TIME-RESOLVED FOURIER TRANSFORM SPECTROSCOPY WITH CONTINUOUS SCAN INTERFEROMETER

K. KAWAGUCHI, O. BASKAKOV[a], Y. HOSAKI, and C. KUGIMIYA[b], *Faculty of Science, Okayama University, Okayama 700-8530, Japan*.

Most of time-resolved Fourier transform spectra (TRFTS) have been observed with step-scan interferometers, and reports with continuous scan-type interferometers are limited (1,2). In the present study, a continuously scanning FT spectrometer is applied for observing time-resolved spectra after pulse discharge, where we newly developed a method with a help of a chip computer. He-Ne laser fringe signals and a scan signal from Bruker IFS 120 HR are fed into the chip computer SX28AC (Scenix Semiconductors Inc.) with a speed of 50 MIPS, where various kinds of pulses are generated by programming, based on the He-Ne laser fringe signals. Some pulses are used for triggers of an analog-to-digital converter (ADC) mounted on a personal computer, where the first trigger coincides with the edge of a discharge pulse and the second and other ADC triggers are used for data taking with various time intervals after discharge. Then the time-resolved spectrum is obtained with a time resolution of about 5 microsecond. We applied this system to infrared emission spectra originated from pulse discharge in an Ar/hydrogen mixture. The time profile of infrared emission spectrum of the OH radical was also recorded.

(1) P. A. Berg and J. J. Sloan, Rev. Sci. Instrum. 64, 2508 (1993).
(2) H. Weidner and R. E. Peale, Appl. Spectroscopy, 51, 1106 (1997).

[a]Permanent address: Faculty of Quantum Radiophysics, Kharkov State University, Svobody Sq. 4, 310077 Kharkov, Ukraine
[b]Permanent address: Osaka Minato High-School, Namiyoke 2-3-1, Minato-ku, Osaka 552-0001, Japan