HIGH-RESOLUTION SPECTROSCOPY OF THE (0,2) AND (6,9) BANDS OF THE $B^4\Sigma_u^- \leftarrow X^4\Sigma_g^+$ TRANSITION OF C_2^+

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The first electronic spectrum of the molecular ion C_2^+ was recorded in 1984 by O'Keefe *et. al.* in a beam of mass selected ions[a]. Three years later, Maier and coworkers did an extensive analysis on several bands of the $B \leftarrow X$ system[bcd]. While their spectra showed several perturbations, the low resolution of their experiment hindered the analysis of the perturbation and the quartet spitting. In 1993, Zackrisson and Royen obtained a high resolution spectrum of the (0,1) band and determined the molecular constants and perturbation parameters[e].

In the work that follows, velocity modulation with heterodyne detection has been used to record the (0,2) and (6,9) bands of the $B \leftarrow X$ system of C_2^+. The (0,2) band has been rotationally analyzed and the spectrum shows perturbations which are attributed to an interaction between the $B^4\Sigma_u^-$ and the $2^2\Pi_u$ states. Molecular constants and perturbation parameters have been obtained.

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