EXPERIMENTAL MAPPING OF THE ABSOLUTE VALUE OF THE ELECTRONIC TRANSITION DIPOLE MOMENT FUNCTION $\mu_e(R)$ OF THE $^7\mathrm{Li}_2$ $A^1\Sigma_u^+ - X^1\Sigma_g^+$ SYSTEM

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Continuous wave (CW) triple resonance laser spectroscopy[a] was used to map the absolute value of the electronic transition dipole moment function $\mu_e(R)$ of the $^7\mathrm{Li}_2$ A-X system. In this work, the transition dipole moment matrix elements of specific rovibronic molecular transitions were first determined by fitting the observed Autler-Townes splitting spectra. Then by employing the R-centroid approximation, or a multi-variable fit involving higher moments of R, $\mu_e(R)$ has been determined within a relatively large range of internuclear distance R. Finally, this electronic transition dipole moment function is compared with the ab initio calculations with very good agreement.

[a] E. Ahmed et al. J. Chem. Phys. 124, 084308 (2006)