

LABORATORI NAZIONALI DEL GRAN SASSO

SEMINAR ANNOUNCEMENT

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*on behalf of the CRESST collaboration
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***“Results from 730 kg days of the
CRESST-II Dark Matter Search”***

The CRESST-II cryogenic Dark Matter search completed more than 730 kg days of data taking in 2011. The data collected with eight detector modules will be presented, each with a two-channel readout; one for a phonon signal and the other for coincidentally produced scintillation light. The former provides a precise measure of the energy deposited by an interaction, while the ratio of scintillation light to deposited energy can be used to discriminate different types of interacting particles and thus to distinguish possible signal events from the dominant backgrounds.

67 events are found in the acceptance region where a WIMP signal in the form of low energy nuclear recoils would be expected. We estimate background contributions to this observation using a maximum likelihood analysis, and find at a high statistical significance that these sources alone are not sufficient to explain the data. The addition of a signal due to scattering of relatively light WIMPs could account for this discrepancy, and we determine the associated WIMP parameters.

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