

Dark Mesons at the LHC

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One of the unanswered questions remaining in particle physics is “What is Dark Matter?”. There are many different ways of searching for it; directly, indirectly, and in colliders. However, since so little is still known about it, theoretical attempts to describe it are as different as they are many. In my talk, I will describe the analysis that I am performing within the ATLAS experiment at the LHC. We are using the full Run 2 dataset to search for pair production of Dark Mesons, composite objects of the constituents of a new, strongly coupled Dark Sector –similar to the Standard Model QCD sector. Previous analyses have focused on single production, and there is still a vast parameter space left that has not been excluded. If we do observe Dark Mesons, this would imply the existence of a strongly coupled Dark Sector with multiple particles, the number depending on the number of dark flavors, that would open up a completely new understanding of Dark Matter. If we do not observe them, we might be able to exclude a large part of the previous open parameter space.

Abstract Track

Flash talk, LHC

Author: SUNNEBORN GUDNADOTTIR, Olga (Uppsala University (SE))

Presenter: SUNNEBORN GUDNADOTTIR, Olga (Uppsala University (SE))

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