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Rollup of specifications for NIF ignition targets into an error budget STEVEN HAAN, MARK HERRMANN, PETER AMENDT, DEBRA CALLAHAN, THOMAS DITTRICH, JOHN EDWARDS, ABRAHAM FETTERMAN, OGDEN JONES, JOHN LINDL, MARTY MARINAK, DAVID MUNRO, STEPHEN POLLAINE, JAY SALMONSON, BRIAN SPEARS, LARRY SUTER, Lawrence Livermore National Laboratory — Targets intended to produce ignition on the National Ignition Facility [J. A. Paisner, J. D. Boyes, S. A. Kumpan, W. H. Lowdermilk, and M. S. Sorem, Laser Focus World 30, 75 (1994)] are being simulated and the simulations are used to set and update the specifications for target fabrication, the laser, and the experimental programs leading up to ignition. Recent design work has focused on designs that assume only 1.0 MJ of laser energy. Three capsule designs and several hohlraum designs are being considered. Complete tables of specifications have been prepared for all targets, specifying the contribution of each uncertainty to an error budget that allows adequate margin beyond the uncertainties. The specifications are being formalized and documented. Specifications are based on several kinds of simulations: linear analysis, using growth factors from 2D simulations; 2D simulations that include combinations of 1D errors and 2D perturbations; and 3D simulations with random combinations of all expected uncertainties.
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