A COMMENT ON HÖNL-LONDON FACTORS

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The Hönl-London factors[a] are the factors dependent on the rotational quantum numbers in formulas for intensities of rovibronic transitions. A table of Hönl-London factors for singlet-singlet transitions of a diatomic molecule was given by Herzberg[b], and reproduced in other books. Standard definitions of transition moments and sum rules were proposed by Whiting and Nicholls[c], but there does not seem to be a published table of the corresponding individual Hönl-London factors. Here we show that for rotational transitions between levels of definite parity the values in Herzberg's table should be multiplied by 2 for all perpendicular vibronic transitions, with an additional factor of 2 for $\Pi - \Sigma$ and $\Sigma - \Pi$ transitions. The results are consistent with the Whiting-Nicholls conventions.[c]

[a] H. Hönl and F. London, *Z. Physik* **33**, 803 (1925).

[b] G. Herzberg, *Spectra of Diatomic Molecules*, Van Nostrand (1950), p. 208.

[c] E. E. Whiting and R. W. Nicholls, *Astrophys. J. Suppl. Ser.* **27**, 1 (1974); E. E. Whiting, A. Schadee, J. B. Tatum, J. T. Hougen and R. W. Nicholls, *J. Mol. Spectrosc.* **80**, 249 (1980).