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【308】 Next generation active magnetic shielding for n2EDM

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The n2EDM experiment hosted at the Paul Scherer Institute is seeking an improvement in the measurement of the neutron electric dipole moment (nEDM) by one order of magnitude. In order to achieve this goal, it is crucial to stabilize the magnetic fields inside the precession chamber, where neutrons are stored and Ramsey measurements are performed, down to 30 fT. This is especially challenging considering that the surrounding magnetic fields undergo substantial changes due to the activity of neighboring experiments. Therefore, an active magnetic shielding, which compensates the surrounding field and the occurring field changes via a feedback loop, is indispensable. We present how our compensation system design can meet the high performance goal despite various challenges, such as spatial constraints.

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