

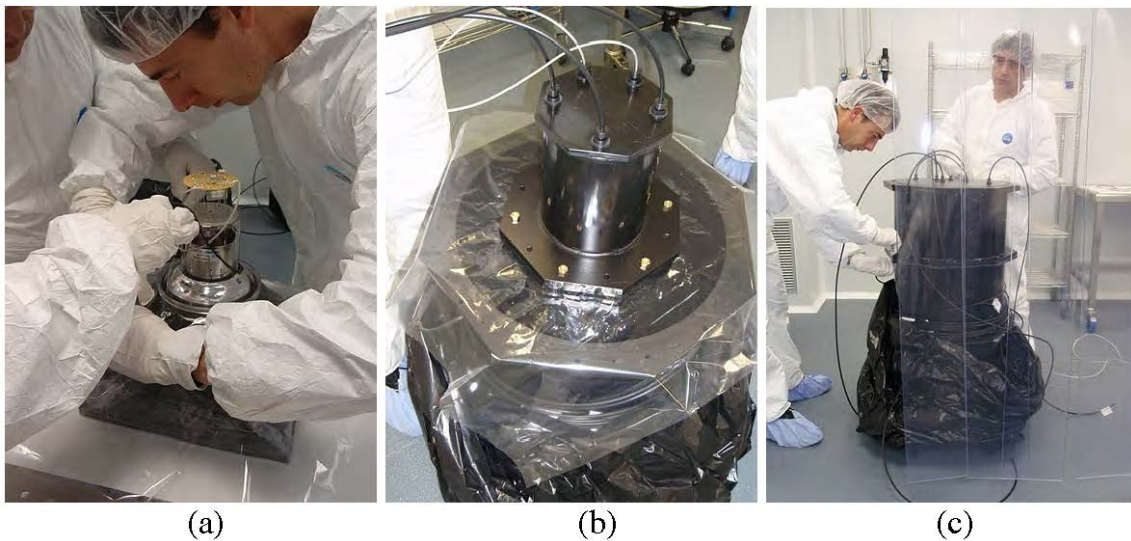
BiPo - Exp-03-2008

The detector BiPo (standing for Bismuth-Polonium) is a general facility intended for the measurement of the radio-purity of large surfaces dedicated to underground experiments, in particular double beta experiments like SuperNEMO. The detector is being designed most specifically to measure the level of radio-purity in ^{208}Tl and ^{214}Bi through their Bismuth-Polonium decay processes. Indeed, the beta decays proceeding from these radioactive isotopes, measured in coincidence with a conversion or Compton electron for instance could mimic the searched neutrino-less double beta event. It is therefore of crucial importance to control the level of purity of the large source foils to be used in these experiments.

The BiPo detector has therefore to fulfill very stringent requirements in radio-purity and particle discrimination in order to reach the ultra-high sensitivity required, that is less than $2\ \mu\text{Bq/kg}$ for ^{208}Tl isotope for one month of measurement.

The main design principles of the BiPo detector are 1) the use of ultra-pure organic scintillators readout by low radioactivity photomultipliers and 2) the discrimination of decay particles through the pulse shape of the induced signals.

A prototype of BiPo-3 has been installed in Hall A in March 2011.



Pictures of the BiPo-3 prototype installation at the LSC 22-25 March 2011