



Contribution ID: 80

Type: Oral presentation

## Status and progress of the future neutrino-less double beta decay search with the PandaX-III experiment

*Tuesday 23 May 2017 14:00 (20 minutes)*

The search for the neutrinoless double beta decay (NLDBD) is one of the most important quests nowadays in neutrino physics. Among the different techniques used, high pressure Xenon (HPXe) gas time projection chambers (TPC) stand out because they allow to image the topology of the NLDBD event (one straggling track ending in two blobs), and use it to discriminate signal from background events. Recent results with Microbulk Micromegas in Xe + trimethylamine (TMA) mixtures show high promise in terms of gain, stability of operation, and energy resolution at high pressures (up to 10 bar). The addition of TMA at levels of ~1% reduces electron diffusion in up to a factor of 10 with respect to pure Xe, improving the quality of the topological pattern and therefore the discrimination capability. Moreover Microbulk Micromegas have very low levels of intrinsic radioactivity. All these results show that a Micromegas-read HPXe TPC can be a competitive technique in the search for NLDBD. The recently proposed PandaX-III experiment, based on these results, aims at building a large TPC of 200kg of enriched  $^{136}\text{Xe}$ , to be located at Jinping Underground laboratory (Sichuan province, China). In this talk the main features of this experiment, status and progress will be presented.

**Authors:** GALAN LACARRA, Javier (Shanghai Jiao Tong University (SJTU)); NEYRET, Damien (CEA/IRFU, Centre d'étude de Saclay Gif-sur-Yvette (FR))

**Presenter:** NEYRET, Damien (CEA/IRFU, Centre d'étude de Saclay Gif-sur-Yvette (FR))

**Session Classification:** Applications at future nuclear and particle physics facilities - 2 (Chair: Tom Hemmick)