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(Super)heavy Z' -Portal Dark Matter Scenario and Complementarity between Direct Dark Matter Detection Experiments and Z' Boson Searches at the LHC

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In the context of a $U(1)_X$ extension of the Standard Model (SM), we consider a (super)heavy Dirac fermion dark matter (DM) which interacts with the SM sector through $U(1)_X$ gauge interaction with a sizable gauge coupling. Although its mass exceeds the unitarity bound for the thermal DM scenario, its observed relic density is reproduced through incomplete thermalization with the reheating temperature after inflation being lower than the DM mass. We investigate this DM scenario from the viewpoint of complementarity between direct DM detection experiments and LHC searches for the mediator Z' boson.

Mini Symposia (Invited Talks Only)

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