IN BRIEF

- The first *kinetic* x-ray diffraction pictures of a photoactive protein (bacteriorhodopsin) have been obtained using a laser plasma source.
- Two user groups, Larry Knight and David Gaines (Brigham Young University), and Ray Stringfield (Physics International), conducted experiments on the GDL and OMEGA facilities respectively.
- A new technique, capillary gas filling, has been developed to load high-Z diagnostic gases into microballoon targets. The usual permeation technique is unworkable for these materials because of their very small permeation coefficients.
- Near field equivalent plane intensity and phase distribution measurements were made using two beams of the OMEGA system. With 200 GW per beam at 600 psec the maximum phase distortion measured across the beam was $\sim 1.5\lambda_0$, with maximum peak-to-valley variance in intensity in the near field distribution of $\sim 20\%$, and in the equivalent target plane of $\sim 50\%$.
- An extensive data base has been generated in a study of the $2\omega_p$ instability and stimulated Raman scattering on the GDL system. Simultaneous observations of the scattered light intensity, angular dependence and spectrum, as well as observations of the soft and hard x-ray spectra, high energy electrons and ion blow-off were made. The results indicate low conversion into Raman ($\sim 10^{-5}$) and low conversion into high energy electrons ($< 10^{-4}$ of incident energy).

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Staff scientist Robert D. Frankel (right) and senior scientist James M. Forsyth (left) in the x-ray laboratory at LLE. Using monochromatic x-ray pulses produced by focussing frequency tripled GDL pulses onto chlorine targets, they are studying the kinetic structure of photostimulated membrane proteins via x-ray diffraction. Some preliminary results of these measurements are presented in this issue.