

Abstract Submitted
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ELM Mitigation in Low-rotation ITER Baseline Scenario Plasmas on DIII-D with Deuterium Pellet Injection¹ L.R. BAYLOR, ORNL — ELM mitigation using high frequency D₂ pellet ELM pacing has been demonstrated in ITER baseline scenario plasmas on DIII D with low rotation obtained with low NBI input torque. The ITER burning plasmas will have relatively low input torque and are expected to have low rotation. ELM mitigation by on-demand pellet ELM triggering has not been observed before in these conditions. New experiments on DIII-D in these conditions with 90 Hz D_2 pellets have shown that significant mitigation of the divertor ELM peak heat flux by a factor of 8 is possible without detrimental effects to the plasma confinement. High-Z impurity accumulation is dramatically reduced at all input torques from 0.1 to 2.5 N-m. Fueling with high field side injection of D_2 pellets has been employed to demonstrate that density buildup can be obtained simultaneously with ELM mitigation. The implications are that rapid pellet injection remains a promising technique to trigger on-demand ELMs in low rotating plasmas with greatly reduced peak flux while preventing impurity accumulation in ITER.

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