

LABORATORI NAZIONALI DEL GRAN SASSO

SEMINAR ANNOUNCEMENT

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***Long Range Forces in
Direct Dark Matter
Searches***

Direct searches for Dark Matter (DM) aim at detecting the nuclear recoils arising from a scattering between DM particles and target nuclei in underground detectors. DM direct detection experiments are providing exciting results in terms of measured features which have the right properties to be potentially ascribed to a DM signal. In this seminar, after a pedagogical introduction on the macroscopic evidences of DM, I'll first present you a more general approach to study signals in direct DM searches based on non-relativistic operators, and then I'll review the main observables and the experimental landscape pointing out the main uncertainties that enter in this field. Finally, as the underline theory that describes both the DM fields and standard model ones is unknown, I'll focus on the uncertainties coming from the nature of the interaction, and in particular the phenomenology of two classes of models in which the interaction between DM particles and target nuclei is of a long-range type will be discussed.

JULY 2, 2013 – 2:30 PM
LNGS - “B. PONTECORVO” ROOM