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Title: OMEGA FY13 HED requests - LANL

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OMEGA FY13 HED requests - LANL

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& Eric Loomis
Facility and Advisory Scheduling Committee
Rochester, NY
June 26,2012

Abstract

- This is a summary of scientific work to be performed on the OMEGA laser system located at the Laboratory for Laser Energetics in Rochester New York. The work is funded through Science and ICF Campagins and falls under the category of laser-driven High-Energy Density Physics experiments. This summary is presented to the Rochester scheduling committee on an annual basis for scheduling and planning purposes.

Request Summary by Quarter for LANL HED

LANL FY'13 OMEGA Shot Request						
			FY'13			
Campaign	PI	Q1	Q2	Q3	Q4	Total
HED-MMI	Shah	10				10
DP-EOS	Benage		10		10	20
AlCap	Kline		10			10
NIS-13	Merrill			10		10
DiME-13A	Cobble		20			20
KNU	Kim				10	10
GRI	Grim		10			10
HBURN	Grim				10	10
Shear-13A	Loomis		10			10
CoaxDiff	Kline		10	10		20
NIF-5	Hsu		10	10		20
	TOTAL:	1	8	3	3	15

HED-MMI experiment will determine 4pi mix levels in symmetric implosions

- **Purpose: Obtain MMI images of Ti emission from symmetric implosions and determine mix levels.**
- **Motivation: Understand 4pi mix in ICF like implosion systems**
- **FY12 Goal: Obtain mix profiles using MMI for symmetric implosions**
- **PI/Designer: John Benage and Rahul Shah/Evan Dodd**
- **Major Issues: Analysis tools for MMI**

Summary Shot Table	*Q1FY11*	*Q2FY11*	*Q3FY11*	*Q4FY11*
Total shots	*10*			

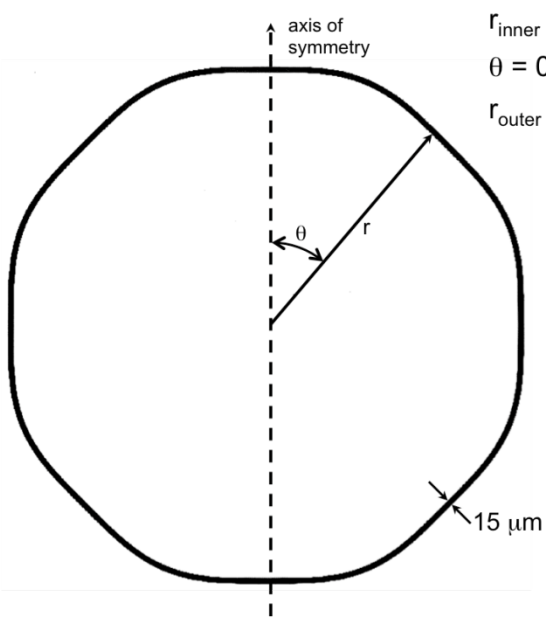
Experimental Configurations for HED-MMI

- ***These are direct drive symmetric implosions using plastic capsules with Ti doped on inner layers of the capsule.***
  - ***All 60 beams will be used to produce best symmetric drive.***
  - ***Diagnostics include 3 MMI spectrometers, one additional framing camera, the SSCA streaked spectrometer, and the usual neutron diagnostics.***
  - ***We also will use backscatter diagnostics***

- ***Potentially will also use some asymmetric capsules***
  - ***Diagnostics will all be the same***
  - ***Orientation is aligned so that diagnostics view from both the polar and equatorial view.***

Targets

- **Targets will be of two types**
  - **Symmetric targets with general dimensions as illustrated but with no angular variation in radius**
  - **Asymmetric targets with angular variation as shown, but with only one level of Δr**
- **Each target will be doped on inside of shell with Ti, the amount being determined from results of June, 2012 shots.**
  - *These targets have all been made before, so there should not be any target fabrication issues.*



$r_{inner} = r^0_{inner} - \Delta r \cos[\, 8\, \theta\,]$

$\theta = 0$ to π

$r_{outer} = r_{inner} + \Delta r_{wall}$

Typical parameters:

$r^0_{inner} = \sim 430\ \mu m$

$\Delta r = \sim 2.5 - 10\ \mu m$

$\Delta r_{wall} = \sim 15\ \mu m$

Campaign Name: AlCap

- **Purpose or Failure Mode Addressed (can be multiyear):**
  - **Measure performance of Al in indirect drive experiments as an alternate ablator**
- **Specific Deliverable/Risk Mitigation Activity of campaign :**
  - **Measure neutron yield, neutron Ti, BT, energy coupling and symmetry of CH and Al capsules for indirect drive implosions**
- **What would we do with results:**
  - **Demonstrate the performance of Al shells is such that it is a viable ignition ablator. A successful test would be used to argue for Al capsules tests on NIF as a alternate ablator design.**

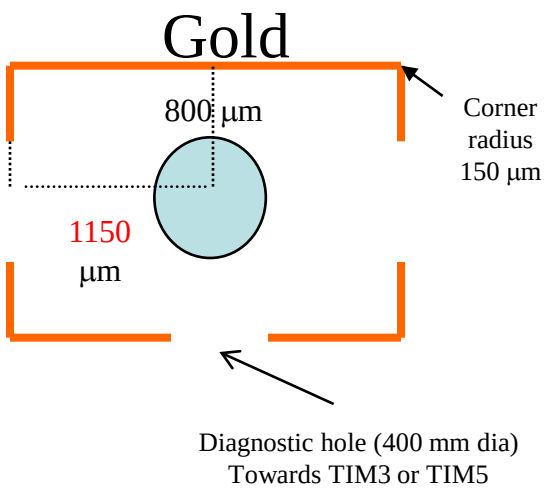
- **PI/Designer: Kline/Amendt**
- **Major issues: Delivery of the Al capsules**

Summary	Q1FY13	Q2FY13	Q3FY13	Q4FY13
Shot Opps	0	10	0	0
Target #1 Type:C	0	0	0	0

Campaign Name: AlCap

Experimental Config #1

Type C Target



Diagnostics

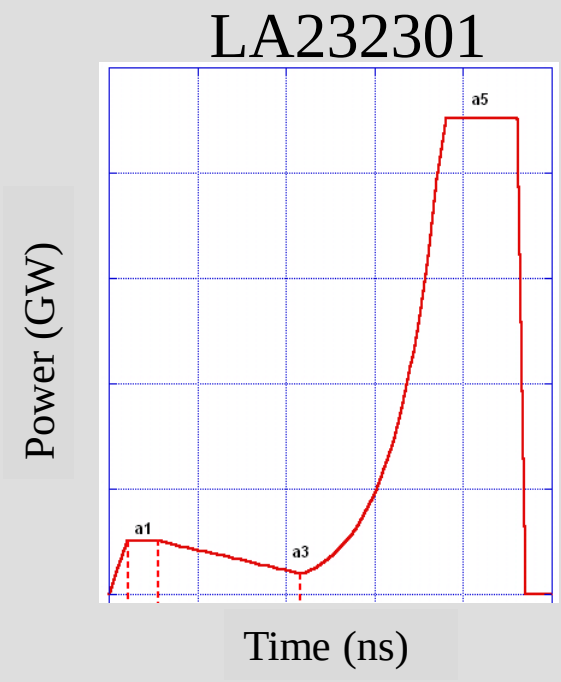
Diagnostics required:

Diag	TIM	Priority	Type	Calib/Chara
FABS	**-**	**1**	**3**	**Cal Shot**
NBI	**-**	**1**	**3**	**existing cal**
Dante	**-**	**1**	**3**	
XRFCs	**3/5**	**2**	**3**	
NTD	**-**	**2**	**3**	
NToF	**-**	**2**	**3**	

