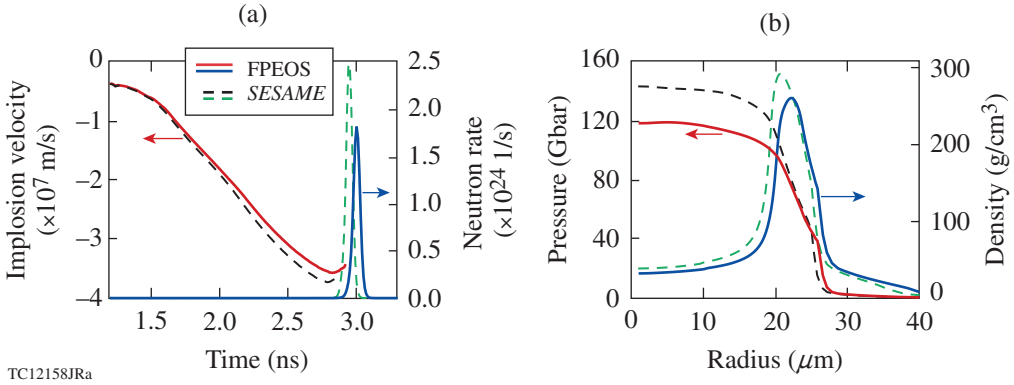
About the Cover:

The photograph on the cover features LLE Senior Scientists S. X. Hu, V. N. Goncharov, Laboratory Director and CEO R. L. McCrory, and Theoretical Division Director S. Skupsky. These LLE researchers along with collaborators from Los Alamos National Laboratory, Senior Scientists L. A. Collins (left) and J. D. Kress (right), report on obtaining an accurate first-principles equation of state (FPEOS) of polystyrene (CH). An accurate equation of state (EOS) of CH is essential to obtain accurate hydrodynamic simulations of cryogenic target implosions using CH/CH-based ablators. Simulations of implosions on OMEGA using the FPEOS of CH have predicted an ~5% reduction in implosion velocity and an ~30% decrease in neutron yield in comparison with the usual *SESAME* simulations.



The figure compares the implosion prediction between *SESAME* EOS (dashed line) and FPEOS (solid line) of CH: (a) the implosion velocity and neutron-production rate as functions of time and (b) the pressure and density as functions of target radius at peak neutron production.

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