



## Poster session 1 - Monday 4 July

### P1.024 Electron diffusion measurements in the ICARUS T600 detector

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In last years, the interest on liquid argon Time Projection Chamber (LAr TPC) used for neutrino physics and dark matter searches is growing.

However there is a lack of experimental data on the momentum transfer cross section of low energy electrons with argon atoms at energies in the range  $0.01 \leq E(\text{eV}) \leq 0.05$ . Indeed, electrons contained in the swarm produced by ionization of charged particles crossing the detector have energies in this range, if the electric field varies between 100 and 1000 V/cm. The measurement of the cross section can be obtained by evaluating the electron diffusion parameter in the LAr, with different values of the electric field.

For this purpose, dedicated measurements were performed with the ICARUS T600 detector. The T600 operated from 2010 to 2012 in the underground INFN Gran Sasso Laboratories (LNGS, Italy) to study neutrino oscillations from CNGS (Cern Neutrino to Gran Sasso) beam. After the shutdown of the beam, it continued to record data with cosmic rays. In particular, a number of runs with different values of electric field were performed. Results on the electron diffusion coming from the analysis of these runs are shown, as well as the evaluation of the drift electron velocity, which is a crucial point in order to get the diffusion parameter.