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# CUORE installs Minus K Technology's vibration isolators for one-ton cryogenic detector

Posted by Courtney E. Howard on May 16, 2011

**GRAN SASSO, Italy, 16 May 2011.** Italy's National Institute of Nuclear Physics (INFN) employs three custom [vibration isolators](#) for experiments within the Cryogenic Underground Observatory for Rare Events (CUORE), located within Gran Sasso mountain.

CUORE is a detector for neutrinoless double-beta decay and other rare events, such as the detection of dark matter like axions or weakly interacting massive particles (WIMPs). The new-generation, one-ton scale cryogenic detector will have a total mass of roughly 3,300 pounds) and must be cooled to less than 10 millikelvin in a [vibration-free environment](#).

The cryostat is isolated by a two-stage isolation system: the first stage by low-frequency Minus-K isolators using patented Negative-Stiffness Mechanism (NSM) technology, and the second isolation stage by regular springs at the top end of the suspension bars.

"These isolators were not only made to isolate at 0.5 Hz, but they had to withstand a seismic shock while under load," says Dr. David Platus, inventor of Negative-Stiffness Mechanism vibration isolation. "The NSM isolators offer better isolation performance than air or [active isolation](#) systems."

Collaborators on the CUORE project includes a consortium of members from UC Berkeley, UCLA, Livermore Lab, Berkeley Lab, Cal Poly, University of Wisconsin, University of South Carolina, University of Milan-Bicocca, University of Florence, Leiden University, University of Zaragoza, University of Rome, University of Genoa, University of Insubria, University of Padua, National Institute Nuclear Physics (INFN), National Laboratory of Legnaro, and Gran Sasso National Laboratory in Italy.

Minus K Technology works with aerospace and education laboratories for custom [vibration isolation systems](#). It offers standard bench top, table, and floor platform vibration isolation products. The company was founded in 1993 to develop, manufacture, and market state-of-the-art vibration isolation products based on its patented Negative-Stiffness technology.

Gran Sasso mountain is the highest peak in the Apennines about 100 km (62 miles) from Rome.