

BiPo: A dedicated radiopurity detector for the SuperNEMO experiment

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New generation experiments in Astroparticle Physics need to operate in really restrictive background conditions, which implies the use of high radiopure materials for the experimental setup construction. For this reason the screening of the materials with enough sensitivity has become a challenge that sometimes cannot be afforded with standard techniques like Germanium detector spectroscopy.

BiPo is a dedicated detector, that operates in the Canfranc Underground Laboratory, designed to measure the radiopurity, mainly of the bb sources of the SuperNEMO experiment, by the detection of BiPo events. It is composed of two modules with 40 optical lines each that register the energy and the time of the emitted particles. The well known features of the BiPo events (delayed coincidence between an electron and an alpha particle) facilitate the discrimination of other background events that could entangle the expected signal. In addition, the geometry of the detector, with an active area of around 3.6 m^2 , has been optimized to reach the necessary sensitivity levels for the SuperNEMO source foils in the shortest time possible.

First results of background measurements and calibrations taken from last summer shows that the required sensitivity for the measurements of the source foils could be reached in few months. Routine measurements of samples will start in the next months being a really important point for the SuperNEMO source foils construction.

Primary author: Dr GOMEZ, HECTOR (Laboratoire de l'Accélérateur Linéaire (LAL-Orsay))

Presenter: Dr GOMEZ, HECTOR (Laboratoire de l'Accélérateur Linéaire (LAL-Orsay))

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