

LASER EXCITATION AND DISPERSED FLUORESCENCE SPECTRA OF PtC₂

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The laser excitation spectrum of molecules produced in a molecular beam formed by laser ablation of a platinum rod in the presence of a methane/argon mixture in a supersonic free-jet expansion has been recorded. A series of bands observed at 18200, 18440 and 18660 cm⁻¹ is attributed to PtC₂. The molecule is proposed to have a T-shaped structure with C_{2v} symmetry, analogous to YC₂^a. The dispersed fluorescence spectra observed by pumping the bands show progressions in both ν_2 (*a*₁, Pt-(C₂) *st.*) and ν_3 (*b*₂, Pt-(C₂) *rock*) in addition to several bands involving combinations of these modes. Preliminary analysis has yielded frequencies $\nu_2'' = 485$ cm⁻¹ and $\nu_3'' = 223$ cm⁻¹. Isotopic substitution spectra have also been recorded using carbon-13 substituted methane in the carbon source. A discussion of the vibrational analysis will be given.

^aT. C. Steimle, A. J. Marr, J. Xin, A. J. Merer, K. Athanassenas and D. Gillett, *J. Chem. Phys.* **106**, 2060-2066 (1997)