Development of a caesium magnetometer array for the n2EDM experiment

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Abstract:

The search for the neutron electric dipole moment d_n, carried on by the n2EDM experiment at PSI is deemed to be one of the most sensitive probes for physics beyond the standard model. Such standard model extensions are needed to find answers to some of the open question in particle- and astrophysics like the baryon asymmetry of the universe. The experimental goal to reach an order of magnitude higher sensitivity than previous efforts, means its systematic effects need to be better controlled. For this reason, a caesium magnetometer array is being created in order to monitor the magnetic field in the experiment and mitigate some unwanted systematic effects. The fabrication of these sensors is ongoing and its procedure will be described, together with the functioning of the final sensors.