

## NEAR-INFRARED LASER SPECTROSCOPY OF BROMOMETHYLENE IN A SLIT JET EXPANSION

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Near-infrared transient frequency-modulation spectroscopy has been combined with a slit jet expansion-cooled source to acquire the high resolution spectrum of the bromomethylene (HBr/DCBr)  $\tilde{A}^1A'' \leftarrow \tilde{X}^1A'$  electronic transition origin in the vicinity of  $11972\text{cm}^{-1}$ . The radical was generated by 193nm laser photolysis of bromoform in the early stages of the jet expansion and several rotational subbands were recorded. The jet-cooled spectrum shows a rotational temperature of approximately 20K. The spectral simplification achieved by jet cooling allowed a nearly complete analysis. The analysis of the data combined with results from previous measurements at ambient temperature has determined the ground state rotational constants and structure. It also shows that except for the  $K'=0$  stack, the electronic excited state is highly perturbed by Renner-Teller and anharmonic couplings. Details of the experiment and analysis will be presented.

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