

## Contribution submission to the conference Heidelberg 2022

**Search for supersymmetry in single lepton events with the full Run 2 data** — ●FREDERIC ENGELKE<sup>4,5</sup>, KERSTIN BORRAS<sup>4,5</sup>, KIMMO KALLONEN<sup>3</sup>, HENNING KIRSCHENMANN<sup>3</sup>, PANTELIS KONTAXIS<sup>1</sup>, DIRK KRÜCKER<sup>4</sup>, ISABELL MELZER-PELLMANN<sup>4</sup>, ASHRAF MOHAMMED<sup>4,5</sup>, PARIS SPHICAS<sup>1,2</sup>, COSTAS VELLIDIS<sup>1</sup>, and LUCAS WIENS<sup>4</sup> — <sup>1</sup>University of Athens — <sup>2</sup>CERN — <sup>3</sup>Helsinki Institute of Physics — <sup>4</sup>DESY — <sup>5</sup>RWTH Aachen IIIA

Results are presented from a search for supersymmetry in events with a single electron or muon, and multiple hadronic jets. The data corresponds to a sample of proton-proton collisions at  $\sqrt{s} = 13$  TeV with an integrated luminosity of  $138 \text{ fb}^{-1}$ , recorded by the CMS experiment at the LHC.

We use the angular correlation between the lepton and the W boson's transverse momenta for a strong separation between the signal and the background region. The investigation of the two different signal models benefits from improved top and W tagging methods.

The search targets gluino pair production, where the gluinos decay into the lightest supersymmetric particle (LSP) and either a top quark-antiquark pair or a pair of light quarks in the final state.

**Part:** T  
**Type:** Vortrag;Talk  
**Topic:** 2.17 Suche nach Supersymmetrie; 2.17 Search for Supersymmetry  
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