

## Earth Magnetic Field Compensation Coils System for JUNO

The Jiangmen Underground Neutrino Observatory (JUNO), a 20 kton multi-purpose underground liquid scintillator detector in Jiangmen city, Guangdong Province, China, aims to determine the neutrino mass hierarchy by detecting antineutrinos from nuclear power plants. The JUNO detector consists of a central detector (CD), a water Cherenkov detector and a muon tracker.

The Earth magnetic field (EMF) intensity at the experimental site is about 0.5 gauss which could have significant negative impact on the photoelectron collection efficiency of the large size PMTs. The compensation coils to minimize the effect of EMF on the PMTs is necessary to ensure the success of the experiment. A set of 16 pairs of circular coils forming a spherical shape surrounded the central detector has been studied by optimizing the coil current in order to achieve residual magnetic field in the CD region less than 10%. The effects of some installation misalignment and EMF secular variation are also studied.

### Authorship annotation

On behalf of the JUNO Collaboration

### Session and Location

Monday Session, Poster Wall #175 (Ballroom)

### Poster included in proceedings:

yes

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**Track Classification:** Poster (participating in poster prize competition)