

## THE $A^2\Pi-X^2\Sigma^+$ BAND SYSTEM OF SrF REVISITED

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Recently DeMille et al<sup>a</sup> proposed using  $^{87}\text{SrF}$  and other heavy diatomic molecules to measure nuclear spin-dependent parity violation (NSD-PV). In this scheme the  $N=0$  (+-parity) levels of the  $X^2\Sigma^+$  ( $v=0$ ) state will be magnetically tuned into near degeneracy with the  $N=1$  (- parity) levels. The pairs of nearly degenerate levels are mixed by NSD-PV interactions. The process will be monitored using the optical  $A^2\Pi-X^2\Sigma^+$  transition. Here we report on the analysis of the (1,0) band for  $^{88}\text{SrF}$  and the (0,0) band for  $^{87}\text{SrF}$  of the  $A^2\Pi-X^2\Sigma^+$  system recorded at near natural linewidth limit. A combined fit of the optical spectra with the previously recorded rf-transitions<sup>b</sup> and pure rotational transitions<sup>c</sup> was performed.

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<sup>a</sup>D. DeMille, S.B. Cahn, D. Murphree, D.A. Rahmlow and M.G. Kozlov, *Phys. Rev. Lett.* **100** 023003, 2008.

<sup>b</sup>Y. Azuma, W. J. Childs and G. L. Goodman, T. C. Steimle, *J. Chem. Phys.* **93** 1990 93, 5533.

<sup>c</sup>H.-U. Schltz-Pahlmann, Ch. Ryzlewicz, J. Hoefl, and T. Trring, 93,74 (1982)*Chem. Phys. Lett.* **93** 74, 1982.