TIME-RESOLVED FOURIER TRANSFORM INFRARED EMISSION SPECTRA OF HNC/HCN

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A continuously scanning FT spectrometer (Bruker IFS 120 HR) has been applied for observing time-resolved spectra after pulse phenomena by a multi-sampling method with a help of a chip computer SX[a]. In the present study, we used a pulse discharge with a duration of 40 μsec in a mixture of N_2 (120 mTorr) and CH_4 (15 mTorr) to produce HNC and HCN emissions which were monitored by the ν_1 bands (C-H stretch in HCN or NH stretch in HNC) with a resolution of 0.06 cm^{-1}. The cell was cooled down by liquid nitrogen or dryice. Thirty data were collected to produce 30 interferograms with a 2 μsec interval. The emission intensities from v_1 = 1 of HCN and HNC decreased for 15 μsec after turning off the discharge and increased later. The emission from v_1 = 2 of HCN showed similar time profile as the v_1 = 1 emission. However, the emission from v_2=2 of HNC showed a different time profile.

[a]K. Kawaguchi, O. Baskakov, Y. Hosaki, Y. Hama, and C. Kugimiya, *Chem. Phys. Lett.* **369**, 293(2003)