

Search for a Dark Jet Resonances Using Substructure with ATLAS

The possibility of dark matter being a composite particle, such as a hadron under a gauge group, is becoming increasingly appealing as the non-excluded part of parameter space for the WIMP paradigm is shrinking. In this talk I will present a ongoing search for a resonance originating from a QCD-like dark sector, that decays to two dark partons which then hadronise to form "dark jets". The search targets a selection of model parameters where a fraction of the dark mesons are stable and the rest decay promptly to visible particle. The signature is a pair of jets with potentially different substructure than normal QCD-jets. I will introduce the model and the initial signal studies that have been made and then go into more detail with the mass-decorrelated tagger implemented for the signal region definition.

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