

Abstract Submitted
for the MAR15 Meeting of
The American Physical Society

IR spectroscopy of an OH hindered rotor in ZnO¹ ELLEN FARMER, PHILIP WEISER, MICHAEL STAVOLA, W. BEALL FOWLER, Lehigh University — An infrared absorption band at 3326 cm⁻¹ has been assigned to H⁺ in an antibonding configuration in the vicinity of another defect, perhaps Ca [1,2]. The 3326 cm⁻¹ band has a distinctive dependence on temperature, consisting of several overlapping components whose intensities show thermally activated behavior [3] over the temperature range 4K to 50K. We have measured a series of high-resolution spectra for OH and OD to determine the energy level structure of the 3326 cm⁻¹ center and its dependence on hydrogen isotope. The results of our analysis suggest an OH hindered rotor that is reminiscent of previous results for an off-axis OD-Li center in MgO [4]. * Permanent address: Truman State University [1] S.J. Jokela and M.D. McCluskey, Phys. Rev. B **72**, 113201 (2005). [2] M.D. McCluskey and S.J. Jokela, Physica B **401-402**, 355 (2007). [3] F. Herklotz *et al.*, Phys. Rev. B **82**, 115206 (2010). [4] K. Martin *et al.*, Phys. Rev. B **75**, 245211 (2007).

¹Supported by NSF Grant DMR-1160756 and the REU program PHY-1359195

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Date submitted: 14 Nov 2014

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