§8. Collection and Compilation of Historical Materials on Plasma Spectroscopy Research in Japan

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Plasma spectroscopy is related to diverse fields of physical research, as plasma physics, atomic and molecular physics, spectroscopy, optical science including laser physics, measurement technology, and so on. Japan's plasma spectroscopy research is now at the top-level in the world, as well as that of plasma and nuclear fusion research. Institute of Plasma Physics (IPP) at Nagoya University had been a leading institute for plasma and nuclear fusion research in Japan from 1961 to 1989, which has been reorganized to be National Institute for Fusion Science (NIFS) on 1989. IPP also had leaded and promoted plasma spectroscopy research in Japan, gathering the wisdom of researchers in many universities in Japan.

We have attempted to collect and compile the historical and scientific materials on plasma spectroscopy in Japan, tracing back to the early days of the IPP. In the course of our activities we have found some lecture notes and research memoranda on plasma spectroscopy by Dr. Masamoto Otsuka, former Professor of IPP, who took a considerable role in establishing and developing Japan's plasma spectroscopy research. These materials consist of 138 pages and are concerned to the following matters as,

- rigorous discussions on the physical quantities of spectroscopic measurements,
- theoretical treatment of irradiation on optical components,
- precise discussion and derivation of the slit function,
- methods for absolute calibration of spectroscopic instruments based on principles of classical theory of optics,
- theory of recombination radiation

and so on.

A part of the materials was published in the japanese journal on nuclear fusion research, "*Kakuyugo-Kenkyu*", as a series of articles entitled "An Introduction to Spectroscopic Measurement of Plasmas (I) - (IV)". [1-4]

It would be worth compiling and rearranging the materials as an excellent textbook for researchers on plasma spectroscopy, especially young researchers, to take basic understanding of principles of spectroscopy and spectroscopic diagnostic techniques. We are now proceeding with our activities for the above goal.

1) Otsuka M. : Kakuyugo Kenkyu **52**, No. 3 (1984) 255-279.
2) Otsuka M. : Kakuyugo Kenkyu **53**, No. 4 (1985) 259-275.
3) Otsuka M. : Kakuyugo Kenkyu **55**, No. 1 (1986) 21-46.
4) Otsuka M. : Kakuyugo Kenkyu **55**, No. 2 (1986) 152-166.