

## **Lifetime measurements of recent Microchannel-Plate PMTs**

*Wednesday, June 13, 2012 5:00 PM (20 minutes)*

The PANDA experiment at FAIR will study ppbar-collisions at an energy range of 1 GeV to 15 GeV. The particle identification will be done with two DIRC (detection of internally reflected Cherenkov light) detector systems. Attractive photo sensors for these DIRCs are micro-channel plate (MCP) photomultipliers (PMT), which provide an excellent time resolution of  $<50$  ps and can stand high magnetic fields up to 2 Tesla. Further requirements are a high photon rate stability of  $>300$  kHz/cm<sup>2</sup> and lifetime for the expected integrated anode charge of  $>5$  C/cm<sup>2</sup> within 10 years. The demands for the DIRC in the forward hemisphere are even more challenging. We were investigating various MCP-PMT models of different manufacturers with respect to their magnetic field resistance, time resolution, uniformity, dark count rate, rate stability and especially aging. Some of these are illuminated under PANDA conditions to study their lifetime. The results of these measurements, especially the investigations of recent MCP-PMTs with significantly improved lifetime, will be presented.

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