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## **Conductor and Coil Design of the 2 tesla Solenoid for the PANDA Detector at FAIR**

*Thursday, 10 July 2014 17:00 (15 minutes)*

The new PANDA Experiment at the Facility for Antiproton and Ion Research (FAIR) in Darmstadt, Germany, will use proton-antiproton annihilation to study strong interaction physics. For achieving the required particle momentum resolution, the detector will comprise two magnetic spectrometers: the Target Spectrometer (TS), based on a superconducting solenoid magnet surrounding the interaction point, which will be used to measure at large angles and the Forward Spectrometer (FS) equipped with a dipole magnet for small angle tracks.

The PANDA solenoid magnet is designed to provide a magnetic field of 2 T over a length of about 4 m in a bore of 1.9 m. Apart from magnetic field homogeneity requirements, better than  $\pm 2\%$ , the design of the system is complicated by a warm bore target feed pipe oriented transversely to the solenoid axis and penetrating through the cryostat and solenoid.

The conceptual designs of the Al stabilized Rutherford cable based conductor and the coil windings are reviewed and optimized for cost control and mitigating risk for starting the solenoid construction in 2014.

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