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**Developments related to ultracold neutron detection and magnetic field stability for the nEDM experiment at TRIUMF** EDGARD PIERRE, TRIUMF, JAPAN-CANADA NEDM COLLABORATION — A new experiment to search for the neutron electric dipole moment (nEDM) is currently under development at RCNP, Japan and TRIUMF, Canada. Lowering the upper limit on the nEDM, currently  $d_n < 2.9 \cdot 10^{-26} e \text{ cm}$ , by a two orders of magnitude would test theoretical models beyond the Standard Model. The experiment will use ultra-cold neutrons (UCN) produced from down-scattering of cold neutrons in superfluid helium. The very high UCN density expected in the storage chamber ( $\sim 5 \cdot 10^3 \text{ UCN/cc}$ ) requires the development of a new UCN detector efficient at the MHz level. Another challenge of the experiment is the control of the magnetic field inside the storage chamber. In order to reach the expected sensitivity, the magnetic field must be stable at the pT level, and any magnetic field gradients must be less than 1 nT/m. An overview of the progress and future developments in these two fields will be given in this talk.

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