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**Triggering Edge Localized Modes through Lithium Dust Injection** BRENDAN JOHN, LANE ROQUEMORE, DENNIS MANSFIELD, FORREST FRIESEN, Princeton Plasma Physics Laboratory — Edge Localized Modes (ELMs) of low amplitude should have the beneficial effect of transporting impurities away from the core plasma, without reducing the plasma stored energy, thus improving the performance of a Tokamak fusion device. In past experiments deuterium pellets have been injected into the DIII-D Tokamak, successfully triggering ELMs, and ITER is considering using deuterium pellets injected by a gas gun to trigger ELMs. Here, a new apparatus for injecting packets of lithium powder into a Tokamak at a frequency of greater than 100Hz, with the hope of triggering ELMs, was designed, built, and tested in a small vacuum chamber. The apparatus drops a thin sheet of lithium powder of diameter 40 micrometers to 500 micrometers onto a rotating paddle wheel, which propels packets of the lithium forward at greater than 20m/s. A fast framing camera was used to measure the velocity and spatial distributions of the particles leaving the paddle wheel.

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