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Dijets and Dark Matter

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Searches for Dark Matter (DM) at the LHC using effective field theory can be unreliable as we cannot guarantee the cut-off in such theories is above the typical energy involved in a LHC collision. Therefore a set of simplified models are typically used to interpret LHC data, with a dynamical mediator present in the model that is responsible for the interactions between the dark and visible sectors. Direct searches for such mediators then complement more traditional missing energy signatures of DM.

Dijets are a good example of this and I will present a recasting of dijet data in terms of a spin-one mediator coupling to quarks (a leptophobic Z') in a reasonably general and model independent way. I will then show a novel way of combining these bounds with the requirement that the theory accounts for all the DM in the universe today.

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