Search for new physics in final states with semi-visible jets or anomalous signatures using the ATLAS detector

A search is presented for hadronic signatures of beyond the Standard Model (BSM) physics, with an emphasis on signatures of a strongly-coupled hidden dark sector accessed via resonant production of a Z' mediator using 140/fb of Run 2 pp collision data at 13 TeV. The Z' mediator is considered to decay to two dark quarks, which each hadronize and decay to showers containing both dark and Standard Model particles, producing a topology of interacting and non-interacting particles within a jet known as "semi-visible". Machine learning methods are used to select these dark showers and reject the dominant background of mismeasured multijet events, including an anomaly detection approach to preserve broad sensitivity to a variety of BSM topologies

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