LASER INDUCED FLUORESCENCE SPECTOSCOPY OF JET-COOLED AlNC AND AlCN

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The rotationally resolved laser induced fluorescence spectra for the $^1A' - \tilde{X}\,^1\Sigma^+$ electronic transition of AlNC and AlCN were measured in supersonic free expansions. The radicals were prepared by reacting the CN fragments from CH_3CN in an Ar plasma with Al atoms evaporated using laser ablation of the metal surface. The electronic spectrum of AlCN was observed at about 2500 cm^{-1} above that of AlNC reported previously [a], and the fluorescence state is much lower than that reported by Gerasimov *et al* [b]. The rotational structures of both AlNC and AlCN spectra measured by a excitation laser source with 0.03 cm^{-1} spectral resolution show a typical pattern of bent-linear transition.

[a] M. Fukushima, Chem. Phys. Lett. **283**, 337 (1998).
[b] I. Gerasimov, X. Yang, and P. L. Dagdigian, J. Chem. Phys. **110**, 220 (1999).