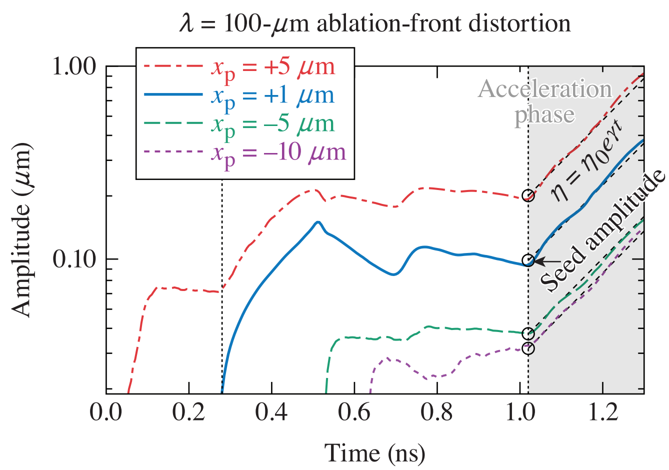
About the Cover:

The cover photo shows the density contour from a *Cygnus* simulation of a 2-D planar foil that contains a 1-μm defect located in the ablator (5 μm from the CH–DT interface). The color corresponds to density and the black lines correspond to y-velocity contours. The target accelerates from right to left, and the axis of symmetry is at $y = 0$. This shows the target after the first shock has passed through the CH–DT interface and into the ice. The shock front is located near $x = 121$ μm and the CH–DT interface is near $x = 128$ μm. The 1-D entropy wave that originates with the defect is labeled in the image just behind the CH–DT interface [near $(x, y) = (131, 0)$ μm]. In the image, perturbation information can be seen propagating along various ripples, after the shock has passed through the defect. When the shock interacts with the defect, the shock front becomes locally deformed. Since the perturbation wave has both x and y components, this deformation spreads laterally along the shock front, leaving a "trail" of vorticity in a cone-like manner, with its origin at the fluid trajectory of the original defect. The extent of this vorticity cone (labeled in the image by the dashed white line) is determined by the material sound speed, shock strength, and defect placement. As the original perturbation cone from the first shock front expands into the target, new waves (such as rarefaction waves) carry this updated information back to the ablation front. Additionally, the distortion laterally expands along the surface of the ablation front due to the 2-D nature of the flow.

Internal target defects create complex wave phenomena, yet simple single-mode (cosine) perturbations can provide clues as to how these complex wave dynamics evolve. In the image on the right, four different single-mode perturbations (λ = wavelength) are applied at different locations (x_p) relative to the interface within the ice or ablator material of a planar 2-D foil. This image shows that distortion growth is larger for large-wavelength modes that originate closer to the outer surface of the target due to shock transit time and the rarefaction wave created by the material interface.



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