

Status of Germanium measurements for CENBG activities

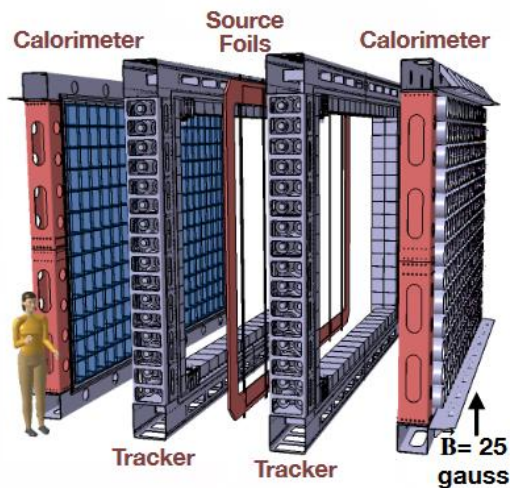
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- 2 x 400 cm³ low background coaxial-type Germanium detectors in operation: Jasmin & Iris (still noisy)
- Samples analyzed mainly coming from the JUNO and SuperNEMO experiments for neutrino physics

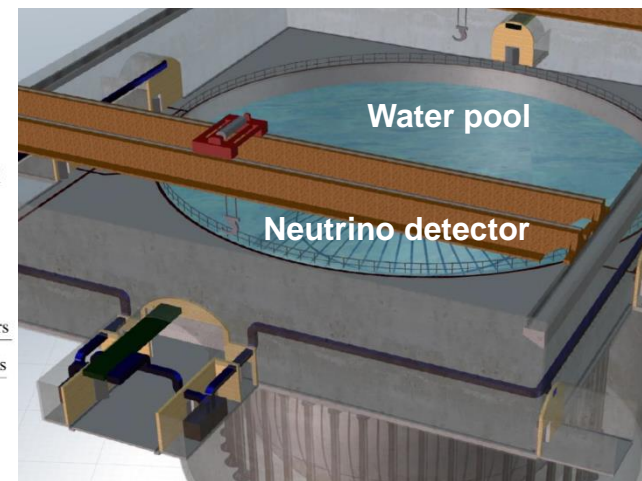
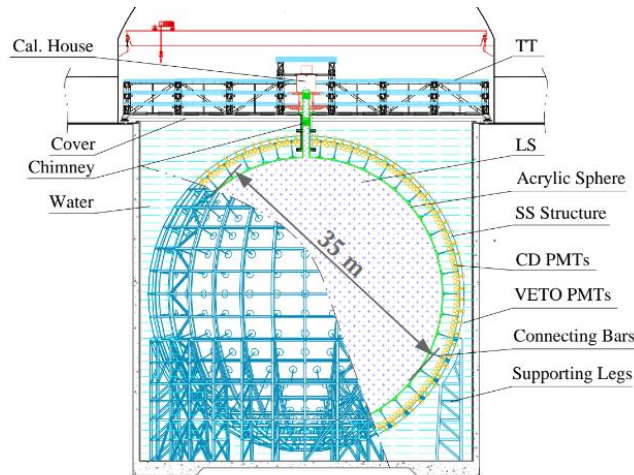
SuperNEMO

(Super Neutrino Ettore Majorana Observatory)

