

Abstract Submitted
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Variation of ELM Frequency with NBI Heating Delay in DIII-D¹ SANTANU BANERJEE, William Mary, FRANCESCA TURCO, Columbia University, SASKIA MORDIJCK, William Mary, TIMOTHY LUCE, ITER Organization — The impact of increase in heating power with respect to the current ramp-up and flat top on the pedestal structure is not yet understood. In DIII-D we observe that if the NBI heating time is altered with respect to reaching the I_p flat-top, ELM frequency (f_{ELM}) can vary by a factor of 2 from $\sim 30\text{Hz}$ to $\sim 60\text{Hz}$ while the pedestal width and height are similar prior to the first ELM. Fueling is same (20 Torr/s) prior to L-H transition and onwards. While all discharges show low frequency quasi-coherent magnetic fluctuations ($<100\text{ kHz}$), discharges with low f_{ELM} show broadband fluctuations at high frequency (300-400 kHz) in the magnetic spectrogram, whereas for those with higher f_{ELM} a quasi-coherent mode is observed at 220 kHz. Magnetic fluctuations characteristics and role of the L-H mode transition time with respect to the I_p flat top and its effects on the pedestal formation will be investigated to address the differences in f_{ELM} . We will investigate time-dependent evolution of the pedestal values before onset of the first ELM and pedestal stability during the ELMing regime. Understanding the impact of the heating onset with respect to the I_p ramp-up on the pedestal and confinement might open opportunities for accessing similar confinement regimes with potentially smaller or no ELMs.

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