

Response of impurity particle confinement time to external actuators in QH-mode plasmas on DIII-D

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Abstract. A series of quiescent H-mode discharges have been executed with the specific aim of determining the particle confinement time of impurities in the presence of the edge harmonic oscillation. These discharges utilize non-intrinsic, non-recycling fully-stripped fluorine as the diagnostic species monitored by charge-exchange recombination spectroscopy. It is found that the edge harmonic oscillation is an efficient means of impurity expulsion from the core plasma, with impurity exhaust rates comparable to or exceeding those in companion ELMing discharges. As the external torque from neutral beam injection is lowered, the global energy confinement time increases while the impurity confinement time does not display an increase.

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