

**Abstract Submitted for the Thirteenth Topical Conference  
on High Temperature Plasma Diagnostics  
June 18–22, 2000, Tucson, Arizona**

Category Number and Subject:

Theory       Experiment

**Upgraded Calibrations of the Thomson System at DIII-D,\***

B. Bray, C. Hsieh, T.N. Carlstrom, C. Makariou, *General Atomics* — The DIII–D Thomson system measures electron density and temperature with eight pulsed ND:YAG lasers along three paths through the plasma vessel. The components of the Thomson system are absolutely calibrated so the measurements can be combined into a single profile from a normalized radius of about 0.1 to beyond the edge of the plasma. A monochromator calibration and opto-electronic calibration measure the detectors' absolute sensitivity to background and pulsed light. A Rayleigh scattering calibration and transmission calibrations measure the transmission of light to the detectors. The calibration systems are being upgraded to reduce the effect of systematic errors on the temperature and density measurements. The systematic errors can be checked by a comparison of overlapping channels and estimated from fits to the profiles. The contributions of the background and scattered light to the systematic and statistical uncertainties of the measurement are discussed through simulations and experimental data.

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B. Bray  
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