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Experimental search for atomic EDM in 129Xe using active nuclear spin maser

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Since the electric dipole moment (EDM) in diamagnetic atoms strongly depends on nuclear structure, the EDM searches for various species are meaningful. We aim to measure the EDM in ^{129}Xe to a size of 10^{-28} $e$cm, stepping into a domain below the present upper limit by one order of magnitude. Such the EDM search requires an improvement in the frequency precision down to 1 nHz. In this study, an active nuclear spin maser, which enables us to sustain the spin precession of ^{129}Xe in a long measurement duration, is employed. A comagnetometer using ^{3}He has been incorporated to the system in order to cancel out a long-term drift in the external magnetic field. The developments in the frequency precision using the active spin maser and the current status of the EDM measurement will be presented.

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