gradient driven drift waves (DWs), microtearing modes (MTMs), kinetic ballooning modes (KBMs), and electron temperature gradient (ETG) modes. We focus in detail on three time points: 1) an early time point during which the radial electric field profile has not recovered and low k_y DWs are the sole instability, 2) an intermediate phase during which the electron temperature gradient is fixed at a critical value, but the KBM limit has not been fully reached, and 3) the phase immediately preceding the ELM, during which the profiles are near or above the KBM limit. The properties of the dominant microinstabilities are generally consistent with the profile evolution. Complementary nonlinear simulations will also be presented.

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