

INVESTIGATION OF LASER PRODUCED PLASMA USING SPACE
RESOLVED SOFT X-RAY Al SPECTRUM AND MULTI-LAYER
TARGET TECHNIQUE

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H and He-like Al Lines and their inner-shell satellites were obtained from Al and Polyethylene layered targets irradiated by a Nd-glass laser at a power flux of $2 \cdot 10^{13}$ W/cm². Spatial resolution was achieved using a flat crystal spectrograph incorporating a wire shadow technique. Spatial profiles of T_e and n_e in the expanding plasma were deduced from line intensity ratios.

By varying the Al layer location in the target, the non-thermal origin of Al $K\alpha$ radiation is investigated and the penetration depth of the heat wave front is determined. Comparison is made with classical transport mechanisms.