Contribution ID: **7** Type: **Talk**

A gaseous time projection chamber with Micromegas readout for low-radioactive material screening

Tuesday, 1 October 2024 16:20 (20 minutes)

Low-radioactive material screening is becoming essential for rare event search experiments. A gaseous time projection chamber (TPC) can be used for such purposes with large active areas and high efficiency. A gaseous TPC with a Micromegas readout plane of approximately 40 × 60 cm2 is successfully constructed for surface alpha contamination measurements. We have characterized the energy resolution, gain stability, and tracking capability with calibration sources. With the unique track-related background suppression cuts of the gaseous TPC, we have established that the intrinsic alpha background rate of the TPC is (0.17 ± 0.02)×10−6 Bq/cm2. The surface-treated acrylic samples from the JUNO collaboration are currently being tested in the TPC.

Primary author: ZHANG, Wenming (School of Physics and Astronomy, Shanghai Jiao Tong University)

Presenter: ZHANG, Wenming (School of Physics and Astronomy, Shanghai Jiao Tong University)

Session Classification: Low Background Assay Techniques