

Abstract Submitted
for the DPP11 Meeting of
The American Physical Society

Recent Developments in the VISRAD 3-D Target Design and Radiation Simulation Code JOSEPH MACFARLANE, P. WOODRUFF, I. GOLOVKIN, Prism Computational Sciences — The 3-D view factor code VISRAD is widely used in designing HEDP experiments at major laser and pulsed-power facilities, including NIF, OMEGA, OMEGA-EP, ORION, Z, and PLX. It simulates target designs by generating a 3-D grid of surface elements, utilizing a variety of 3-D primitives and surface removal algorithms, and can be used to compute the radiation flux throughout the surface element grid by computing element-to-element view factors and solving power balance equations. Target set-up and beam pointing are facilitated by allowing users to specify positions and angular orientations using a variety of coordinates systems (*e.g.*, that of any laser beam, target component, or diagnostic port). Analytic modeling for laser beam spatial profiles for OMEGA DPPs and NIF CPPs is used to compute laser intensity profiles throughout the grid of surface elements. VISRAD includes a variety of user-friendly graphics for setting up targets and displaying results, can readily display views from any point in space, and can be used to generate image sequences for animations. We will discuss recent improvements to the software package and plans for future developments.

Joseph MacFarlane
Prism Computational Sciences

Date submitted: 12 Jul 2011

Electronic form version 1.4