

## OMEGA BOOSTER PROGRAM

The feasibility program for upgrading OMEGA laser power through addition of active mirror amplifiers has continued during the past quarter. The booster scheme being considered for OMEGA would consist of 4-6 active mirror amplifiers at the end of each beam line to increase laser power by about a factor of 4. During the last quarter, the construction of a prototype 21 cm active mirror amplifier was completed; the previous experimental version was 17 cm in diameter. A 500 shot life test was performed with the flashlamps firing to determine the reliability of the new components. No major problems were uncovered with the new design. We did find, however, that the latest batch of AR treated pyrex used in the lamp jackets and blast shields did begin to show damage from the flashlamp light. We are currently working with Corning Glass to track down the cause of this new problem. The cooling time (i.e., time to reach thermal equilibrium) for the 21 cm active mirror was measured to be 18 minutes. This is consistent with the OMEGA shot cycle of 30 minutes. The small signal gain of the active mirror without a front face coating was measured to be 1.52 corresponding to a stored energy density of  $.329 \text{ J/cm}^3$ . When the front face coating is added the gain is increased to 1.59 and the stored energy density becomes  $.365 \text{ J/cm}^3$ . These results are in good agreement with the prediction of Active Mirror simulation code INV DEN.