PARTICLE PHYSICS SEMINAR SERIES

UV completion of Z'-portal dark matter and phenomenological consequences

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The Z'-portal is one of most popular and extensively-explored frameworks for dark matter (DM). The strongest constraints on such scenario come from dilepton searches at the LHC and direct detection of DM. For this reason, it is usually assumed that the couplings of the Z'-boson are leptophobic and axial (to SM or/and dark matter). However the studies in the literature are largely confined to (over-)simplified models, where the DM particle and the mediator Z' are the only extra fields. Here, I will present the minimal UV completion of these models. It turns out that the anomaly cancellation conditions demand a non-trivial structure of the dark sector (and sometimes the Higgs sector), which has phenomenological consequences.

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