IN BRIEF

Experiments to measure the interaction of ultraviolet light with several different target materials continue to produce significant new research results. Most notable was the measurement of x-rays produced by the targets. Incident laser energy was converted to x-ray lines with efficiencies of 1% at 1.8 KeV (Si lines). Nickel x-ray lines at 7.8 KeV were produced with 0.1% efficiency.

In addition, highlights of other recent developments include:

- Liquid crystals may be utilized to design large aperture waveplates.
- Simple modification of the LLE 600 psec oscillator produced an oscillator capable of generating 1.15 nsec pulses with ± 4% stability.
- Active and passive stabilization of the synchronously pumped dye laser reported in LLE Review, Volume 5 reduced the sources of instability and produced pulses shorter than 300 fsec.
- Modeling of the interaction of intense electromagnetic waves with a plasma has determined the threshold and growth rate for a filamentation instability. These narrow filaments of high intensity and low plasma density will form at laser intensities above 10¹⁴ W/cm².

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Steve Jacobs testing performance of liquid crystal isolator. These passive devices hold promise as large scale isolators for high power laser systems. This review reports on the design of liquid crystal waveplates and their potential for replacing more expensive optical materials.