**Particle, Heat, and Sheath Power Transmission Factor Profiles During ELM Suppression Experiments on DIII-D***

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Edge localized modes (ELMs) are predicted to be a significant problem for ITER due to impulse heating of the divertor target plates. Using the resonant magnetic perturbation coils on DIII-D, ELMs have been suppressed in both high and low collisionality conditions. During these experiments, target plate profiles of particle flux, heat flux, electron temperature, floating potential ($V_f$) and $D_\alpha$ have been measured with Langmuir probes, infrared cameras, thermocouples, and other diagnostics. Newly obtained target plate profiles with the Langmuir probes have revealed that the magnetic perturbation produces a multi-peaked footprint on the target plate within 2 cm of the strike point determined from equilibrium reconstructions. When the n=3 magnetic perturbation is turned on, the target plate footprint is most visible in the floating potential and agrees with the spacing and $q_{95}$ dependence of an n=3 toroidal pattern predicted by the TRIP3D code at the location of the Langmuir probes. This code predicts where magnetic field lines launched just inside the separatrix can escape the core plasma and impact the target plate. The $V_f$ profile is sensitive to hot electrons escaping the core plasma. At low collisionality, the heat flux calculated from Langmuir probe data (using a fixed sheath transmission factor) is observed to get approximately 20% larger during ELM suppression than between ELMs before the perturbation coils are turned on, but the 5-10X higher impulse heating from the ELMs is no longer present. The sheath power transmission factor profile has also been determined from heat flux, particle flux, and electron temperature data with and without the magnetic perturbation coils that generate the ELM suppression. The sheath factor drop near the strike point is observed in both cases but drops to 1.5 for ELMing H-mode plasma and to 3.5 for ELM suppressed H-mode.

*Work supported by the U.S. Department of Energy under DE-AC04-94AL85000, DE-FC02-04ER54698, DE-FG02-04ER54758, and W-7405-ENG-48.