THE PERMANENT ELECTRIC DIPOLE MOMENT OF LANTHANUM IMIDE, LaNH

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There are relatively few experimental determinations of permanent electric dipole moments of transition metal containing polyatomic molecules. Here, we report a study of numerous branch features in the $B^2\Sigma^+$, 001 $\leftarrow$ $X^2\Sigma^+$, 000 band of LaNH using high-resolution optical Stark spectroscopy. A supersonic molecular beam sample was prepared by using a pulsed laser vaporization/reaction scheme in which lanthanum vapor was reacted with ammonia. Preliminary analysis of the Stark shifts results in μ = 2.2 D for the $X^2\Sigma^+$ state and a much smaller value for the $B^2\Sigma^+$ state. A comparision with ScNH and the diatomic Group 3 metal oxides will be given.