

Abstract Submitted
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Sorting Category: 5.6.2 (Experimental)

Improved Thomson Scattering Averaging Algorithms for Low Density Plasma Measurements at DIII-D¹ B.D. BRAY, C.-L. HSIEH, General Atomics — The DIII-D Thomson system measures electron density (n_e) and temperature (T_e) with eight pulsed ND:YAG lasers along three paths through the plasma vessel. In the plasma edge and divertor regions it is often difficult to determine the density and temperature because the signal to noise ratio can be very low. Alternate analysis methods can be used to increase the signal to noise ratio by averaging data from repeat shots or multiple laser pulses. The average densities determined from these algorithms differ from the densities determined by the standard algorithm at low signal to noise levels. These differences can be reproduced in Monte Carlo simulations and indicate a bias in the standard analysis method at low densities. This bias is caused by the rejection of data where noise fluctuations produce poor fits to the expected Thomson scattering signals.

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Prefer Oral Session
Prefer Poster Session

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Special instructions: Poster 12, Edge/Divertor/Transport
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