IN BRIEF

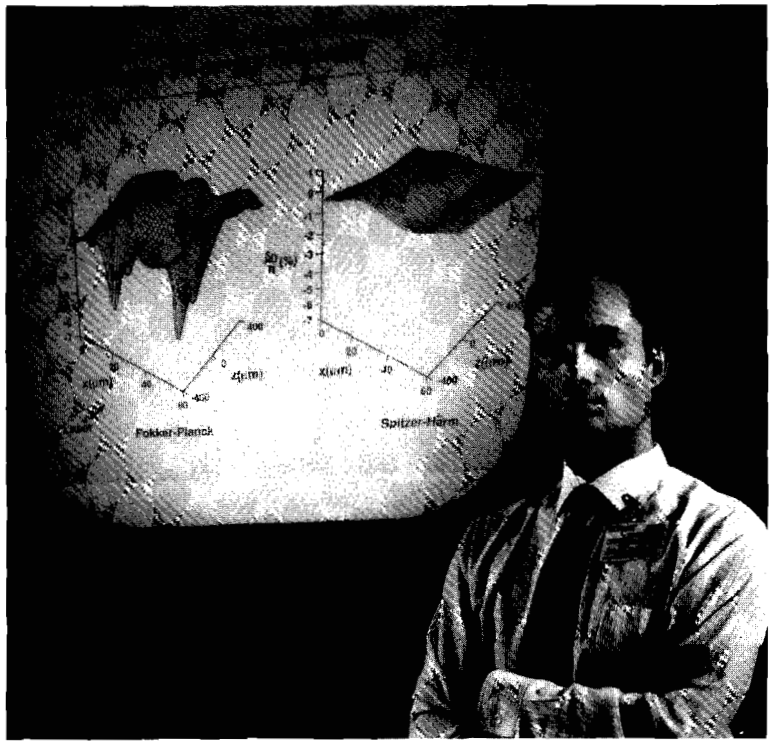
This volume of the LLE Review, covering the period October–December 1991, contains articles on the analysis of argon-filled target experiments, and a theoretical analysis of the impact of nonlocal heat transport in laser filamentation in plasmas. In the Advanced Technology section there is an article on mechanisms that affect thin-film conductivity, and a report on the gain characteristics of the 20-cm SSA prototype amplifier to be used in the OMEGA Upgrade. Finally, the activities of the National Laser Users Facility and the GDL and OMEGA laser facilities are summarized.

Highlights of the research reported in this issue are

- Argon radiation from argon-filled, polymer-shell targets is used as a core-temperature diagnostic and density diagnostic of the surrounding region in a regime where the argon line radiation is strongly absorbed.
- A theoretical analysis of the impact of nonlocal heat transport on laser filamentation in plasmas is developed. The resulting model is compared with experimental observations and the implications for ICF are discussed.
- A study of thermal conductivity in thin films seeks to identify mechanisms that result in degradation of thin-film conductivity. Identifying these mechanisms can lead to changes in thin-film manufacture that will improve their resistance to laser damage.

- The gain characteristics of the 20-cm SSA prototype amplifier have been measured. The amplifier has been found to meet or exceed its design goals.

CONTENTS



Eduardo Epperlein, Research Scientist, presents simulation results of laser filamentation based on the two-dimensional electron Fokker-Planck code SPARK. The code predictions have been successfully compared with filamentation experiments in underdense plasmas.