



**LNGS SEMINARS**

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# **Search for double beta decay with scintillators**

## *Abstract*

Scintillators possess a certain advantage for investigations of double beta decays thanks to presence of the element of interest in the scintillator compound. High sensitivity double beta experiments with  $^{116}\text{Cd}$  and  $^{106}\text{Cd}$  were realized (in progress) with enriched cadmium tungstate crystal scintillators, lithium and calcium molybdate crystals enriched in  $^{100}\text{Mo}$  and depleted in  $^{48}\text{Ca}$  were developed for neutrinoless double beta experiments with  $^{100}\text{Mo}$  at milli-Kelvin temperatures. Improvement of radiopurity up to the sub-micro-Bq/kg level by the double crystallization is confirmed with tungstate and molybdate crystal scintillators. The high radiopurity of the crystal scintillators, together with an excellent energy resolution and efficient particle discrimination capability of the low temperature scintillating bolometers make the detectors promising for the next generation neutrinoless double beta experiments aiming at test the inverted neutrino mass scheme and even go toward the normal neutrino mass hierarchy.

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**LNGS - "B. Pontecorvo" room**

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