

**Abstract Submitted for the Forty-Eighth Annual Meeting  
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Category Number and Subject:

[ ] Theory [ ] Experiment

**Analysis of Dust Particles Observed by Laser Scattering from 2004-2006 at DIII-D,\*** B.D. Bray and W.P. West, *General Atomics* – Dust particles are observed by Rayleigh/Mie scattering of ND:YAG lasers during plasma operations at DIII-D. Typically, about 1 particle is observed in the SOL during each shot and this rate has a strong dependence on operating parameters. The mean density ( $4000 \text{ m}^{-3}$ ) is small compared to observed carbon density in the plasma and is unlikely to be a significant source of contamination but understanding dust is important because it can be a significant safety issue for future burning plasma machines. Studies of these particles show large differences in the dust densities for different plasma configurations. There is a significant increase in dust density with H-mode discharges relative to L-mode discharges. Plasma configuration is also very important for dust production and upper single-null plasmas have double the dust density in the SOL compared to lower single-null plasmas with similar confinement. Dust collection on the vessel floor has also been observed with an increase in the dust rate for LSN discharges after a period of USN discharges.

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