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## Directional detection of Dark Matter with nuclear emulsion based detector

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Direct dark matter searches are promising techniques to identify the nature of dark matter particles. A variety of experiments have been developed over the past decades, aiming to detect Weakly Interactive Massive Particles (WIMPs) via their scattering in a detector medium. Exploiting directionality would also give a proof of the galactic origin of dark matter making it possible to have a clear and unambiguous signal to background separation. The directional detection of Dark Matter requires very sensitive experiment combined with highly performant technology. The NEWSdm experiment, based on nuclear emulsions, is proposed to measure the direction of WIMP-induced nuclear recoils. We discuss the potentiality, both in terms of exclusion limits and potential discovery, of a directional experiment based on the use of a solid target made by newly developed nuclear emulsions and read-out systems reaching sub-micrometric resolution.

### Experimental Collaboration

NEWSdm Collaboration

**Primary author:** NEWSDM, Collaboration (NEWSdm)**Presenters:** D'AMBROSIO, Nicola (Laboratori Nazionali del Gran Sasso (IT)); D'AMBROSIO, Nicola (INFN)**Session Classification:** Dark matter**Track Classification:** Dark Matter