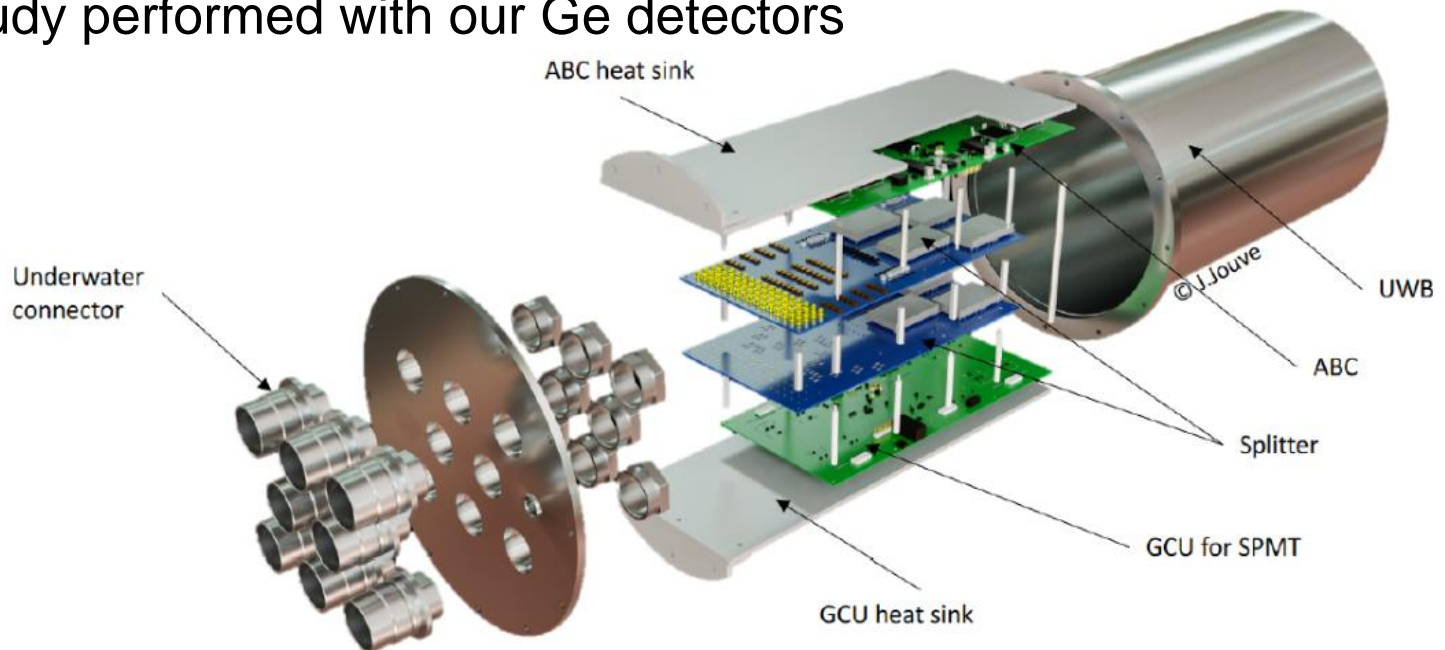


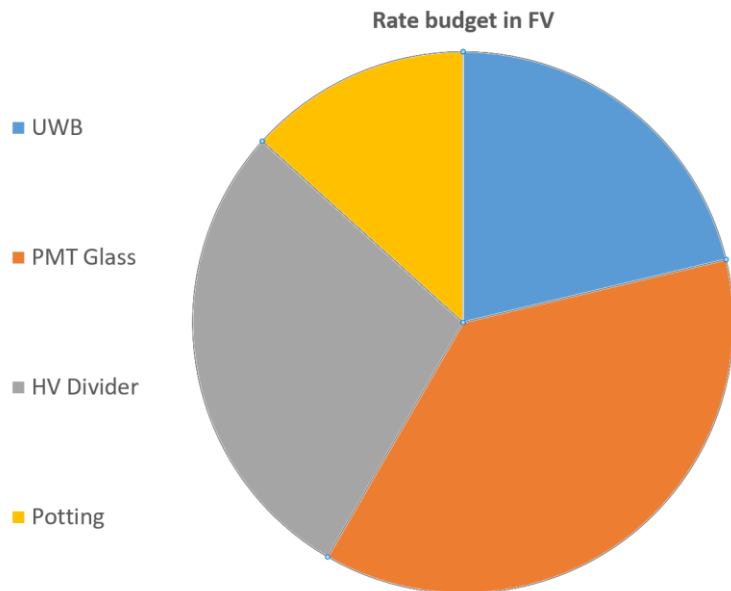
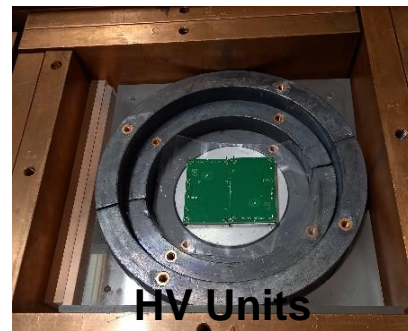
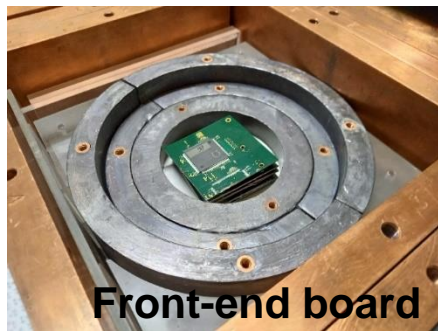
JUNO

