

## Laser Ablation of Graphite

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Ablation dynamics and cluster formation of  $C_n^+$  ions ejected from 355-nm laser ablation of graphite target in vacuum were investigated by a pulsed-field time-of-flight mass spectrometer (TOFMS). At low laser fluence range, the mass spectra consist of cluster ions up to nearly 140 atoms. With increasing laser fluence, however, the maximum size distribution moves toward small cluster ions, indicating that the fragmentation takes place within the hot plume. Further increase of laser fluence results in the effective formation of clusters larger than 30 atoms, which is presumably due to the aggregation process during the plume propagation. The temporal evolution of  $C_n^+$  ions was measured by varying the delay time of the ion extraction pulse with respect to the laser irradiation, which provides significant information on the ablated plume characterization.