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Latest Results on Resonant Magnetic Perturbation (RMP) Induced ELM Suppression on DIII-D[1] R. NAZIKIAN, Princeton Plasma Physics Laboratory, RMP ELM SUPPRESSION TASK FORCE TEAM — Recent experiments on DIII-D have revealed new insights into the suppression of edge localized modes (ELMs) by RMPs. A leading hypothesis for ELM suppression is that resonant fields open up islands at the top of the H-mode pedestal where the perpendicular electron velocity V_e is small. These islands enhance transport, flatten the pressure profile and restrict the width of the pedestal sufficient to suppress the Peeling-Ballooning mode. Experiments with strong counter rotating plasmas maintained large V_e across the plasma profile and RMP ELM suppression was not observed, consistent with the model. X-ray imaging measurements reveal structure inside the last closed flux surface that may indicate the presence of islands in ELM suppressed plasmas. A new lower limit for $n = 3$ RMP ELM suppression of 1.3 kA in the I-coils provides a strong test of the requirement for ELM suppression based island and stochastic field line models. Rapid modulation of the RMP amplitude reveals a prompt response of the turbulence on the time scale of the E_r change, indicative of turbulent transport modification as a precursor to the pressure profile evolution and ELM suppression. Experiments to open up additional q_{95} windows of ELM suppression will be discussed.

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Raffi Nazikian
Princeton Plasma Physics Laboratory

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