Experimental set-up: One for each unique illumination AND diag config, e.g. if you change either, requires a different setup
Priority: (1: must have,2:like to have , 3: ride-along)
Type: (1:New diag, 2:major mod, 3: minor mod or existing)

Campaign Name: AlCap

Laser Pulse Shape

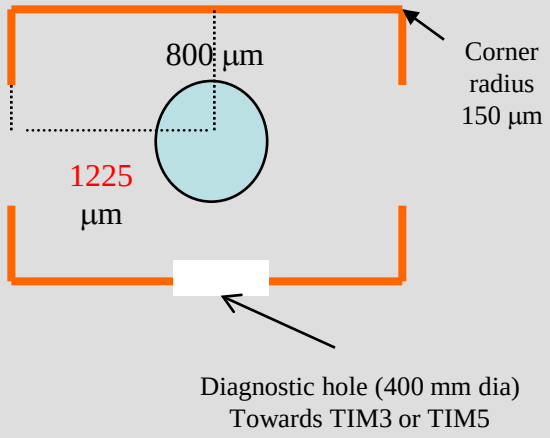


Laser Config #1

- Laser configuration
  - 40 heater beams on 3 cones
  - Shaped pulse
  - Laser E: Maximum possible (350J/beam)
  - Elliptical E-IDI-300 DPPs
  - SSD 0-3Å
  - DPRs
  - Beam pointing relative to LEH: Identical to FY09 OptImp campaign

Campaign Name: AlCap; we will go with target option 1 or 2

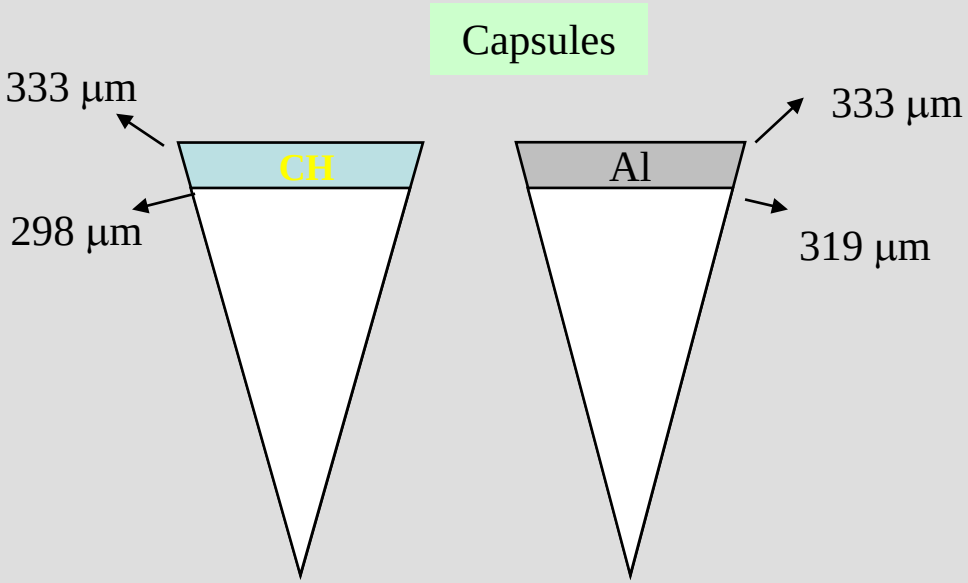
Target Config #1



Au

Vacuum is main design
Gas fill option: 0.7 atm of CH4; requires LEH and diagnostic hole windows

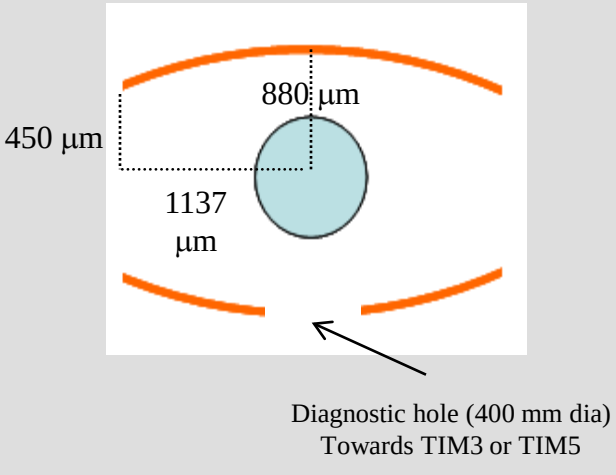
Capsule Config #1



Gas fill : D_2 (Ar) or DHe^3
Pressure : 50 atm
6 Al and 6 Plastic capsule targets

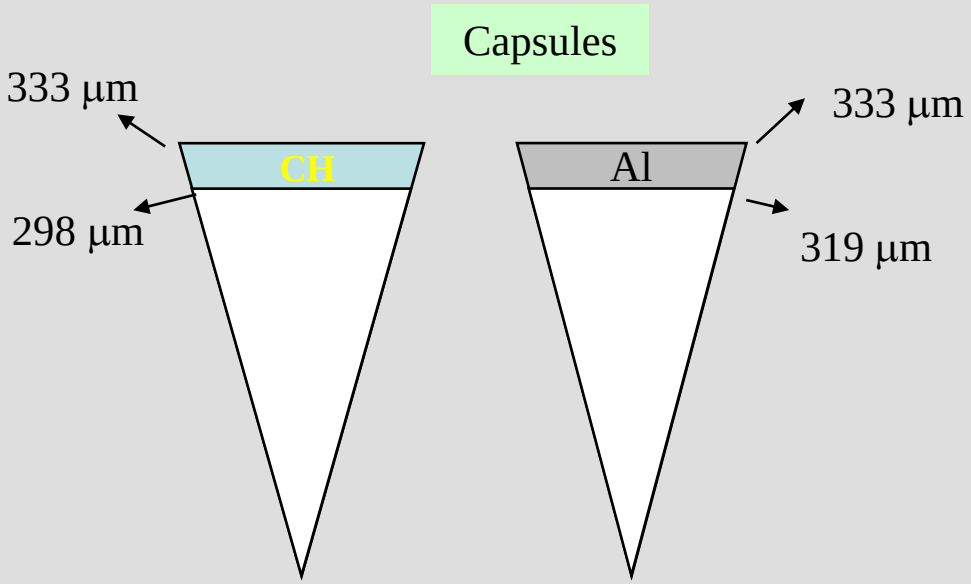
Campaign Name: AlCap; we will go with target option 1 or 2

Target Config #2



Gas fill : 0.7 atm of CH4
Requires LEH and diagnostic windows

Capsule Config #2

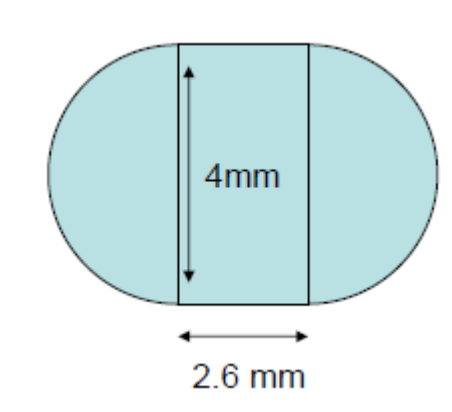


Gas fill : D_2 (Ar) or DHe^3
Pressure : 50 atm
6 Al and 6 Plastic capsule targets

Campaign Name: AlCap

Target Config #3

Pointing target



Material : Gold

Proposed experiment: The DPEOS experiment will measure the EOS of warm dense matter Al.

