The role of magnetic balance on the poloidal distribution of ELM-induced peak particle flux at the divertor targets in DIII-D

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Abstract. Edge localized modes (ELMs) are commonly observed in high energy confinement, tokamak plasmas and are thought to be caused by magnetohydrodynamic instabilities driven by the steep pressure gradient and the current in the plasma edge region. Our data show that the divertor magnetic balance, *i.e.*, the degree to which the plasma topology resembles a single-null (SN) or a double-null (DN), strongly determines where particle pulses driven by ballooning instabilities at the plasma edge are distributed to surrounding vacuum vessel surfaces. These data also support the conclusions drawn from the stability analysis that ELMs are generated almost entirely on the outboard side of the main plasma.