

## ELECTRONIC SPECTRUM OF THE $\text{AlC}_2$ RADICAL

EVAN B. JOCHNOWITZ, EGOR CHASOVSKIKH, EUNSOOK KIM, and JOHN P. MAIER, *Department of Chemistry, University of Basel, Klingelbergstrasse 80, CH-4056 Basel, Switzerland*; ISABELLE NAVIZET, *Laboratoire de Chimie Théorique, Université de Marne-la-Vallée, F-77454 Champs sur Marne, France*.

An electronic transition of the  $\text{AlC}_2$  radical ( $C_{2v}$  structure) has been observed using laser induced fluorescence spectroscopy. The molecule was prepared in a supersonic expansion using laser ablation of an aluminum rod in the presence of acetylene gas. A spectrum was recorded and assigned to the  $\tilde{C}^2B_2 - \tilde{X}^2A_1$  system based on a rotational analysis and agreement with calculated molecular parameters and excitation energies. *Ab initio* results are in accord with previous theoretical studies which conclude that  $\text{AlC}_2$  possesses a triangular  $C_{2v}^2A_1$  geometry, with the linear  $C_{\infty v}^2\Sigma^+$  AlCC isomer 0.70 eV higher in energy. A spectral fit yields molecular constants both in the ground and electronically excited states.