- **Purpose: Measure pressure, density, and temperature of Al in the WDM regime.**
- **Motivation: To test EOS models in new range of parameter space where dense plasma effects should be important.**
- **FY13 Goal: Complete density and temperature measurements using the imaging x-ray Thomson spectrometer.**
- **PI/Designer: John Benage and Katerina Falk**
- **Major Issues: X-ray backlighter shielding issues must be successfully resolved.**

Summary Shot Table	*Q1FY13*	*Q2FY13*	*Q3FY13*	*Q4FY13*
Total shots		*10*		*10*

Experimental configurations for DPEOS

Configuration 1: Pressure measurement

Laser beams:
Pressure drive- 2 ns pulse, SG4 phase plates
Beams 11,13,14,18,20,22,23,24,27,47,59
No Backlighter beams

Main Diagnostics:

TIM 1: XRFC4
TIM 4: SSCA
TIM 5: Off-axis ASBO telescope

Configuration 2: Temperature measurement

Laser beams:
Pressure drive- 2 ns pulse, SG4 phase plates
Beams 11,13,14,18,20,23,24,27,50,59
Backlighter drive- 1 ns pulse, no phase plates
Beams 33,34,36,38,60,63

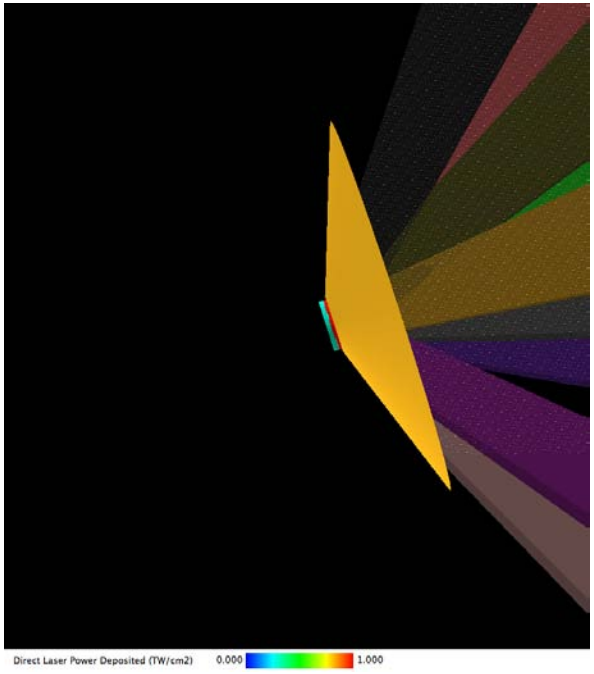
Main Diagnostics:

TIM 1: XRFC4
TIM 4: SSCA
TIM 6: IXTS

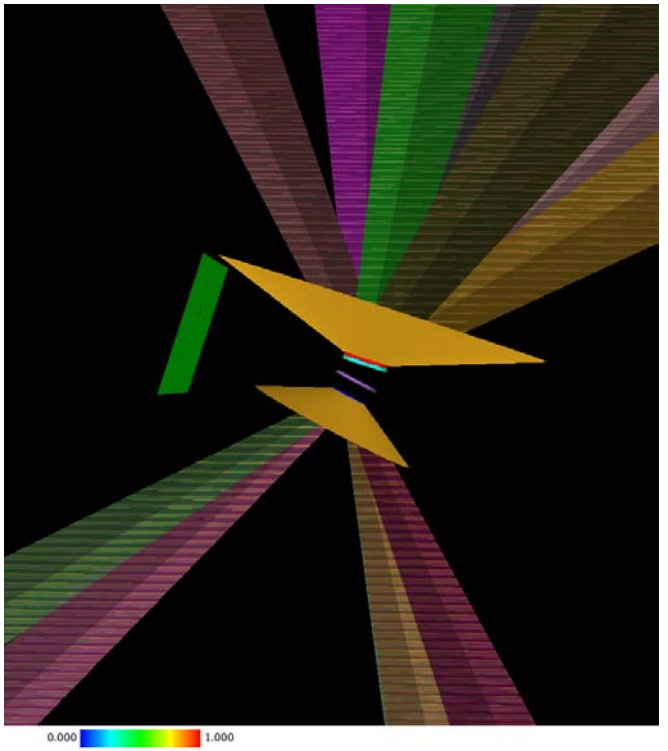
Target Description

- *Targets are all type B and have all previously been successfully fielded, but are complex in shape.*

TIM 4 view of DPEOS pressure measurement configuration target



Top view of DPEOS temperature measurement configuration target



NIF5 Experiments to measure foam EOS.

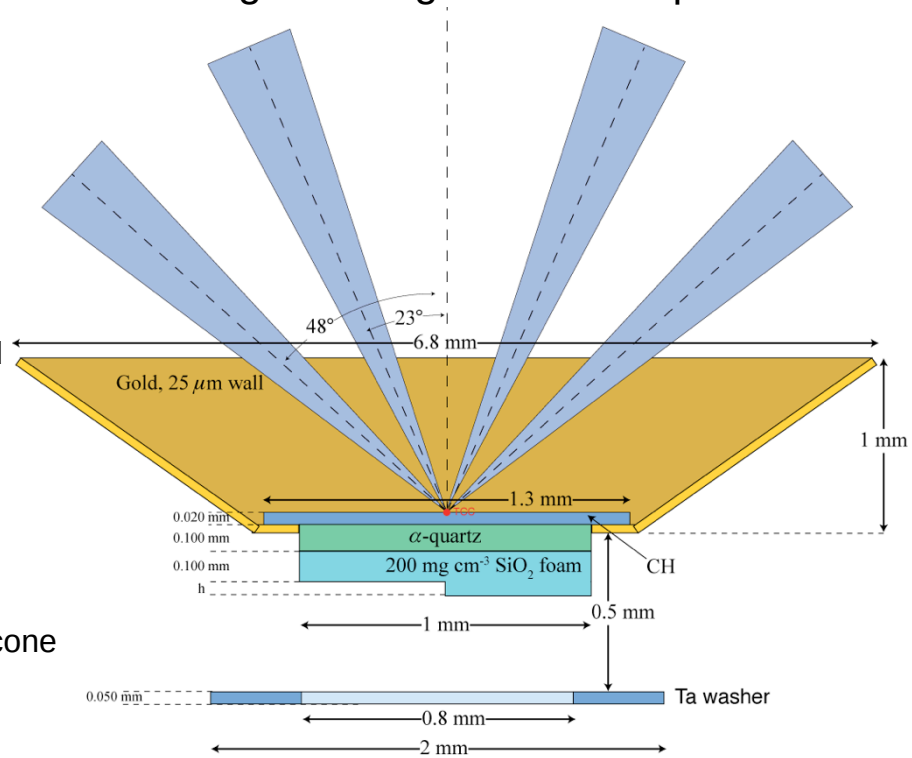
- **Purpose: Measure shock speeds and temperature in low-density SiO_2 foams.**
- **Motivation: Benchmark foam EOS models at conditions of a few to tens of eV.**
- **FY13 Goal: Successfully obtain temperature measurements for shocked foams.**
- **PI/Designer: Nick Lanier & John Benage**
- **Major Issues: SOP measurements at high temperature.**

