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**Recent Progress in Two-Dimensional Thomson Scattering Measurement System by Multiple Reflections and the Time-of-Flight of Laser Light** SHINGO ITO, HIROYUKI NONAKA, TAKASHI SUMIKAWA, MITIAKI INOMOTO, YASUSHI ONO, University of Tokyo, Japan, KAZUMICHI NARAHARA, National Institute for Fusion Science, Japan — Two-Dimensional Thomson Scattering measurement (2-D TS) has been developed using multiple reflections and the time-of-flight (TOF) of laser light. It enables us to measure the r(radial)-z(axial) profiles of electron temperature and density. The multiple reflections of YAG laser light are used to cover the whole r-z plane of the compact torus plasma, and the time delay of the scattered light along the laser beam is arbitrarily arranged by adjusting the multiply reflected laser light path in order to reduce the number of detectors. We detected the Thomson scattering lights from three measurement points successfully, proving validity of this method and then extended it to 3 x 3 measurement system, realizing the 2-D measurement for the first time. We already measured the 2-D Raman scattering lights for absolute calibration of this system and will report details of the 2-D measurement of Thomson scattering lights.

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