(Jiangmen Underground Neutrino Observatory)



- Goal: to validate the radiopurity of the 25,600 3-inch PMTs and their electronics
- Exploded view of the electronic components of the JUNO 3-inch PMT system for 128 PMTs : 200 modules are needed
- Extensive study performed with our Ge detectors

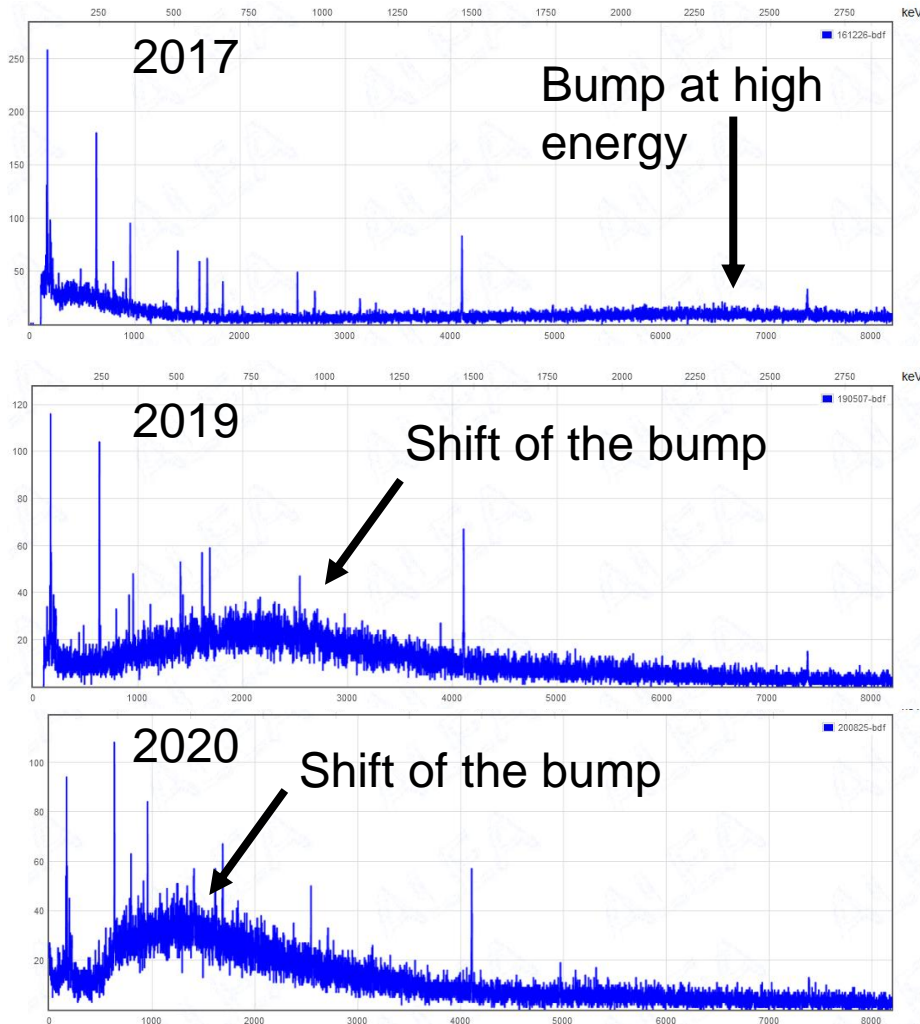




- The total counting rate of the 25,600 3-inch PMTs and the electronics below 200 mHz

→ JUNO radiopurity goal achieved

■ Background measurement of Iris Ge detector



- Observation of a bump with decreasing energy (amplitude) with time
- Not related to physical events but probably ground issue
- Now the bump is around 150-700 keV where the main gamma lines from U/Th are located
- Ideas to solve it ?

- 2 papers related to JUNO :
 - *Radioactivity control strategy for the JUNO detector*
[https://doi.org/10.1007/JHEP11\(2021\)102](https://doi.org/10.1007/JHEP11(2021)102)
 - *Mass production and characterization of 3-inch PMTs for the JUNO experiment*
<https://doi.org/10.1016/j.nima.2021.165347>
- 1 paper related to NEMO-3/SuperNEMO:
 - *Search for periodic modulations of the rate of double- β decay of ^{100}Mo in the NEMO-3 detector*
<https://doi.org/10.1103/PhysRevC.104.L061601>
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