



Contribution ID: 193

Type: **Talk**

Dark Matter in extra-dimensional scenarios

Tuesday 9 September 2025 18:30 (30 minutes)

The Nature of Dark Matter is, still, a widely open question that allows for very different answers. One option is represented by particles that do interact gravitationally (as hinted by experiments), albeit with a coupling with gravity enhanced by an underlying extra-dimensional space-time. Several options have been proposed, either within a WIMPy or FIMPy approach, with different possibility for the geometry of the 5D space-time. I will shortly review these options and their experimental constraints, focusing eventually in a recent proposal of a Randall-Sundrum 5D setup with three branes that avoid most of the collider bounds while still producing the required amount of DM relic abundance.

References

M. G. Folgado, A. Donini and N. Rius, “Gravity-mediated Scalar Dark Matter in Warped Extra-Dimensions”, JHEP 01 (2020) 161 (preprint), JHEP 02 (2022) 129 (erratum) • e-Print: 1907.04340 [hep-ph]

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Presenter: DONINI, Andrea

Session Classification: Afternoon session

Track Classification: Dark Matter (Its nature: Theory, Observations, Detection, Production at accelerators)