

## Session Introduction: Disruption Mitigation by Shattered Pellet Injection

Successfully mitigating a disruption (once it is deemed unavoidable) remains a major challenge for ITER [1]. Shattered pellet injection (SPI) [2] has been chosen as the baseline ITER disruption mitigation system (DMS) due to its superior impurity mass delivery capabilities in the ITER environment relative to the only other mature alternative at the present time, massive gas injection (MGI). The worldwide SPI experimental program has grown tremendously in recent years, expanding from only a single installation on D3D since 2009 to systems on J-TEXT and HL-2A in 2018, and JET and KSTAR in 2019. Similarly, recent computational efforts around the globe are building 3D extended MHD models of SPI mitigation into the various devices in order to validate the models and reliably predict SPI performance in ITER. Along with the proliferation of these activities, coordinating bodies for SPI research have also been developed, including the ITER Disruption Task Force to provide targeted funding for near-term SPI research critical to the ITER DMS design, and ITPA MDC-24 for SPI physics validation to provide an avenue for the comparison of SPI physics data between devices. This session on disruption mitigation by SPI at the IAEA Technical Meeting on Plasma Disruptions and their Mitigation is designed to provide expert overviews of the worldwide efforts in SPI research, collating efforts from numerous devices and research groups across the globe in order to provide a clear assessment of the state of SPI research at the present time, identify holes in our collective understanding, and formulate effective future efforts.

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[1] M. Lehnen et al *J. Nucl. Mater.* **463** (2015) 39–48

[2] L. Baylor et al *Nucl. Fusion* **59** (2019) 066008

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