Abstract Submitted
for the HAW14 Meeting of
The American Physical Society

Towards the measurement of the electron EDM with laser cooled francium atoms[1] HIROKAZU KAWAMURA, S. ANDO, T. AOKI, H. ARIKAWA, S. EZURE, K. HARADA, T. HAYAMIZU, T. INOUE, T. ISHIKAWA, M. ITOH, K. KATO, K. SAKAMOTO, A. UCHIYAMA, Tohoku University, T. AOKI, The University of Tokyo, T. FURUKAWA, Tokyo Metropolitan University, A. HATAKEYAMA, Tokyo University of Agriculture and Technology, K. HATANAKA, Osaka University, K. IMAI, Japan Atomic Energy Agency, T. MURAKAMI, Kyoto University, H.S. NATARAJ, Indian Institute of Technology Roorkee, T. SATO, Tokyo Institute of Technology, Y. SHIMIZU, Tohoku University, H.P. YOSHIDA, Osaka University, T. WAKASA, Kyushu University, Y. SAKEMI, Tohoku University — The electric dipole moment (EDM) of a particle is a probe into new physics beyond the standard model. The electron EDM might be observed with an enhancement in heavier paramagnetic atoms. Francium (Fr), whose electron structure is useful for laser-cooling and trapping, has a large enhancement factor. Fr produced at high temperature via a fusion reaction will be laser-cooled and trapped in an optical lattice where the EDM is measured. The magneto-optical trapping of Fr is required in advance of the lattice trapping. The technique observing a small number of atoms makes it easy to search for the resonant frequency of Fr. The improvement of the beam purity should lead to a more efficient trap. The techniques towards Fr trapping and EDM measurement have been developed.

[1]Supported by MEXT/JSPS KAKENHI Grant (21104005, 25610112 and 26220705) and Tohoku University's Focused Research Project.

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Date submitted: 30 Jun 2014 Electronic form version 1.4