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Simplified models for dark matter coannihilation at the LHC

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Following the general classification of simplified models of coannihilating dark matter in terms of quantum numbers of dark matter, coannihilation partners and mediators, in this talk I would explore the phenomenology of two unconventional dark matter models featuring strongly interacting mediators and co-annihilation partners. I will discuss first a model where dark matter is mediated by a leptoquark, which leads to distinctive signatures at the LHC. I will then focus on models where dark matter co-annihilates with a fermionic QCD triplet. In both cases I will stress the complementarity between the relic density constraints and direct collider searches for the dark matter particle, the mediator and the co-annihilation partner.

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