Summary Shot Table	*Q1FY13*	*Q2FY13*	*Q3FY13*	*Q4FY13*
Total shots		*10*	*10*	

Target and diagnostic details

- 12 beams in two beam cones: 6 @ 23 deg, 6 @ 48 deg
- not shown is a grid on the foam, at corner of stack, for focusing ASBO
- will have a stand-in target for alignment of step direction

gold cone to shield diagnostics from plasma emission



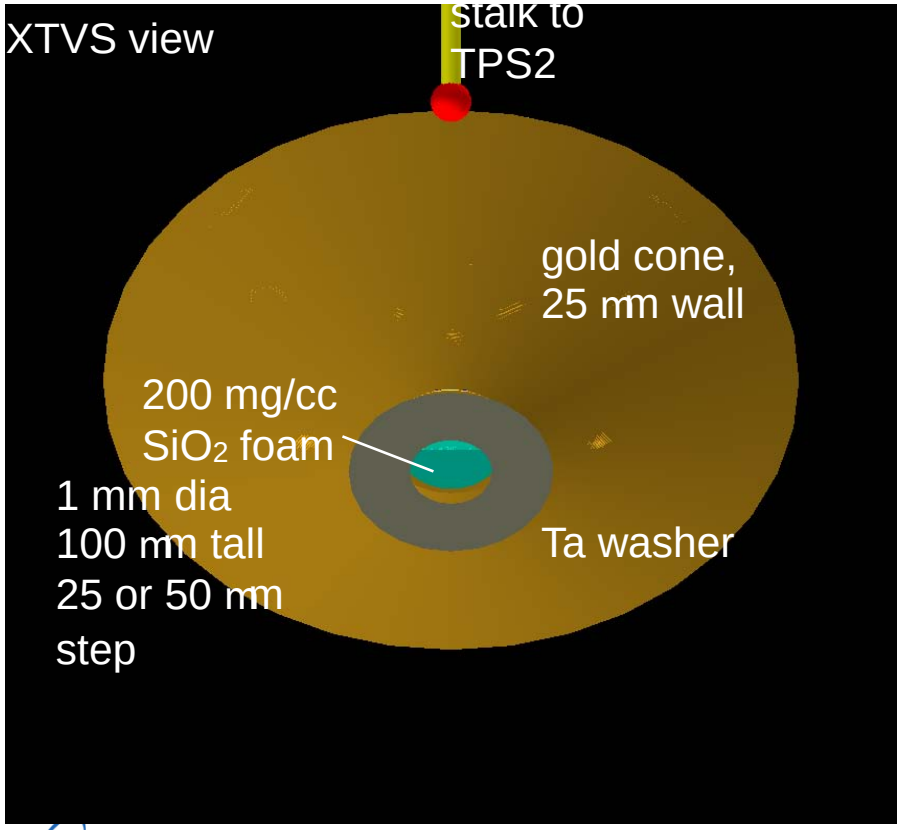
(held on to gold cone by glue dots)

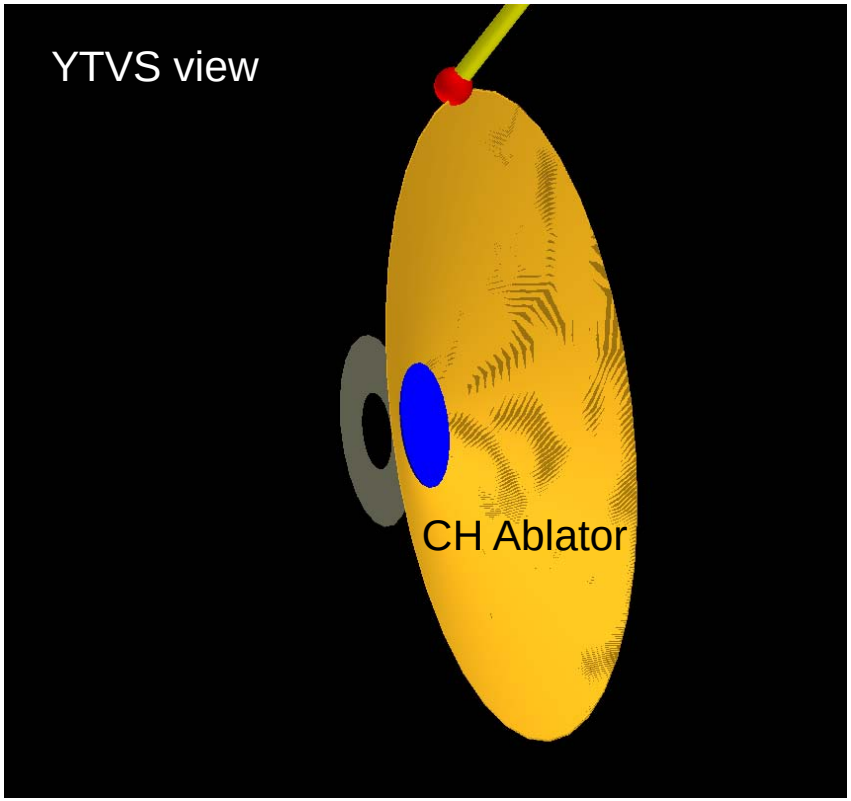
TIM diagnostics

TIM 1 (P3)	XRFC1	**Secondary**
TIM 2 (H3)	XRFC3	**Secondary**
TIM 3 (H18)	XRFC4	**Secondary**
TIM 5 (H14)	ASBO + SOP telescope	**Primary**

