

Retention measurements of the KATRIN Cryogenic Pumping Section

The Karlsruhe Tritium Neutrino (KATRIN) experiment aims to determine the effective neutrino mass with a sensitivity of $m_\nu = 0.2 \text{ eV}/c^2$ (90% C.L.) using electrons from the tritium β -decay. These β -electrons are guided adiabatically from the source to the spectrometer, where their energy is analyzed. Simultaneously the tritium flow from the source into the spectrometers has to be reduced by 14 magnitudes of order to account for a background rate lower than 0.01 cps. In order to meet these requirements the transport and pumping section is installed. The last component of this section is the Cryogenic Pumping Section (CPS), which contains a cold trap, whereon a 3 K cold argon frost layer is prepared. The incoming T_2 is adsorbed on the layer and finally the residual gas flow is reduced by more than a factor 10^7 . This poster presents results of D_2 measurements probing the performance of the CPS.

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Authorship annotation

for the KATRIN collaboration

Session and Location

Monday Session, Poster Wall #25 (Robert-Schumann-Room)

Poster included in proceedings:

yes

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Track Classification: Poster (participating in poster prize competition)