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The n2EDM experiment at the Paul Scherrer Institute, PSI

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CP violation is a crucial ingredient in the understanding of the matter anti-matter asymmetry of the universe. A measured electric dipole moment of the neutron would signal breaking the CP symmetry and could hint towards new physics.

The n2EDM experiment is currently under construction by the international nEDM collaboration at PSI. It seeks to improve the sensitivity over the recently established new upper limit on the neutron electric dipole moment of $1.8 \cdot 10^{-26} e \cdot \text{cm}$ (90% CL) by another order of magnitude. The n2EDM apparatus uses a double-chamber setup in vacuum and at room temperature, exploiting co-magnetometry and an array of accurate external magnetometers. To successfully accomplish its ambitious goal, not only a high number of neutrons but also an adequate control of the systematic effects is important. Different parts of the apparatus contribute to the precise control of the magnetic field which is key in this next generation measurement. The design of the n2EDM apparatus with its various subsystems will be presented and their role in the improvement of the measurement will be discussed.

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