



Contribution ID: 42

Type: **Poster presentation**

## Status of the continuous suppression ions detector module for CEPC TPC

To solve the ions back flow in TPC detector in linear collider, the gating grid is essential to prevent ions from reaching the drift volume. The gating grid switches to open state to allow the ionization electrons traveling into the gas amplification region. After the maximum drift time of about 100  $\mu\text{s}$  (depending on the drift length, electric field and gas mixture), the gating grid is closed to prevent positive ions from drifting back into the drift volume. Since it must remain closed until ions have been collected on the grid device, during this time, the ionization electrons are also blocked and the dead time increases consequently. TPC will have to be operated continuously and the backflow of ions must be minimized without the use of a gating grid at circular collider.

To meet the critical physics requirements of the tracker detection in the future circular collider (CEPC), the new concept structure gaseous detector module as one option for the tracker detector has been developed and measured. It is a hybrid structure cascaded the single GEM with Micromegas detector. Feasibility tests of the hybrid detector with active 50mm50mm and active 100mm100mm are performed using an 55Fe X-ray source. The energy resolution is better than 21% for 5.9 keV X-rays. A gain up to about 5000 can be achieved without any obvious discharge behaviour. The currents on the anode and drift cathode are measured precisely with an electrometer. It is demonstrated that the ions backflow ratio better than 0.1% can be reached in the hybrid readout structure at a gain of about 5000, and the suppression ions should be continued. In this presentation, some preliminary UV light IBF study results of simulation and experiment would be given, and some estimation results at Z pole run in CEPC was analysed.

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