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

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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 Δv=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[b,c].

[a]Funded by NSF-Experimental Physical Chemistry

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[c]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).