

Abstract Submitted  
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**Identifying Displaced Decays of Long-lived Hidden Sector Particles** HEATHER RUSSELL, University of Washington — We present a study of employing jet substructure techniques to identify decays of long-lived neutral particles to heavy quark pairs when these decays occur in the ATLAS Inner Detector. As a baseline model for these studies, we use the hidden valley scenario proposed by Strassler and Zurek (arXiv:hep-ph/0605193), where a Higgs boson decays to a pair of long-lived neutral pseudo scalars ( $\pi_v$ 's), which proceed to decay to heavy quark pairs. Jets from these decays have transverse energy in the range of 60 – 70 GeV and consequently deposit most of their energy in the ATLAS electromagnetic calorimeter, allowing for jet reconstruction with relatively high spatial accuracy.

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