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Development of a novel comagnetometer for high-precision measurement of the electron's electric dipole moment using laser-cooled Fr atoms

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In this presentation, the current status of a comagnetometer which is dedicated to search for the permanent electric dipole moment of the electron (eEDM) using francium atoms is discussed. The designed comagnetometer consists of laser-cooled Rb-87 and Cs-133 atoms trapped simultaneously in an optical lattice in order to observe the effects of Zeeman shift and vector light shift independently. This is expected to increase the measurement precision of the eEDM, consequently allows to search for the CP violation with high precision.

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