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Light dark matter detection: new ideas and new tools

Wednesday, 7 September 2022 15:00 (20 minutes)

I will discuss some possible ways of looking for sub-MeV dark matter using the emission of collective excitations in different media. In particular, I will discuss the possibility of probing spin-independent interactions using superfluid He-4, and spin-dependent ones using antiferromagnets (specifically, NiO and MnF₂).

In doing that, I will employ a new theoretical tool, very familiar to high energy physicists, but just recently employed in the phenomenological study of phases of matter: effective field theories for the collective excitations of the material.

Summary

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Session Classification: Direct DM searches