Contribution ID: **350** Type: **Oral**

Progress on the NvDEx high pressure vessel and gas system

Thursday 28 August 2025 16:40 (20 minutes)

The neutrinoless double beta decay (0νββ) experiment aims to investigate whether neutrinos are Majorana fermions (i.e., whether they are their own antiparticles). NvDEx is to use a time projection chamber (TPC) for trajectory detection, and readout with the low-noise CMOS chips to measure the neutrinoless double beta decay in the China Jinping underground laboratory. High-pressure (1.0 MPa) SeF6 will serve as the working medium for TPC. The concept design of NvDEx consists of readout chips, TPC, copper shielding structures, a stainless-steel high pressure gas vessel, a gas circulation system, and external shielding assemblies.

The high pressure vessel as well as the inner copper shielding structures and the corresponding gas circulation system have been designed. Up to now, the high pressure vessel has been assembled and placed in a ground laboratory in Lanzhou for principle study. The gasproofness of the high pressure vessel has been investigated with different methods. Currently, the gas circulation system is being assembled. More details of the high pressure vessel and gas circulation system will be shown in the presentation.

Collaboration you are representing

NvDEx

Author: HU, Qiang (Institute of Modern Physics, Chinese Academy of Sciences)

Presenter: HU, Qiang (Institute of Modern Physics, Chinese Academy of Sciences)

Session Classification: Underground Laboratories

Track Classification: Underground Laboratories – Technology