Target Section

- *All targets are type B targets*



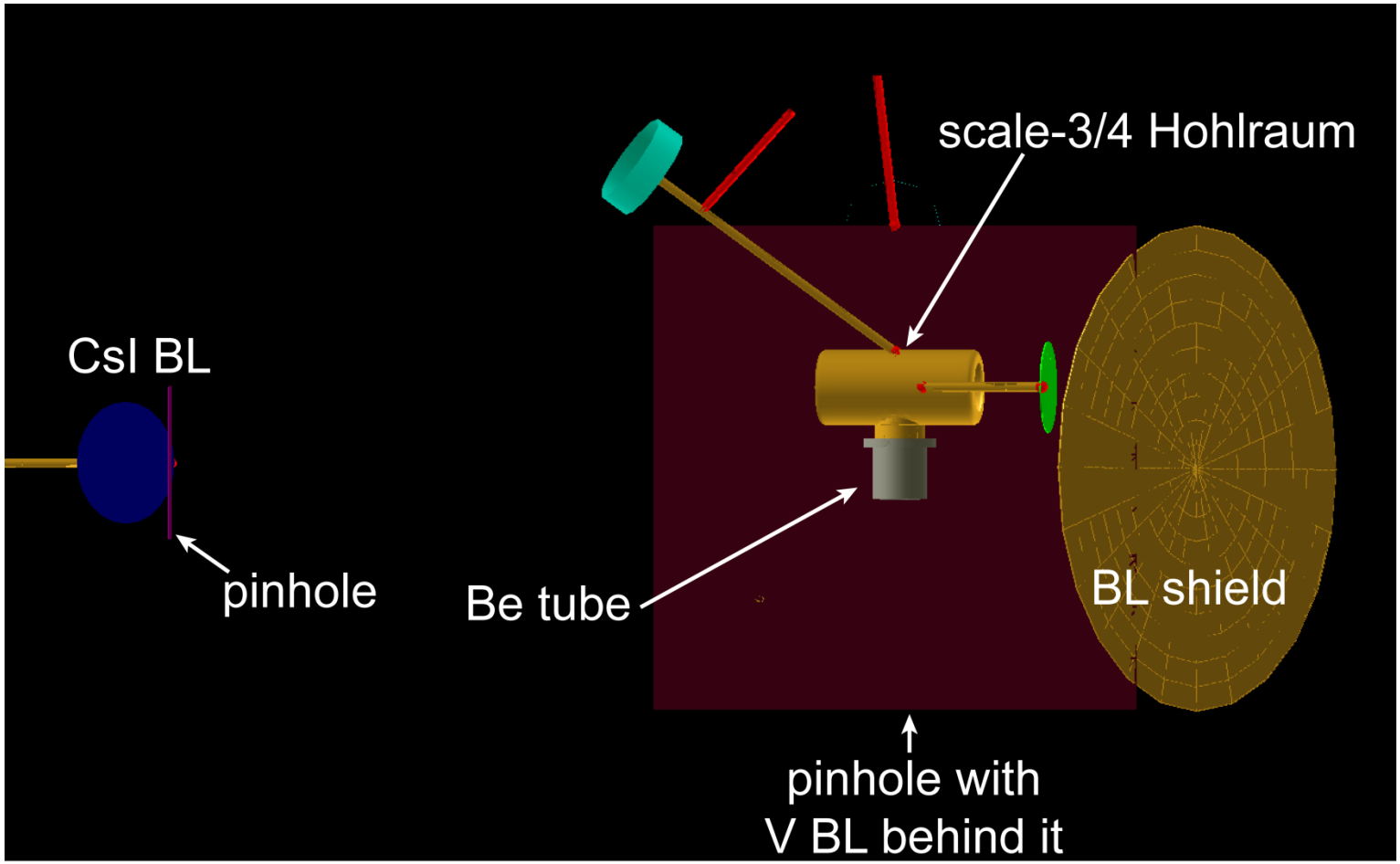


The OMEGA Coaxial Diffusion campaign will study anisotropic radial diffusion across boundary layers

- **Purpose: To obtain constraining data for our CASSIO models while providing a platform for developing diagnostics required for future NIF experiments.**
- **Motivation: Better understanding of anisotropic transport**
- **FY12 Goal: Verify functionality of split-imaging diagnostic, and perform initial coaxial-diffusion experiments.**
- **PI/Designer: N. E. Lanier / N. E. Lanier**
- **Major Issues: Experiments require implementation of new SYDOR Framing Camera with NIF Split imaging Spectrometer snout.**

Summary Shot Table	*Q1FY11*	*Q2FY11*	*Q3FY11*	*Q4FY11*
Total shots	*0*	*10*	*0*	*10*

Experimental Configuration for Coaxial Diffusion campaign: target configuration



Experimental Configuration for Coaxial Diffusion campaign: beams & diagnostics

Hohlraum Beams

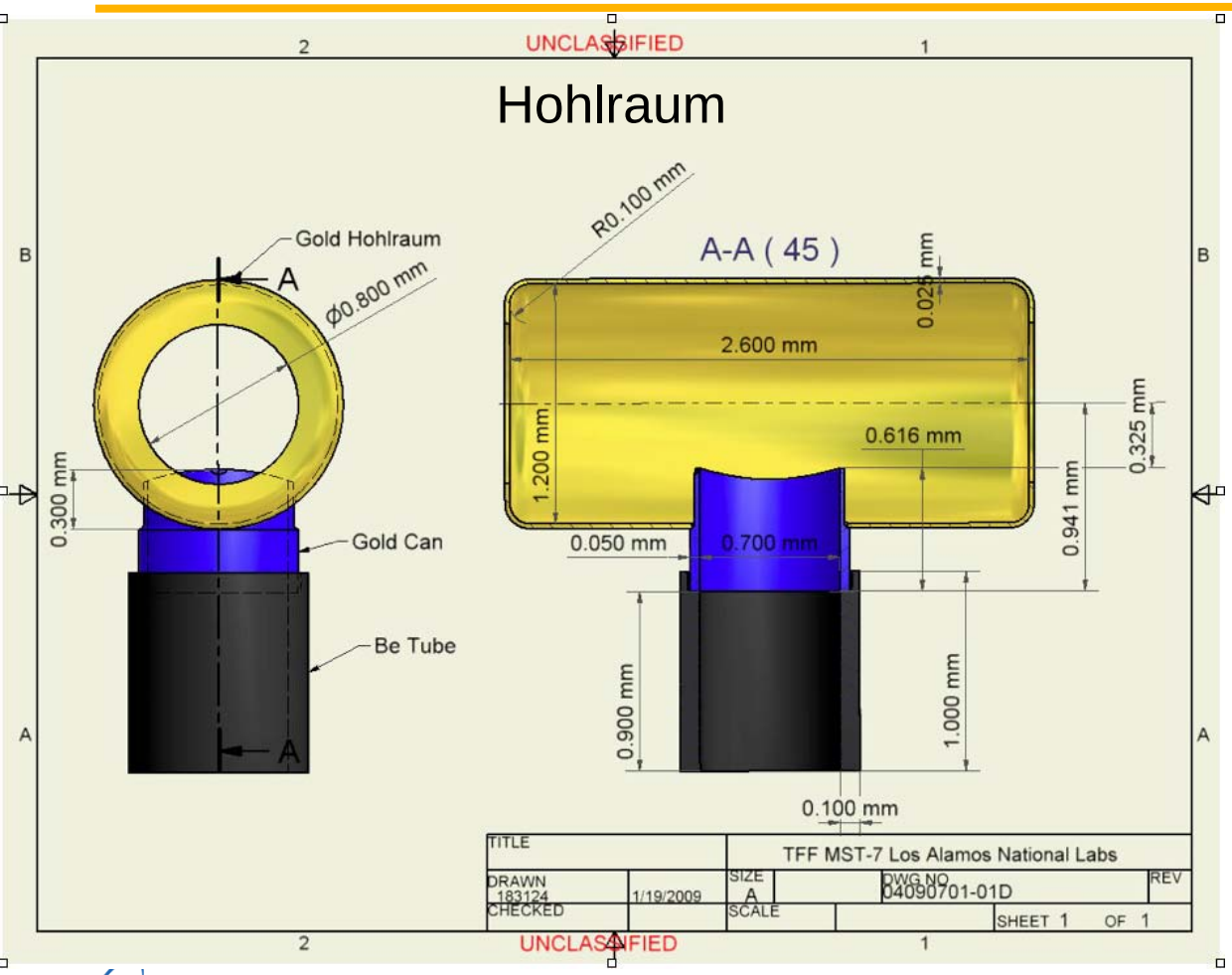
Beams	Laser Pulse	J/Beam Energy	DPP	DPR
11,13,26,42,48,53	1 ns sq	500	N	N
14,15,37,43,54,50	1 ns sq	500	N	N
16,23,25,35,38,64	1 ns sq	500	N	N
17,59,60	1 ns sq	500	N	N
22,46,47,40,52,66	1 ns sq	500	N	N
27,34,45	1 ns sq	500	N	N

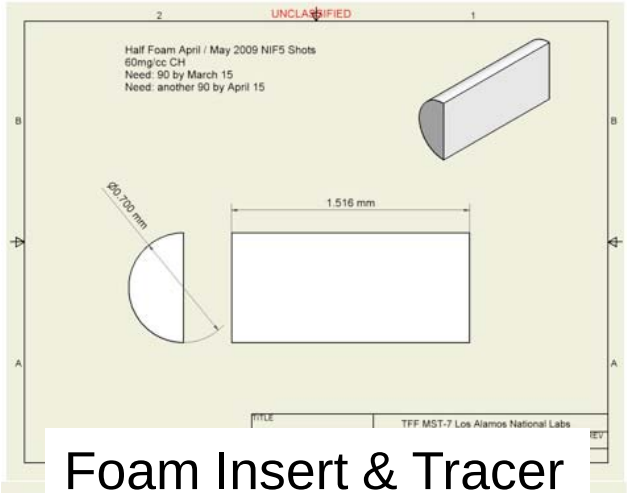
Backlighter Beams

Beams	Laser Pulse	J/Beam Energy	DPP	DPR
10,28,20,32,33,36	1 ns sq	500	N	N
55,56,58,61,63,65, 67,68	1 ns sq	500	N	N
44,51,57,62,69	1 ns sq	500	N	N

