



THE TIME-OF-FLIGHT DETECTOR FOR HADES

*P. Thustý, A. Tikhonov, A. Kugler, T. Marek, A. Taranenko, R. Pleskač
Nuclear Physics Institute, 250 68 Řež, Czech Republic*

for the HADES collaboration

The High Acceptance Di-Electron Spectrometer (HADES) is a detector presently built up at GSI, Darmstadt, by a European collaboration involving groups from 9 countries. Main goal is to study in-medium properties of vector mesons via their e^+e^- decay in heavy-ion and pion induced reactions. In this framework we are developing, together with the groups from INFN Catania, INFN Milano, IP Bratislava, ITEP Moscow and GSI Darmstadt, the time-of-flight (TOF) subdetector. Here we present the proposed design of the TOF detector and first results of tests.

The TOF detector will serve as central reaction trigger in heavy-ion reactions and as a tool to find "di-lepton candidates" in high multiplicity environment of charged particles. Both tasks will be fulfilled by a granular system with 1056 scintillator rods read-out on both ends by photomultipliers allowing a 100-150 ps time resolution. We have constructed one segment of outer TOF detector, which consists of 64 scintillator bars. Recently, several beam tests of detector prototypes were carried out at GSI, Darmstadt using beam of protons and heavy ions on the SIS synchrotron. Obtained time resolution and other parameters of the detector will be reported and compared with required designed specifications [1,2].

References

- [1] A.Tikhonov et al.: Report ÚJF-EXP-97/1, Řež 1997
- [2] A.Tikhonov: Contribution to RHIP97 school, Prague 1997, to be published in Cz. J. Phys., Report ÚJF-EXP-97/2, Řež 1997