TRANSITION PROBABILITIES AND DISSOCIATION ENERGIES OF MgD AND MgD^+ MOLECULES

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The Franck-Condon factors (vibrational transition probabilities) and r-centroids have been evaluated by a more reliable numerical integration procedure for the bands of $A^- X$ system of MgD and MgD^+ molecules, using a suitable potential. By fitting the Szoke $^-$ Baitz electronegativity function to the experimental potential curve using a correlation coefficient, the dissociation energies for the electronic ground states of MgD and MgD^+ molecules, respectively, are estimated as $D_0^0 = (157.60 \pm 0.32)$ and (195.71 ± 0.80) $KJmol^{-1}$.