Contribution ID: **273** Type: **Asynchronous Talk**

New sensitivity of LHC measurements to Composite Dark Matter Model

We present sensitivity of LHC Standard Model (SM) differential cross section measurements for so-called stealth dark matter scenarios occurring in SU(4) dark gauge group, where constituents are charged under the SM. The low energy theory contains mesons which can be produced at the LHC and a scalar baryon dark matter which can not be produced at the LHC. We illustrate the impact of LHC measurements on the dark meson masses. Furthermore using lattice calculations, we connect the LHC explorations with dark matter phenomenology in particular considering the direct detection experiments. We show that current LHC measurements constrain DM masses is 10s of TeV regime. Finally we discuss potential pathways to explore these models further using LHC measurements.

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Session Classification: Electroweak Interactions Session 2

Track Classification: Electroweak Interactions