Contribution ID: **392** Type: **Poster etc.**

Detecting light ions and electrons with TRIMS silicon detectors

The TRIMS experiment measures the molecular tritium β decay branching ratio to the bound state $^3HeT^+$. The setup consists of a decay volume filled with T_2 gas and one Canberra PIPS detector at each end. The most probable recoil ions for T_2 β decay are $^3HeT^+$, $^3He^+$ and T^+. The ions and electrons are accelerated by an electric field, reach the silicon detectors and interact with the dead layer of a thickness of the order of 100 nm. They deposit energy which cannot be completely recovered. Applying the software packages SRIM and KESS, we performed investigations of processes which take place in the dead layers. We found that low-energy $^3He^+$ ions are more likely to be backscattered and less likely to be transmitted through the dead layer than low-energy $^3H^+$ ions. In addition, the energy loss of β electrons and ions in the dead layer strongly correlates with the initial energies. These results will be incorporated in the TRIMS simulation and analysis.

Authorship annotation

for the TRIMS collaboration

Session and Location

Monday Session, Poster Wall #88 (Auditorium Gallery Left)

Poster included in proceedings:

yes

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Track Classification: Poster (participating in poster prize competition)