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Towards a cold and intense beam of BaF molecules for an eEDM measurement[1] PARUL AGGARWAL, YANNING YIN, KEVIN ESAJAS, STEVEN HOEKSTRA, University of Groningen, NL-EEDM COLLABORATION
— Permanent electric dipole moments are signatures of time-reversal and parity violation, which acts as a sensitive probe of physics beyond the Standard Model. Within the NL-eEDM collaboration, we plan to measure the electron EDM using a cold, intense beam of barium monofluoride (BaF) molecules. Key to the increased sensitivity of our experiment is an increase in the coherent measurement time. This will be achieved by combining the intense beam created by a cryogenic buffer gas source, which typically has a velocity of 180-200 m/s, with a traveling-wave Stark decelerator. We plan to reduce the beam velocity to 30 m/s for the final measurement. In this talk, we will present the initial results obtained for the deceleration of SrF for this combination.

[1]Netherlands Organisation for Scientific Research (NWO)

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