

Abstract Submitted
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Development of Techniques for a Precision Neutron EDM Measurement at RCNP RYOHEI MATSUMIYA, RCNP, Osaka Univ., YASUHIRO MASUDA, SHINSUKE KAWASAKI, SUN-CHAN JEONG, YUTAKA WATANABE, IPNS, KEK, KICHIJI HATANAKA, EDGARD PIERRE, YUNCHANG SHIN, RCNP, Osaka Univ., KENSAKU MATSUTA, MOTOTSUGU MIHARA, Dept. of Physics, Osaka Univ. — A non-zero neutron electric dipole moment (nEDM) breaks the time-reversal symmetry. A precision measurement of the nEDM is expected to be a good probe to search for theories beyond the standard model. We have been developing techniques for a nEDM measurement, using a high intensity ultra-cold neutron (UCN) source developed by the collaboration between KEK and RCNP. We have succeeded to polarize UCNs by a super conducting polarizer, and stored them in a cell. This cell will be installed in static magnetic and electric fields for a nEDM observation by the Ramsey separated-oscillatory-field magnetic resonance method. The homogeneity of the magnetic field is being improved aiming to increase the transverse relaxation time T_2 . A multilayered magnetic shielding and a compensation coil system was developed to cancel the geomagnetic field. Some materials around the cell which were not completely non-magnetic were replaced. We are developing a ^{129}Xe co-magnetometer for the high precision field monitoring, and a high voltage system including electrodes with minimum UCN losses. In this talk, the present status of these apparatuses will be discussed.

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