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Impurity Pellet Injector for Disruption Mitigation Studies in DIII-D*, A.N. James, E.M. Hollmann, J.H. Yu, UCSD, T.E. Evans, G.L. Jackson, P.B. Parks, GA – The DIII-D impurity pellet injector, formerly lithium pellet injector, has been recommissioned primarily for the purpose of disruption mitigation experiments. The first pellet injected into a H-mode plasma was a solid 1 mm cylindrical carbon pellet which completely ablated in the pedestal and did not cause a disruption. More than 90% of carbon which reached the pedestal was assimilated into the core on a transport time scale of ~ 10 ms, roughly doubling plasma carbon content. We will report on planned experiments involving injection of low-Z shell pellets made of polystyrene which contain a dispersive payload of tracer material: boron dust in cylinders or 10 atm argon gas in spherical pellets. The goal in both cases being delivery of large quantities of electrons to the core before triggering a thermal quench. Another experiment to be reported involves injecting small carbon pellets during the current quench phase of a disruption to attempt probing the properties of runaway electrons.

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