Confinement can be recovered to pre-RMP levels utilizing hysteresis of ELM suppression maintaining low ω , e

- Hysteresis enables RMP current to be significantly reduced
 - ELM suppression with low rotation at rational surface maintained

 Gradient driven flows compensate core spin up to maintain low ω_{□,e}



Wide variety of pedestals are consistent with low $\omega \square$,e constraint for RMP-ELM suppression



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BACKUP OPTION FOLLOWS

DIII-D experiments find 3D plasma response correlated with ELM suppression driven at low pedestal collisionality

- Increasing pedestal density and collisionality turns off high-field side plasma response
 - Low-field side kink response insensitive to collisionality
 - Ideal and resistive MHD modeling struggles to capture effect
- Opposite effect seen with plasma pressure: HFS invariant while LFS kink response driven by β_N



ITER-relevant collisionality needed to excite MHD mode spectrum that suppresses ELMs



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