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An active magnetic field compensation system for the HKS aerogel Cherenkov detectors¹ ANGEL NUNEZ, JOERG REINHOLD, Florida International University, JEFFERSON LAB E05-115 (HES/HKS) COLLABORATION — Three segmented aerogel Cherenkov detectors are employed in the Jefferson Lab High Resolution Kaon Spectrometer (HKS). Cherenkov light is detected with 5" PMTs. At the detector location a stray field from the magnet of ~ 5 gauss significantly reduces the photoelectron collection efficiency of the PMTs, despite the use of magnetic shielding. Therefore, we propose to compensate the stray field with bucking coils. In a test setup, a Helmholtz Coil was used to generate external magnetic fields up to 15 gauss. In order to counteract this B field 20 turns of bucking coil (gauge: 12 AWG) were mounted around the cathode sides of the PMT. A recovery of roughly 87.5% was determined for an external B field of 5 Gauss. The experimental procedure and results of both this and new studies on the installed detector will be presented in detail.

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