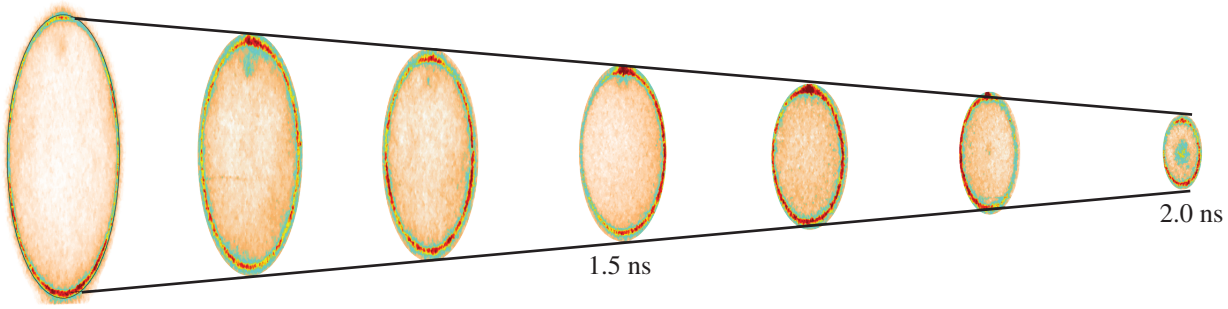
About the Cover:

The photograph on the cover highlights scientist Dr. Tomline Michel and a soft x-ray image of a direct-drive implosion on OMEGA. The image is produced by "self"-backlighting the imploding target using the soft x rays produced by the coronal plasma opposing a gated pinhole camera. The sharp inner edge observed in the self-emission images provides an accurate measurement of the position of the ablation surface. The steep edge was created by the combination of the limb effect and the absorption of the x rays in the cold dense shell. The absorption steepens the gradient by reducing the emission by a factor of 2 over a few microns in the gradient direction.

The image below shows a series of self-emission images used to measure the implosion trajectory on OMEGA. The accurate radial and laser absorption measurements as a function of time were used to determine the conversion of absorbed laser energy into kinetic energy of the shell (rocket efficiency) for different ablator materials. The measurements are consistent with predicted increases in the rocket efficiency of 28% for Be and 5% for C compared to a CH ablator.



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