VIBRONIC SPECTROSCOPY OF 2,6-DICHLOROBENZYL RADICAL IN A CORONA EXCITED SUPERSONIC EXPANSION

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With a technique of corona excited supersonic expansion (CESE) using a pinhole-type glass nozzle, the jet-cooled 2,6-dichlorobenzyl radical has been generated and vibronically excited from 2,6-dichlorotoluene seeded in a large amount of carrier gas He using a pinhole-type glass nozzle. The vibronically well-resolved emission spectrum of 2,6-dichlorobenzyl radical in the D1 - D0 transition show several bands originating from the vibrationless state of the lowest excited electronic state, in which the spacing from the origin band indicates the vibrational mode frequencies in the ground electronic state. The vibronic structures have been analyzed to obtain the electronic transition as well as the vibrational modes frequencies in the ground electronic state by comparing with not only those of ab initio calculation but also those from the precursor.