At each step of an ignition implosion, there are unexplained observations. Which of these is non-hydrodynamic and what is our plan to understand and model these processes?

Laser Energy = 1.6 MJ

Drive multipliers, implosion shape, scalloped hohlraum illumination, preheat…
(LPI, HiZ-lowZ mix, fields....)

↓

X-ray Energy = 1.3 MJ

↓

Energy to capsule =150 kJ
Set adiabat

Low rho-R, level of mix in low foot implosions, different drive multipliers for different shocks, shell width …(ion species separation, shock front structure, kinetic mix, filamentary field structure…)

↓

Fuel K.E. = 12 KJ, Shell K.E. ~ 20 KJ

↓

Hot spot = 10KJ

Conversion efficiency of shell KE to hotspot T, Yield max at 10^{16}, T_{Brysk} > $T_{simulated}$, Burn widths, low rho-R, DT/DD Yield ratios (several)

↓

Burn propagation

Non-hydrodynamic effects are an important part of a new ICF microphysics effort

Next steps:

White paper summarizing, correlating, (prioritizing?) potential non-hydro effects in ICF and a plan to quantitatively address these with both experiment and theory/simulation.

- Identify key test problems correlated to ICF anomolies (single unit physics)
- Identify experiments to benchmark key test problems
- New diagnostics and computational techniques
- How we might use kinetic effects to manipulate or understand implosions (e.g. $T_{DD}<T_{DT}$=>characteristic lengthscale)

Phenomenon	Impact	Importance	Timescale	Experiment strategy	Theory/simulation strategy
Ti>Tsimulated					
$Y \leq 10^{16}$					
Shape					
…..					

Hans, Scott, and Peter will touch on a high level summary for whitepaper
=> Make sure it is inclusive and please help when you get the whitepaper draft