

ELM Suppression by Resonant Magnetic Perturbation in High-Performance, Stationary Plasmas

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Abstract. The method of resonant magnetic perturbation (RMP) has been shown to suppress edge-localized modes (ELMs) in the high-performance, stationary (or “hybrid”) scenario in the DIII-D tokamak. Calculations of stability to peeling-ballooning modes are shown to be consistent with the observed suppression of Type-I ELMs, while the ELM suppression, dependence on edge safety factor, and density pump-out are similar for hybrids and standard H-mode discharges. However, other small ELMs can appear when the edge safety factor is outside the resonance window, or when the H-mode pedestal is perturbed, which are not related to peeling-ballooning stability. The role of the edge bootstrap current in determining stochastic heat transport during RMP is discussed.

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