
Contribution ID: **29** Type: **Talk**

# 【322】An Active Magnetic Shield for the n2EDM Experiment - Simulation and Optimization

*Wednesday 11 September 2024 14:45 (15 minutes)*

The n2EDM experiment at PSI aims to improve upon the best sensitivity measurements of the neutron electric dipole moment. This requires a stable and uniform magnetic field environment. To achieve this, a large system of coils surrounding the experimental area is implemented, called the Active Magnetic Shield (AMS). The AMS is engineered to counteract magnetic disturbances via a feedback loop mechanism. This system effectively compensates static and variable fields up to the sub-hertz frequency range, with magnitudes of up to 50 $\mu$T. This talk introduces the operational principle of the AMS and discusses simulations and optimizations via genetic algorithms to enhance the system's performance.
Research supported by SNSF grant: 200441.

**Primary author:** ERMAKOV, Sergey

**Co-authors:** KIRCH, Klaus Stefan; ZIEHL, Nathalie; MULLAN, Patrick (ETH Zurich); BONDAR, Vira (ETHZ)

**Presenter:** ERMAKOV, Sergey

**Session Classification:** Nuclear, Particle- & Astrophysics (TASK)

**Track Classification:** Nuclear, Particle- and Astrophysics (TASK)