

Time resolved measurement of the impurity, ion, and electron dynamics during an ELM cycle

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Abstract. High temporal and spatial resolution measurements of the impurity, ion, and electron response to an edge localized mode (ELM) in DIII-D indicate that the response of all species is nearly identical. In addition, the temperature response is qualitatively similar to the eigenfunction structure of an moderate toroidal mode number, peeling-ballooning instability. While the radial structure of the density response is different than that of the temperature, significant density is expelled by each ELM, confirming the role of ELMs in particle control in H-mode plasmas. The plasma rotation (both poloidally and toroidally) is similarly affected, causing the radial electric field well to be obliterated at each ELM.