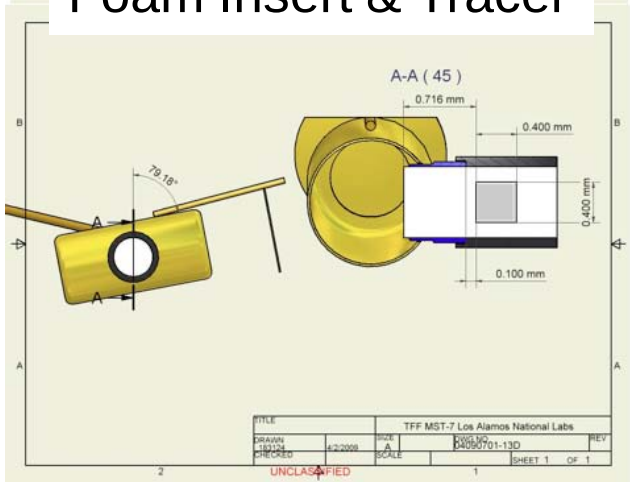
Port	Diagnostic	Priority
TIM 1	XRFC1 – 2x	Secondary
TIM 2	TTPS 1	Primary
TIM 3	GXI-T + NIF5 spectrometer	Primary
TIM 4	XRFC 4 – CIPS (12x standoff)	Primary
TIM 5	XRFC2 – 2x	Secondary
TIM 6	TTPS 2	Primary
H16I	DANTE	Primary
B25	FABS 1	Secondary
P2B	Henway XR Spectrometer 1	Primary
H8C	XR Pinhole Camera H8 (XRPHC)	Secondary
H12C	XR Pinhole Camera H12 (XRPHC)	Secondary
H13C	XR Pinhole Camera H13 (XRPHC)	Secondary

The Coaxial Diffusion Experiments will use the NIF-5 hohlraum design.





Foam Insert & Tracer



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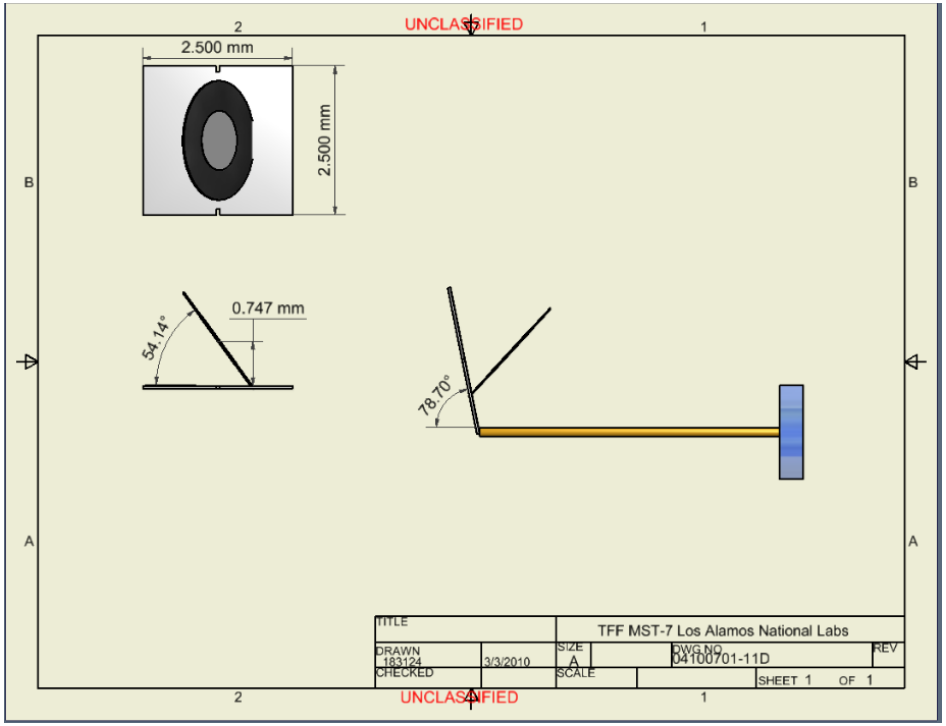
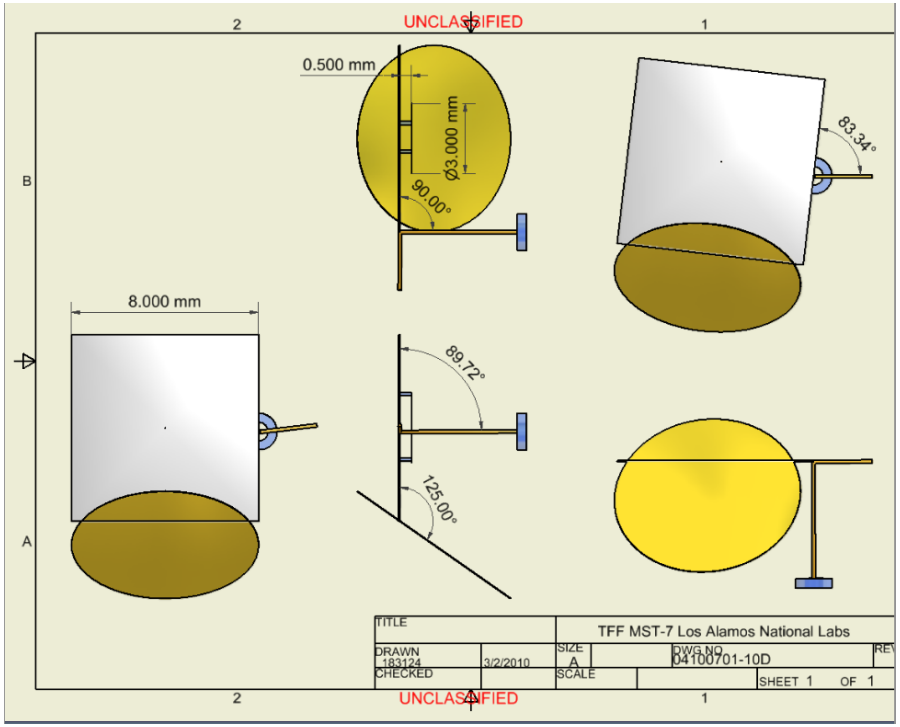
NNSA

Backlighter designs for the Coaxial Diffusion experiments.

CsI BL (Type C)



V BL (Type C)



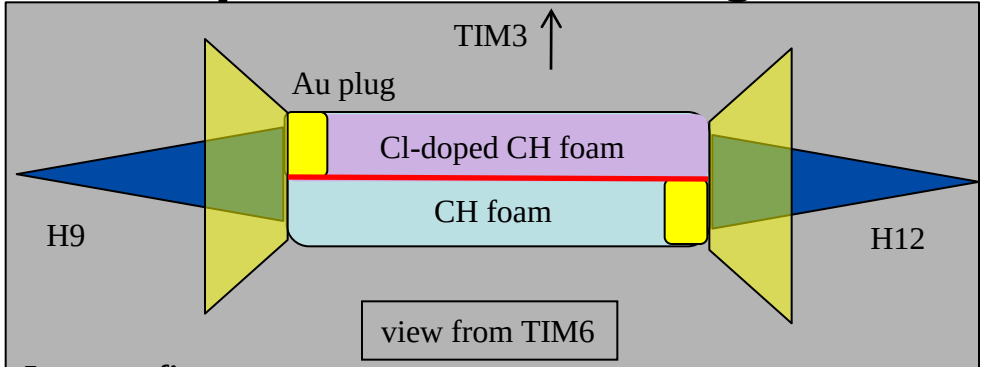
Proposed experiment: Shear-13A will determine growth of mixing layer in high speed shear flow

