

# 26th International Conference on Supersymmetry and Unification of Fundamental Interactions (SUSY2018)



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## Search for displaced lepton jets with the ATLAS experiment

Several possible extensions of the Standard Model predict the existence of a dark sector that is weakly coupled to the visible one: i.e. the two sectors couple via the vector portal, where a dark photon with mass in the MeV to GeV range mixes kinetically with the SM photon. If the dark photon is the lightest state in the dark sector, it will decay to SM particles, mainly to leptons and possibly light mesons. Due to its weak interactions with the SM, it can have a non-negligible lifetime. At the LHC, these dark photons would typically be produced with large boost resulting in collimated jet-like structures containing pairs of leptons and/or light hadrons, the so-called lepton-jets (LJs). This work is focused on the search for “displaced LJs”, which are produced away from the interaction point and their constituents are limited to electrons, muons, and pions. The requested topology includes two LJs eventually accompanied by leptons. The most recent ATLAS results using proton-proton collisions data at a center of mass energy of 13 TeV will be presented

### Parallel Session

Alternatives to Supersymmetry

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