THE OPTICAL STARK SPECTRUM OF THE $[11.9]\Omega = 3/2 - X^3\Pi_{3/2}$ BAND SYSTEM OF PLATINUM MONOFLUORIDE, PtF

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Recently the O'Brien group[a] reported on the field-free detection and analysis of the [11.9]$= 3/2 - X^2\Pi_{3/2}$ band system of PtF using intracavity laser absorption. The hollow cathode condition limited the spectral resolution, which was insufficient to fully resolved the hyperfine splitting of ^{195}Pt (I=1/2) and ^{19}F (I=1/2). Here we report laser-induced fluorescence spectra of the 1-0 and 0-0 bands of the [11.9]$= 3/2 - X^2\Pi_{3/2}$ transition of PtF, obtained at near natural linewidth resolution (FWHM 40MHz) using supersonic molecular beam techniques. The spectra show a complex, cleraly resolved hyperfine structure which has siginificant contributions from magnetic term in ^{195}Pt and ^{19}F. The spectra of ^{194}PtF, ^{195}PtF, ^{196}PtF, ^{198}PtF isotopogues have been assigned and analyzed. The electric field induced dependence of the R(1.5) branch of the ^{195}PtF isotopogue was analyzed to produce permanent electric dipole moment, μ, of 3.45 D and 2.32 D for the $X^2\Pi_{3/2}$ and [11.9]$\Omega = 3/2$ states, respectively. A comparision with Ab Initio prediction[b,c] will be given.

[a] K.G. Handler, R.A. Harris, L.C. O'Brien and J.J.O'Brien *J.Mol. Spectrosc.* **265** 39, 2011.
[b] W. Liu and R. Franke *J. Comput. Chem.* **23** 564, 2001.
[c] W. Zou, Y. Liu and J. E. Boggs *Dalton Transactions*, **39** 2023, 2000