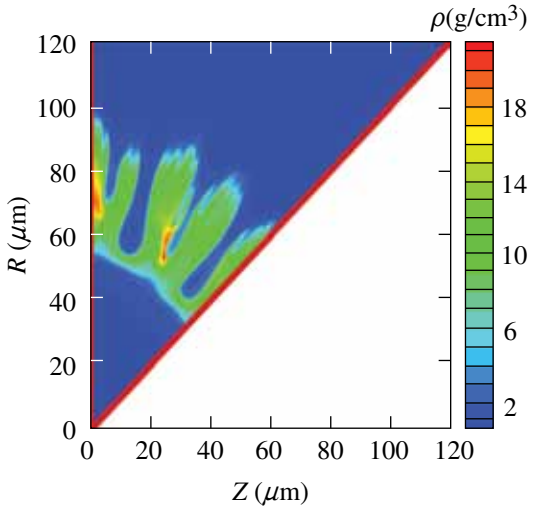
About the Cover:

The cover photo shows Dr. Suxing Hu, who led an effort to study the effects of various nonuniformities on neutron yield in cryogenic deuterium–tritium (DT) implosions on OMEGA (see p. 111). In the background is a contour map of density in an implosion from a two-dimensional *DRACO* simulation, including the actual laser and target perturbations observed in experiments. The authors investigated both large-scale (e.g., target offset, power imbalance, beam mistiming and mispointing) and small-scale (e.g., ice-surface roughness and beam imprinting) nonuniformities to identify and quantify the dominant sources. As a result of this work, Dr. Hu and his colleagues have proposed requirements for achieving yields on hydro-equivalent NIF-ignition targets that scale to minimum ignition conditions on the NIF.



The image at the left shows a *DRACO* simulation (over a 45° wedge) of the effect of beam imprinting on a cryo-DT implosion. The plot shows density contours at the end of acceleration with the beam smoothed via smoothing by spectral dispersion (SSD). The density contours clearly show the "bubble" and "spike" growth characteristic of beam imprinting. Such nonuniformities significantly reduce neutron yield, although the use of SSD is predicted to reduce these effects by a factor of ~2.

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