

THE BROADENING OF THE LYMAN LINES OF THE H-LIKE IONS  
BE IV TO O VIII IN A LASER PRODUCED PLASMA

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Spectra emitted by laser produced plasmas of the light elements Be to O when observed with spatial resolution show the H-like Lyman lines strongly broadened and asymmetrically self-absorbed especially near the target. The first three lines,  $L\alpha$ ,  $L\beta$  and  $L\gamma$  of Be IV, B V, C VI, and the  $L\alpha$  of N VII and O VIII have been analyzed in detail. Temperature, density and plasma dimensions have been spectroscopically determined. A model for the emitting plasma that takes into account Stark and Doppler broadening, motion Doppler shift and optical opacity has been devised that successfully explains the observed profiles. The diagnostic possibilities of such observations are discussed.