VIBRONIC SPECTROSCOPY OF CYANOBENZYL RADICALS IN A CORONA EXCITED SUPERSONIC EXPANSION

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Over the past a few years, we have reported vibronic analysis of many benzyl-type radicals. As a continuation, we have generated cyanobenzyl radicals by an electric dc discharge in a corona excited supersonic expansion from the corresponding tolunitriles with a large amount of carrier gas helium using a pinhole type glass nozzle which has been further modified in this laboratory for the better efficiency. The vibronic emission spectra have been recorded from the emanating supersonic jet by employing a long path monochromator in the visible region. The vibronic structures have been analyzed to obtain the electronic transition as well as the vibrational mode frequencies in the ground electronic state by comparing with those of ab initio calculation.