

VISRAD, 3-D Target Design and Radiation Simulation Code

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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, LMJ, 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. We will discuss recent improvements to the software package and plans for future developments.