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Progress of the ^{129}Xe EDM search using active feedback nuclear spin maser TOMOYA SATO, Tokyo Tech, YUICHI ICHIKAWA, RIKEN Nishina Center, YUICHI OHTOMO, YU SAKAMOTO, SHUICHIRO KOJIMA, CHIKAKO FUNAYAMA, TAKAHIRO SUZUKI, MASATOSHI CHIKAMORI, ERI HIKOTA, MASATO TSUCHIYA, Tokyo Tech, TAKESHI FURUKAWA, Tokyo Metropolitan Univ., AKIHIRO YOSHIMI, Okayama Univ., CHRISTOPHER BIDINOSTI, Univ. of Winnipeg, TAKASHI INO, KEK, HIDEKI UENO, RIKEN Nishina Center, YUKARI MATSUO, Hosei Univ., TAKESHI FUKUYAMA, RCNP, Osaka Univ., KOICHIRO ASAHI, Tokyo Tech — A permanent electric dipole moment (EDM) of a particle is an extremely sensitive probe for physics beyond the Standard Model. The objective of the present study is to search for the ^{129}Xe EDM at a level of 10^{-28} $e$cm, beyond the current upper limit. In this experiment, an active-feedback nuclear spin maser is employed to achieve a precision measurement. Systematic instability sets a limit on the precision in our study. Co-magnetometry using ^{3}He spin maser was incorporated into the maser system to eliminate the frequency drift caused by magnetic field fluctuations. Moreover, a double-cell geometry with linearly polarized laser was introduced to reduce frequency drifts arising from contact interactions with polarized Rb atoms. Having integrated these improvements, the ^{3}He/^{129}Xe dual spin maser was successfully operated. In the presentation, recent progress will be reported, including an analysis of spin maser frequencies, a study of electrode designs, and an estimation of possible systematic uncertainties.

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