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Multiferroic $Pr_2Ti_2O_7$: A candidate material to search for the electric dipole moment of the electron MARIBEL NUNEZ VALDEZ, NICOLA SPALDIN, ETH Zurich Honggerberg — We use density functional theory (DFT) to explore the suitability of the $A_nB_nO_{3n+2}$ perovskite oxides [1] as materials for searching for the electric dipole moment (eEDM). The experimental search for the eEDM is of interest as its observation would confirm the violation of charge-parity (CP) symmetry in the Universe. Experiments involving electric-field-correlated measurements in solids are promising. In particular, multiferroic $Eu_{0.5}Ba_{0.5}TiO_3$, which was designed specifically to search for the eEDM, set an improved limit compared with previous solid-state searches [2], but suffered from hysteretic heating [3]. Here we show that the $A_nB_nO_{3n+2}$ layered perovskites ($n = 4$, A=Pr,Gd and B=Ti) have an alternative mechanism for ferroelectricity plus appropriate magnetic interactions, suggesting that they are suitable candidates for an eEDM search. [1] F. Lichtenberg, A. Herrnberger, K. Wiedenmann, Prog. Solid State Chem. **36** (2008). [2] K.Z. Rushchanskii, S. Kamba, V. Goian, *et al.*, Nature Mater. **9**, 649 (2010). [3] S. Eckel, A.O. Sushkov, and S.K. Lamoreaux, Phys. Rev. Lett. **109**, 193003, (2012).

Maribel Nunez Valdez
ETH Zurich Honggerberg

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