

# **Experimental investigation and composition analysis of laser produced plasma plume in front and back ablation geometries**

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## **Abstract**

Experimental observation of laser produced plasma plumes of LiF-C thin film in Front Ablation (FA) and Back Ablation (BA) geometries have been done under various conditions. Fast imaging and optical emission spectroscopy (OES) have been used as diagnostic tools in this experiment. Composition analysis of this target for neutral and ionic contributions in front ablation and back ablation geometries in vacuum ( $2 \times 10^{-6}$  mbar) and  $2 \times 10^{-1}$  mbar argon has been done. Temporal evolution of ionic to neutral ratio and neutral abundance for both the geometries has been estimated. For neutral abundance, two approaches viz Atomic Data and Analysis Structure (ADAS) analysis as well as integrated intensity ratio of Li I 670.1 nm and Li I 610.3 nm lines assuming LTE conditions are explored. The difference in plasma evolution dynamics, electron temperature, density and ion neutral composition in two geometries will be presented in this poster. The present attempt will be interesting from the view point of understanding the evolution of plasma composition in various geometries/configurations of laser ablation which has important implications in various applications.