

Abstract Submitted
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Application of Pellet Injection to Mitigate Transient Events in ITER¹ LARRY BAYLOR, Oak Ridge National Lab — The injection of cryogenic pellets has been shown to be useful for mitigation of ELMs and disruptions, which are potentially damaging transient events that can lead to reduced operating time in ITER. The triggering of small ELMs by pellets has been demonstrated as a method to prevent large ELMs that can erode plasma facing components [1]. D₂ pellets <3mm in size are planned for ITER to trigger ELMs at higher rates than they will naturally occur. Injection of multiple large pellets >25mm in size of neon, argon, and D₂ mixtures are planned to mitigate disruptions. Shattered pellets have been shown to successfully mitigate thermal and current quenches in DIII-D with higher assimilation than massive gas injection [2]. A flexible multi-barrel system for shattered pellet injection is now being designed for disruption mitigation in ITER. The technology and the physics of the pellet plasma interactions for these systems on ITER will be discussed.

[1] L.R. Baylor *et al.*, *Phys. Rev. Lett.* 245001 (2013)

[2] N. Commaux *et al.*, submitted for publication.

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