- **Purpose: Optimize counter-flow shear platform.**
- **Motivation: To validate/calibrate LANL turbulent mix models**
- **FY13 Goal: Extend counter-propagating shear platform to study varying velocity/density mixing**
- **PI/Designer: E. Loomis/K. Flippo/L. Welser-Sherrill,F. Doss,J. Fincke**
- **Major Issues: demonstrate target design that keeps both flows independent from each other**

Summary Shot Table	*Q1FY13*	*Q2FY13*	*Q3FY13*	*Q4FY13*
Total shots		*12*		

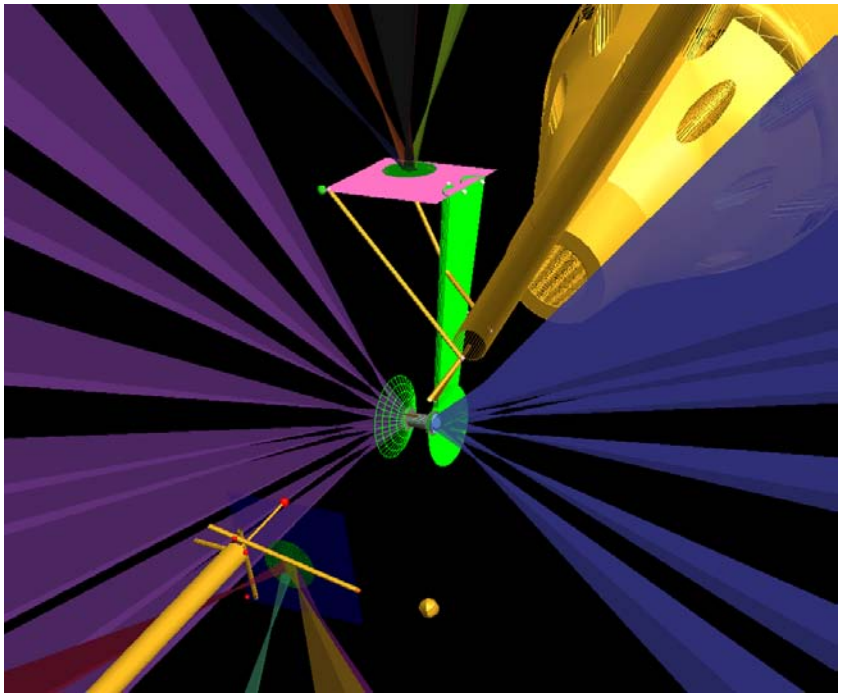
Shear-13A experimental configuration

Experimental Config #1



Laser config:

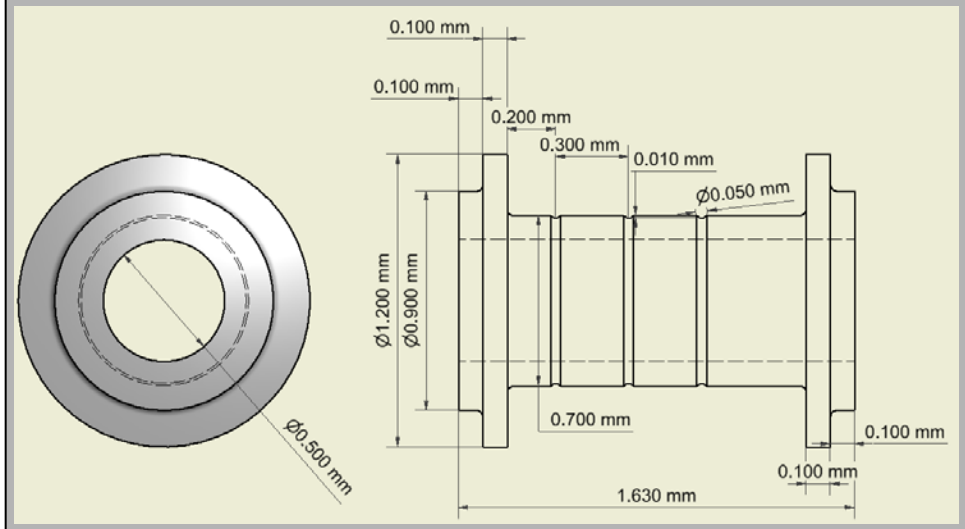
Beams	# cpp	cpp size	pulse	special
8 H9	0		sg1018	
8 H12	0		sg1018	
5 TIM2	0		sg1014	
4 TIM4	0		sg1014	



Diag	TIM	priority	type	calib/chara
XRFC3	TIM6	1		
XRFC4	TIM3	1		
XRFC1	TIM5	2		

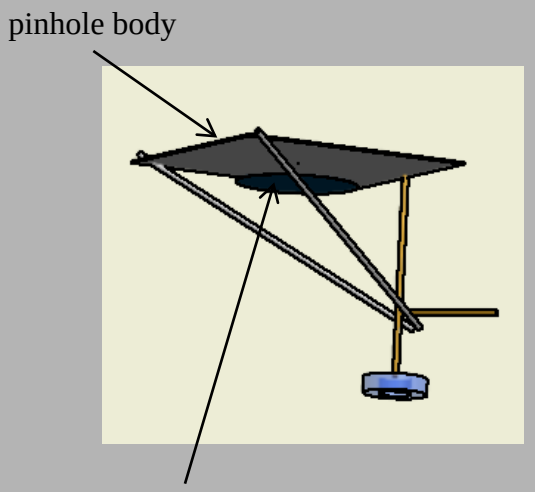
Target Section

Target #1: Type B



Beryllium shock tube holding foam hemi-cylinders

Target #2: Type C



Proposed experiment: Knudsen Expt will explore yield degradation due to tail ion loss

- **Purpose:** Validate Knudsen tail ion loss theory
- **Motivation:** Tail ion loss may lead to increasing yield degradation relative to nominal calculation with increasing ion mean free path (i.e., higher T_i and or lower density)
- **FY13 Goal:** Measure yield, ion temp, bang time and shell rhoR for DT Implosions with varying Ti and density
- **PI/Designer**: Y. Kim/N. Hoffman
- **Major Issues:** DT fills at multiple fill pressures

Summary Shot Table	*Q1FY13*	*Q2FY13*	*Q3FY13*	*Q4FY13*
Total shots				*12*

Experimental configurations for Knudsen

- **Requires:** OMEGA only (no EP)
- **Beams:** 60 beam Direct Drive implosions, 1.0 ns pulses w/ 28 kJ, SSD
- **Phase Plates:** SG4 (all 60)
- **Primary Diagnostics:** nToF, Copper Activation, GCD, GRH, NTD, CPS, WRF

Targets

- **Target Specs:**
  - SiOx Hoppe shells,
  - 900um ID, 3 different thicknesses (8, 15, 25 um)
  - 50/50 DT Fills of 3 different fill pressures (5, 10, 20 atm)
  - Random shot ordering of 9 unique fill/thickness combinations, followed by as many repeats as possible

thickness (um)	press (atm)
8	5, 10, 20
15	5, 10, 20
25	5, 10, 20

DIME-13 will demonstrate symmetry variation of polar direct drive (PDD) and its effect on mix

- **Purpose: Vary PDD laser symmetry to validate code predictions and determine low mode dependence of MMI mix signatures**
- **Motivation: Need assessment of PDD predictive capability and MMI diagnostic signatures for mix characterization in preparation for NIF shots**
- **FY13 Goal: Measure how different PDD configurations change the capsule symmetry and its affect on MMI signatures**
- **Designer/experimental PI: Mark Schmitt/ Jim Cobble**
- **Major Issues: 1) Changing beam pointing entails a time penalty at OMEGA during the shot day; requires cone energy changes that will reduce laser drive on some shots**

