

Suppression of Type-I ELMs Using a Single Toroidal Row of Magnetic Field Perturbation Coils in DIII-D*

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Abstract. In recent DIII-D [J.L. Luxon, *et al.*, Nucl. Fusion **43**, 1813 (2003)] experiments, suppression of Type-I Edge Localized Modes (ELMs) was obtained by applying $n = 3$ Resonant Magnetic Perturbations (RMPs) using a single toroidal row of internal, small aperture coils located either above or below the equatorial plane in plasmas with ITER-like electron pedestal collisionality $\nu_e^* \sim 0.1$, flux surface shape and low edge safety factor ($q_{95} \approx 3.6$). ELM suppression with a single row of coils was achieved at approximately the same q_{95} surface-averaged perturbation field as with two rows of coils, but required higher current per coil. Suppression of Type-I ELMs was not obtained with similar $n = 3$ perturbation strength at the q_{95} surface from a single-row of external, large aperture coils on the outer equatorial midplane.

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