VIBRONIC STRUCTURS OF THE MgNC $\tilde{A}\ ^2\Pi$ AND $\tilde{X}\ ^2\Sigma^+$ STATES

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We have generated MgNC in supersonic free jet expansions, and measured the laser induced fluorescence excitation spectra of the vibronic bands of the $\tilde{A}\ ^2\Pi$ - $\tilde{X}\ ^2\Sigma^+$ transition. We have found some new features in the spectra, though part of the spectra were already reported by Wright and Miller[a]. The new features are consisting of the ν_2 bending vibronic bands. From the rotational analyses of some of the vibronic bands, we have obtained information on the vibronic structure of the $\tilde{A}\ ^2\Pi$ state of MgNC. The assignments of the ν_2 vibronic bands were carried out utilizing the vibrational analyses of the dispersed fluorescence spectra obtained by the excitation of the ν_2 vibronic bands. On the basis of the vibrational structures of the dispersed fluorescence spectra which are not only those of the ν_2 vibronic bands but also the spectra obtained by the excitation of the other vibronic bands reported by us[b], the vibronic structure of the $\tilde{X}\ ^2\Sigma^+$ state of MgNC has been analysed. The vibronic structures of the $\tilde{A}\ ^2\Pi$ and $\tilde{X}\ ^2\Sigma^+$ states of MgNC will be discussed comparing with the computational results by Hirano group[c].

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