

Referee report to the joint NP+PP PAC at Dubna, 22. January 2019

Theme 1100 “Non-Accelerator Neutrino Physics and Astrophysics”

EDELWEISS-LT

The EDELWEISS experiment, conducted in the underground laboratory of Modane (France), is a search for Dark Matter (DM). It looks for tiny signals induced by recoils of weakly interacting particles (WIMPs) in the low energy region 0.1-6 GeV/c² using cryogenic HPGe bolometers at 20 mK. In the previous stages it has reached a 90% CFL exclusion limit in sensitivity of $\sigma \sim 1.6 \times 10^{-39}$ cm² at 4 GeV/c². This result is outstanding and excludes any previously reported hints of DM signals by other experiments. The new setup EDELWEISS-LT which is now in construction, is optimized for low mass WIMPS, with greatly improved sensitivity by four orders of magnitude. It is unique in the field of low mass DM searches and represents therefore a very important experimental project.

Considering that the JINR group represents ~10% of the whole collaboration, the contributions to EDELWEISS-LT are quite significant in various fields (radon-, neutron-, alpha- detection, shieldings, data acquisition, simulations, analysis, various managerial responsibilities, etc). The plans are to continue these collaborative works and responsibilities.

The listed publications (and of course the reported results) are excellent and demonstrate the great progress during the past decade. They also show that the EDELWEISS collaboration acts as a well organized team. The thesis works and individual publications are very representative going into the details of the whole project.

The financial contributions from Dubna and the workshop contributions seem to be in balance.

10.01.2019

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