

RED-Dark Matter search with directional sensitivity

Summary

The feasibility of an innovative technique that would provide strong evidence in distinguishing true WIMP Dark Matter signal from backgrounds is investigated. If the recoil direction of the scattered nucleus after a WIMP interaction is measured, the signal rate acquires a large and peculiar angular dependence within a sidereal day. The sensitivity of a LAr TPC detector located at LNGS has been studied. The results show that directional detectors offer the most promising technique for future DM searches. The status of the RED experiment, under construction in Naples, will be also shown. The aim of this experiment is to prove that is possible to measure the direction of the nuclear recoil induced by a neutron beam.

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Session Classification: BSM + DM