Contribution ID: **105** Type: **Talk**

Probing light Dark Matter with CRESST-III experiment

Tuesday 6 September 2022 16:30 (20 minutes)

Despite plenty of evidence for Dark Matter (DM) making up over 80% of the total matter in the universe, the quest of revealing its nature is still ongoing. The CRESST-III (Cryogenic Rare Event Search with Superconducting Thermometers) experiment is dedicated to direct DM detection. The sought-for signal is expected to originate from a DM particle scattering elastically off detector material nuclei. Crystals of various materials, such as $CaWO_4$, Al_2O_3, $LiAlO_2$, and Si, are operated as cryogenic calorimeters at mK temperatures. They are equipped with transition-edge-sensors (TES) for signal collection. Ultra-low energy thresholds of $\mathcal{O}(10\ \mathrm{eV})$, required for probing DM particles with sub-GeV masses, make CRESST-III one of the leading experiments in low-mass DM search. An unexpected background exceeding the level of known sources appears below 200 eV. The current data-taking campaign is dedicated to studying the origin of this so-called 'low energy excess' which is currently limiting the sensitivity of low-threshold experiments worldwide.
I will present an overview of the CRESST-III experiment and the latest results on both, DM search and low energy background investigation. Moreover, I will give an update on recent R&D efforts and conclude with the future perspectives of the CRESST DM program.

Is this abstract from experiment?

Yes

Name of experiment and experimental site

CRESST-III, Laboratori Nazionali del Gran Sasso (LNGS)

Is the speaker for that presentation defined?

Yes

Details

Margarita Kaznacheeva, Ms, Technical University of Munich, Germany
https://www.tum.de/en/

Internet talk

No

Author: KAZNACHEEVA, Margarita (TUM)

Co-author: ON BEHALF OF THE CRESST COLLABORATION

Presenter: KAZNACHEEVA, Margarita (TUM)

Session Classification: Cosmology, Astrophysics, Gravity, Mathematical Physics