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Quantum magnetometry for the search of the neutron electric dipole moment.

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The neutron electric dipole moment (nEDM) is the coupling of the neutron spin to an external electric field. A non-zero electric dipole moment would violate time reversal symmetry, source of charge-parity violation. The nEDM experiment aims to lower the nEDM upper limit by one order of magnitude, increasing the sensitivity to beyond standard model physics and to processes leading to baryon asymmetry.

This talk will present the apparatus that is being commissioned at the Paul Scherrer Institute (PSI), focusing on quantum magnetometry that provides an in situ monitoring of time fluctuations of the magnetic field.

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