

## Muons Project.

### 1) Goals of the experiment

The JINR group is involved in two different experiments at Fermilab, in preparation, Mu2e and g-2, both looking for small deviations from the SM possible indications of new physics. Mu2e, in particular, is looking for the highly suppressed ( $\mu^- + N \rightarrow e^- + N$ ) reaction, while g-2 is aiming at a precise measurement of this quantity, possibly at the 5-sigma level. The two projects are at the forefront of the international research in the field.

The proponents do not attempt a critical comparison with the other competing projects.

### 2) Contribution of the JINR group

The hardware contributions for Mu2e include two main items: the cosmic ray veto (CRV) and the crystal ECAL. For g-2 they intend to develop the alarm-monitoring system plus a potential design of a straw tube system tracker.

The main highlights for the work for Mu2e are a collaboration with Virginia Univ. for the realization of the CRV and some R&D on crystals.

Apart from the institutional representation there are no specific responsibilities of the JINR researchers.

### 3) Plans

The main plans for Mu2e include the production of CRV modules at Virginia and the realization of test stands at JINR for electronics and CRV modules. For g-2 there are no expected hardware contributions.

### 4) Publications

There are several (15) papers on detector developments related to Mu2e and in particular to the hardware systems of interest for the group. The total recent score of "muons' publications is high (~60).

### 5) PhD theses

Three PhD theses are being prepared.

### 6) Talks

The several conference talks mostly refer to R&D work of potential interest for the two experiments. But only 1 out of 12 is specifically given on behalf of the collaborations.

#### 7) Group size, composition and budget

The group includes 21 heads for a total number of FTEs of 13.6, which is reasonable. The consumable/equipment budget for the next 2 years (~320 K\$), however, although reasonable for a metabolic participation, is not sufficient to provide a visible construction contribution for the two relatively large collaborations (altogether nearly 600 people).

The quality of the group is not backed by an adequate level of responsibility within the international collaborations.

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