# Control of Type-I ELMs by Resonant Magnetic Perturbations in ITER Similar Shaped Plasmas on DIII-D*

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Using the new high triangularity (δ) pumping capability on DIII-D, suppression of large Type-I ELMs by n=3 Resonant Magnetic Perturbations (RMPs) from an internal coil (I-coil) was extended to ITER Similar Shape (ISS) plasmas with the ITER pedestal collisionality, $\nu_e^* \sim 0.1$. Complete edge localized mode (ELM) suppression was achieved in a narrower $q_{95}$ operating window and required ~20% greater I-coil current than for comparable plasmas with lower δ shapes, but a substantial reduction of the energy loss per ELM, during higher frequency ELMs, over a much wider $q_{95}$ operating window suggests that $q_{95}$ will not be a limiting factor for RMP ELM control in ITER. In plasmas where ELMs are completely eliminated, peeling-ballooning stability analysis shows that the pedestal operating point is in the stable region near the peeling unstable boundary consistent with previous low δ, low $\nu_e^*$ results. The applied RMP reduces the pedestal pressure gradient $\nabla p^{\mathrm{TOT}}$ ($\nabla n^{\mathrm{ped}}$ reduced while $\nabla T^{\mathrm{ped}}$ increased slightly) to achieve edge stability. The plasma response to pellet injection confirms that the effective pedestal particle confinement is reduced ~2x during ELM suppression. Core and pedestal impurities do not increase during ELM suppression. The dependences of ELM energy losses with variations in $n_e$, $q_{95}$, and $\delta b_r/B_T$ (fixed $q_{95}$) will be presented along with results from very recent studies of the dependence on toroidal rotation and the physics mechanisms responsible for the changes in the particle transport.

*Work supported by the US Department of Energy under W-7405-ENG-48, DE-FC02-04ER54698, DE-FG02-04ER54758, DE-AC05-00OR22725, DE-FG03-01ER54615, DE-FG02-89ER53296, and DE-AC04-94AL85000.