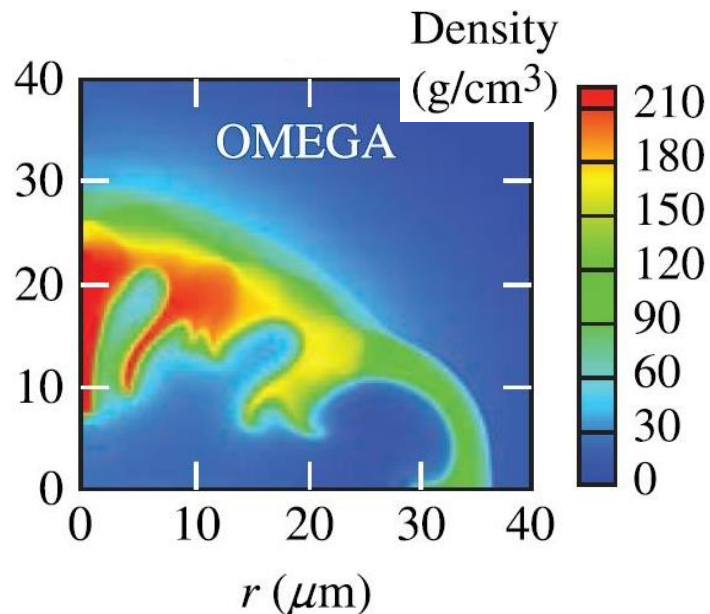
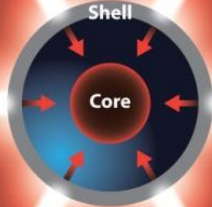


LLE OMEGA Laser 64 beam direct drive

Laser beam



Code: DEC2D/3D

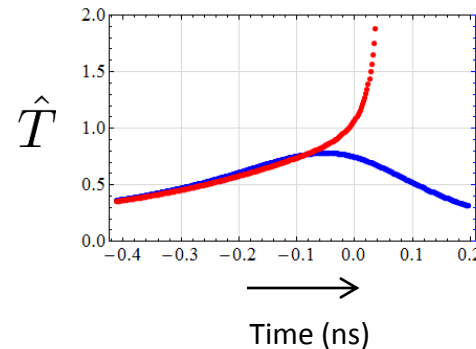
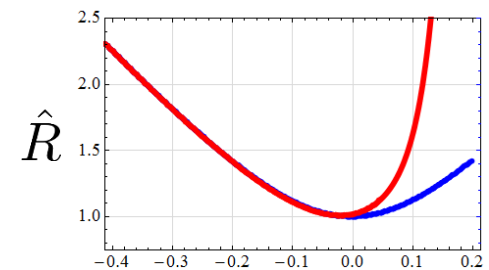
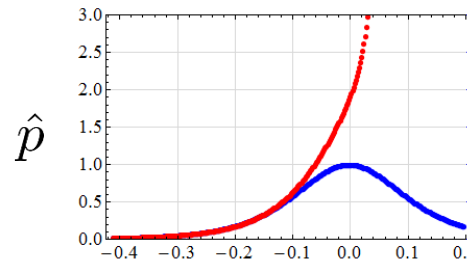
Creating Star on Earth

Hydrodynamics of Inertial Confinement Fusion implosions

$$\frac{d}{d\tau} (\hat{p} \hat{R}^5) = \overset{\text{Alpha heating}}{\gamma \hat{p}^2 \hat{R}^5 \hat{T}^\sigma} - \overset{\text{Radiation Losses}}{(1.17\beta) \hat{p}^2 \hat{R}^5 \hat{T}^{-3/2}}$$

$$\frac{d}{d\tau} (\hat{p} \hat{R}^3 \hat{T}^{-1}) = \overset{\text{Thermal ablation}}{\hat{R} \hat{T}^{5/2}} + (\beta) \hat{p}^2 \hat{R}^3 \hat{T}^{-5/2} \leftarrow \text{Radiative abl.}$$

$$\frac{d^2 \hat{R}}{d\tau^2} = \hat{p} \hat{R}^2$$



— Adiabatic solution

— Including source & sink

- 1) S. Atzeni, J. Meyer-ter-Vehn, ["The Physics of Inertial Fusion"](#), Oxford Univ. Press
- 2) A. Bose & R. Betti, [Phys. Plasmas **22** \(2015\)](#),
- 3) A. Bose et al, [Phys. Rev. E **94** \(R\) \(2016\)](#).