

## **Z'-explorer 2.0: unraveling the dark side**

Z'-explorer 2.0 is a free software that tests BSM theories with extra Abelian U(1) gauge bosons,  $Z'$ , against current data from the LHC. The version 2.0 includes missing energy searches in particular monojet. To this end, we perform here the first public reinterpretation of the most recent ATLAS mono-jet search with  $139 \text{ fb}^{-1}$ . In addition, the corresponding searches in the visible final states have also been updated. We illustrate the power of our code by studying cases where the  $Z'$  couples strongly to top quarks (top-philic), where dark matter couples with a mixture of vector and axial-vector couplings, and also perform a scan in the parameter space of a string inspired Stückelberg model.

**Primary author:** LOZANO, Víctor Martín (DESY)

**Presenter:** LOZANO, Víctor Martín (DESY)

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