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**Relationship between ELM size and its transport speed through the scrape-off layer in NSTX**[1] RAMAN MAINGI, Princeton Plasma Physics Lab, TRAVIS GRAY, Oak Ridge Institute for Science and Education, RAJESH MAINGI, Oak Ridge National Lab — Edge localized modes (ELMs) are of concern for future devices because they damage plasma facing components, due to high particle and heat fluxes. ELMs are believed to release energy in a narrow poloidal layer near the outer midplane, where the magnetic field is weakest and the ballooning instability is strongest. Here we characterize transport of the ELM fluxes through the scrape-off layer (SOL), the region of open field lines just outside the magnetic separatrix. One way to quantify this is by measuring the in-out delay, the difference in time between the ELM flux reaching the outer and inner diverter strike points. This measure is correlated with the average speed of the ELM through the SOL. We compare these sppeds to various measures of the ELM magnitude, e.g. increase of D-alpha emission, and decrease of plasma density and stored energy. We find that as the size of an ELM increases, the average speed with which it travels through the SOL tends to increase, qualitatively consistent with an expectation that larger ELMs dump hotter particles into the SOL, yielding faster SOL transport rates.

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