LOW LYING ELECTRONIC STATES OF THE BaI MOLECULE

R. F. GUTTERRES, *Laboratoire Aimé Cotton, Bât 505, Campus d'Orsay 91405, Orsay Cedex, France, Laboratório de Espectroscopia e Laser, Universidade Federal Fluminense, Campus da Boa Viagem, Niterói, RJ 24210-340, Brazil*; C. AMIOT, *Laboratoire Aimé Cotton, Bât 505, Campus d'Orsay 91405, Orsay Cedex, France, Laboratório de Espectroscopia e Laser*.

The first five electronic states of the BaI molecule, as well as the *G* electronic state of the same molecule, were investigated using Thermal Emission (TE), Laser Induced Fluorescence (LIF) and Fourier Transform Spectroscopy (FTS) techniques. The LIF visible and infrared spectra were obtained by using the Ti:sapphire, dye and second harmonic of Ti:sapphire single-mode lasers and the Ar^+ and Kr^+ multi-mode lasers as excitation sources. Previously recorded data, taken from C. A. Leach, A. A. Tsekouras, and R. N. Zare (*J. of Mol. Spectrosc.*, **153**, 59-72 (1992)) were combined with the present work data. Accurate and improved molecular constants for the $X^2\Sigma^+$, $B^2\Sigma^+$, $A'^2\Delta$, $A^2\Pi$, $C^2\Pi$ and $D^2\Sigma^+$ states and sixteen term values of the $G^2\Sigma^+$ state were derived from a simultaneous treatment of the whole data set (12,684 transitions) with a standard deviation of $3.26\times10^{-3}\ cm^{-1}$. (R. F. Gutterres, C. E. Fellows, J. Vergès, and C. Amiot (*J. of Mol. Spectrosc.*, **206**, 1-11 (2001)))