THE $A^2\Pi_{1/2} - X^2\Sigma^+$ TRANSITION IN YbOD, A MOLECULE OF INTEREST IN THE SEARCH FOR PHYSICS BEYOND THE STANDARD MODEL

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Laser-cooled molecules exhibit several features that make them attractive virtual laboratories for probing new physics Beyond the Standard Model (BSM). Various proposed extensions to the Standard Model predict non-zero values for the electron's Electric Dipole Moment (eEDM). To date, no experiment has measured a non-zero eEDM; however measurements placing an upper bound on the value for the eEDM provide an experimental check on potential new physics theories. YbOH has recently been suggested as a molecule of interest in the search for BSM physics due to its large effective internal EM fields. Despite this interest, laboratory spectra of its isotopologue YbOD have remained elusive. We present our analysis of the first high-resolution laser-induced fluorecence spectra of ^{174}YbOD and ^{172}YbOD.

p-number: p195 **Submitted on Thu, 15 Jun 2023 18:49:28 +0200**