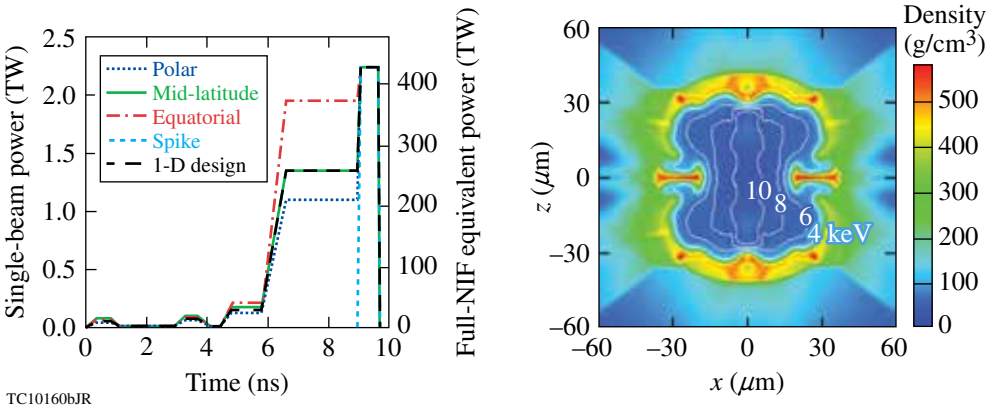
About the Cover:

The cover photo shows LLE scientist Dr. Kenneth Anderson and a simulation of target density and temperature at the onset of ignition for a polar-drive shock-ignition point design on the National Ignition Facility. In shock ignition, the shell-compression and hot-spot–ignition phases are distinct, and a subset of the laser beams is used to heat the hot-spot to ignition temperatures with a high-intensity spike. The required pulse shape and power for all beams are compatible with NIF performance. The 1-D and 2-D simulations take into account the known sources of instabilities and uncertainties to quantify the gain for a 1080-μm-radius target with a 161-μm solid DT-fuel layer surrounded by a 31-μm outer plastic ablator layer. Credit: Lawrence Livermore National Laboratory for background image on cover.



The figure on the left shows the required on-target pulse shapes in the full-quad geometry for shock ignition. The four beams within each of the 48 NIF quads have the same pulse shape, and the quads are pointed and shaped for compression (all the beams from Ring 1 as polar beams, and half of the beams from Rings 2 and 3 as mid-latitude and equatorial beams) and ignition spike (all remaining beams, including all the beams from Ring 4). The figure on the right displays the simulated density and temperature contour at the onset of ignition for the target in these conditions.

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