

## Report on “High Acceptance Di-Electron Spectrometer (HADES)”

**Introduction:** HADES is a versatile detector for a precise spectroscopy of  $e^+e^-$  pairs (dielectrons) and charged hadrons produced in proton, pion and heavy ion induced reactions in a 1-3.5 GeV kinetic beam energy region. The main experimental goal is to investigate properties of dense nuclear matter created in the course of heavy ion collisions and ultimately learn about in-medium hadron properties (like masses, decay widths). As far as the dielectron measurements, HADES is the only running experiment in the fixed-target mode. It is also the day-1 experiment at SIS100 at FAIR.

The tracking system of HADES consists of a set of 6 superconducting coils producing a toroidal field and 4 planes of multi-wire drift chambers (MWDCs). The JINR physicists were responsible for the design, production and maintenance of the 2-nd plane of low mass multi-wire drift chambers. Each plane contains 6 separate modules with 6 chambers with different wire orientations. Note that the plane is used as a reference plane in the tracking procedure. The FEE electronics for drift chambers has been developed also at JINR. In addition, colleagues from JINR have been actively involved in the projects of alignment procedure as well as tracking software for both momentum and vertex reconstructions.

**Request:** During 2019 – 2020, the HADES group at JINR will (i) participate in the data taking of  $4.5 \pi+A/ \pi+p$  collisions; (ii) continue analyzing the Ag+Ag data taken in 2018; (iii) HADES upgrade for SIS100 at FAIR. The required grant is €25k/year.

Recommendations: (i) The requests are reasonable and justified. I recommend to grant the request; (ii) I would also suggest colleagues who are involved the physics data analysis speed up the process and try to publish the physics results in a timely fashion.



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