

COMET Project.

1) Goals of the experiment

The goal of COMET at J-PARC in Japan is a sensitive search for the lepton flavor violating neutrinoless conversion of muons into electrons in the nucleus field ($\mu^- + N \rightarrow e^- + N$). The experimental sensitivity goal for this process is order of 10^{-15} for Phase-I and 10^{-17} for Phase-II experiment, which is a large factor of improvement over existing limits. COMET is scheduled to proceed through Phase-I and Phase-II experimental schedule.

Potentially, once solved the challenging experimental problems, the experiment is expected to be a key international player together with analogous projects, at PSI in Switzerland and Fermilab, for example. However, the proponents do not really explain how they compare/compete with projects, some of them also funded by JINR.

2) Contribution of the JINR group

The JINR group intends to contribute to the R&D work and the construction of two sub-detectors, namely the ECAL and the straw tracker system. The first contribution deals with tests and characterization of LYSO crystals that will constitute the calorimeter. The contribution for the straw tube system is more qualifying, since it will eventually include the realization of a construction facility at JINR for both phase I and II. This is reflected by the responsibility of Evtoukhovitch.

3) Plans

For 2019, in addition to some metabolic activities related to the crystal R&D, the main focus will be on the straw tube system.

4) Publications

Six recent publications have been produced with relevant contributions from the JINR group (ECAL and mainly straw tube system).

5) PhD theses

Three technical theses are in progress.

6) Talks

Out of the many listed contributions to collaboration meetings, only one talk at an international conference has been recently given by a JINR scientist.

7) Group size, composition and budget

The group is large (29 heads) with an excellent fraction of FTEs (20.5). The budget for 2019, however, is rather limited and mainly includes salaries with only 100 k\$ for equipment and consumables.

With about 30 scientists the JINR group should be relatively much more visible and ambitious within the COMET collaboration and, provided adequate funding, take more construction and (for the future) data analysis responsibilities, also in the light of projects funded at JINR with analogous science goals.

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