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The QCD Axion and Unification

Thursday 26 March 2020 17:45 (15 minutes)

The QCD axion is one of the most appealing candidates for the dark matter in the Universe. In this talk, I will discuss the possibility to predict the axion mass in the context of renormalizable grand unified theories where the Peccei-Quinn scale is determined by the unification scale. In the minimal theory with the KSVZ mechanism the axion mass is predicted to be in the range m = (3 - 13) neV. In addition, the minimal theory with the DFSZ mechanism predicts the axion mass to be m = (2 - 16) neV. I will also discuss the axion phenomenology and argue that the ABRACADABRA and CASPEr-Electric experiments will be able to fully probe these predictions.

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