

OPTICAL ZEEMAN SPECTROSCOPY OF THE  $A^2\Pi/B^2\Sigma^+ - X^2\Sigma^+$  BAND SYSTEMS OF CALCIUM MONOHYDRIDE, CaH<sup>a</sup>

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Numerous branch features in the (0,0) band of the  $B^2\Sigma^+ - X^2\Sigma^+$  system and in the (0,0) band of the  $A^2\Pi - X^2\Sigma^+$  system of calcium monohydride, CaH, have been recorded at near the natural line width limit in the presence of a tunable static magnetic field of up to 1200 Gauss. The observed Zeeman induced shifts were successfully modeled using the traditional effective Hamiltonian to account for the  $\Delta v=0$  interaction and explicit inclusion of the interaction matrix elements for the perturbations between the ( $v=1$ )  $A^2\Pi$  and ( $v=0$ )  $B^2\Sigma^+$  states. A comparison is made with the analysis of the Zeeman effect of the (0,0)  $B^2\Sigma^+ - X^2\Sigma^+$   $R_1$  (0.5) branch feature<sup>b,c</sup>.

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<sup>b</sup>B. Friedrich, J.D. Weinstein, R. deCarvalho, and J.M. Doyle, *J. Chem. Phys.* **110**, 2376-2383 (1999).

<sup>c</sup>R. deCarvalho, J.M. Doyle, B. Friedrich, T. Guillet, J. Kim, D. Patterson, and J.D. Weinstein, *Eur. Phys. J. D* **7**, 289-309 (1999).