

## DOPPLER-FREE STUDY OF THE Li<sub>2</sub> MOLECULE: THE B<sup>1</sup>Π<sub>u</sub> STATE

N. BOULOUFA, P. CACCIANI, and R. VETTER, *Laboratoire Aimé Cotton (CNRS UPR3321), Campus d'Orsay, Bâtiment 505, 91405 Orsay, France.*

We have studied the potential barrier in the B<sup>1</sup>Π<sub>u</sub> state of lithium dimers by use of a Doppler-free spectroscopy experiment in which a cw tunable laser beam crosses an effusive beam of lithium. Under these conditions, hundreds of wavenumbers have been measured to an accuracy of 10<sup>-3</sup> cm<sup>-1</sup>. From broadened profiles corresponding to P, Q and R transitions for v' = 13, 14, 15 and 16, it is possible to describe the potential barrier of the B<sup>1</sup>Π<sub>u</sub> state, between 50 cm<sup>-1</sup> and 150 cm<sup>-1</sup> from its top. These results complement the ones obtained by use of Fourier transform spectroscopy with Doppler-broadened light sources<sup>a</sup>. Theoretical interpretation is on the tracks.

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<sup>a</sup>I. Russier, F. Martin, C. Linton, P. Crozet, A. J. Ross, R. Bacis and S. Churassy, *J. Mol. Spectroscopy*, 168, 39 (1994)