Contribution ID: **57** Type: **Talk**

NEWSdm: Directional Dark Matter Search with Nuclear Emulsion

Thursday, July 30, 2020 11:00 AM (25 minutes)

The nature of dark matter (DM) is one of the most relevant open problems both in cosmology and particle physics. Many different experimental techniques have been developed to detect Weakly Interactive Massive Particles (WIMPs) as dark matter candidates via their scattering with detector atoms. The NEWSdm experiment, located in the Gran Sasso underground laboratory in Italy, is based on a novel nuclear emulsion technology with nanometric resolution and new emulsion scanning microscopy that can detect recoil track lengths down to one hundred nanometers. Thus, NEWdm is able to reconstruct the direction of the nucleus recoiling, thus being capable of confirming the Galactic origin of the dark matter. We discuss the potentiality, both in terms of exclusion limits and discovery potential, of a directional experiment based on the use of a solid target made by newly developed nuclear emulsions and read-out systems reaching nanometric resolution. We also report the results of the test exposure conducted in Gran Sasso.

I read the instructions

Secondary track (number)

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Session Classification: Dark Matter Detection

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