The Distribution of Particulate Sizes Observed in DIII-D During Normal Plasma Operation,* J. Burkart, UC. Davis, B.D. Bray, W.P. West, General Atomic – Large dust particulates of characteristic size greater than ~30 nm have been observed in the scrape-off layer and divertor regions of the DIII-D tokamak during normal plasma operations from Rayleigh scattering of 1.06 µ light from the existing Nd:YAG laser array and Thomson scattering system [1]. Here we discuss techniques to estimate the particulate size distribution from the measured pulse height distribution of scattered laser light. The data suggest a double-peaked distribution of particulate sizes. One group of particulates is small enough 𝜆/10) that the Rayleigh scattering approximation holds. Estimates of the size distribution of the group of larger dust particulates require the Mie scattering formulation.


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