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Dodelson-Widrow and Self-interacting Neutrinos

Thursday, 11 June 2020 14:20 (30 minutes)

I present a theory where neutrinos have much stronger self-interaction among themselves than in the Standard Model. An intriguing connection is pointed out to sterile neutrino dark matter. The presence of the new interaction allows the dark matter relic density to be successfully produced in the early universe while remain in tact with the present indirect detection constraints. I will show that this connection predicts a light, neutrino-philic boson which serves as a well motivated target for our laboratory searches, in particular at dark matter direct detection experiments, as well as near future accelerator neutrino facilities.

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