Summary Shot Table	*Q1FY13*	*Q2FY13*	*Q3FY13*	*Q4FY13*
Total shots		*8+8*		

Laser pointings/powers will be used to alter spherical capsule symmetry and mix

Laser:

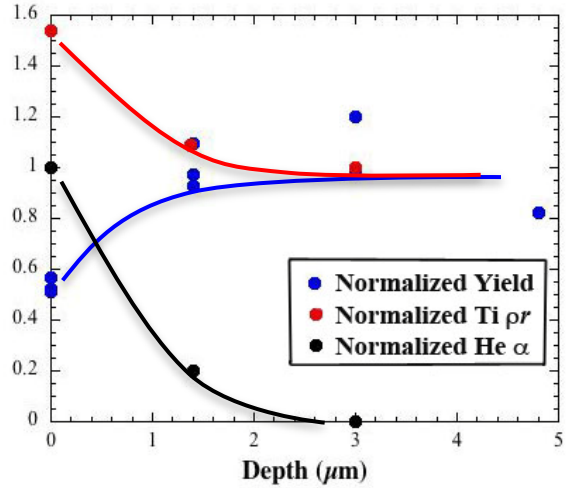
- **Polar direct drive at OMEGA consists of three pairs of beam cones. On each pole, the cones have 5 beams @21º, 5 beams @ 42º, and 10 beams @ 59º: 40 beams total.**
- **The pointings differ in their *z-axis intercept* and *defocus*.**
- **Cone powers will be changed to modify P2 component of the imploded core**

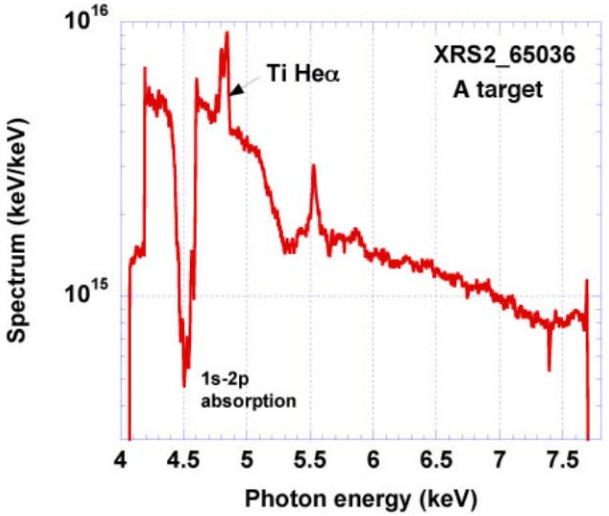
Diagnostics:

- **Three quasi-orthogonal MMIs (TIMs 3, 4, 5)**
- **LFC for 36 gated, backlit (Cl) x-ray images (TIM2)**
- **NTOF, NTD = neutron yield & bang time for 5 atm DD**
- **XRS (Yaakobi's x-ray spectrometer, TIM1)**
- **SSC-A (TIM6)**

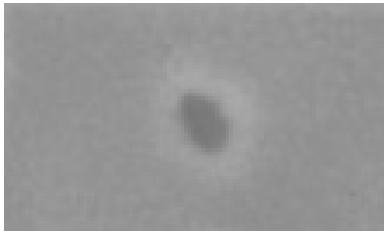
Relevant variables are neutron yield, dopant spectral features, & core Legendre modes.

CH Shell diameter:	**860 μm**
Shell thickness:	**15 μm**
Dopants:	**Ti&V, 1.5% atom**
Dopant-layer thickness:	**2 μm**
Distance from inner wall:	**0 & 1.5 μm**





The technique is to measure mix width using dopant layers for each PDD beam configuration



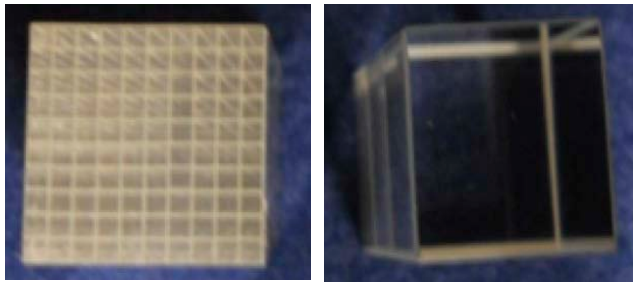
62813: Pancake @ bang time

Proposed experiment: Gamma-ray imaging detector field-test…

- **Purpose: To study the issues surrounding the fielding of a pixelated gamma ray imaging diagnostic.**
- **Motivation: Development of a gamma-ray imaging system for the NIF, which would image high energy gamma rays produced in ICF implosions.**
- **FY13 Goal: Develop and field a NIF proto-type Gamma Ray imaging camera at Omega**
- **PI/Designer: Grim/Lemieux**
- **Major Issues: Acquisition of pixelated detector materials.**

Summary Shot Table	*Q1FY13*	*Q2FY13*	*Q3FY13*	*Q4FY13*
Total shots		*10*		

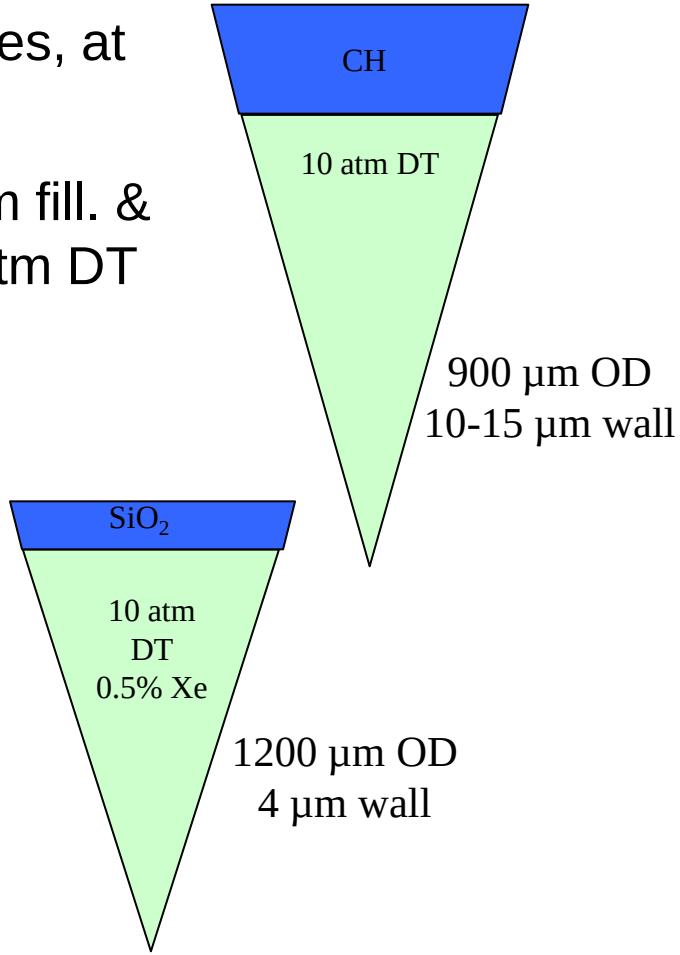
Experiment Overview



- **Goal:**
  - To field-test a developmental gamma-ray imaging camera, targeted for the NIF.
- **Overview:**
  - Position a pixelated array of inorganic scintillators, coherently coupled to a gated CCD camera at the terminus of the TIM6 LOS.
  - Utilize a penumbral imaging aperture.
  - Other diagnostics to be included:
    - Soft x-ray imaging in TIM 6 LOS
    - Neutron imaging using CR-39 in TIM 6 LOS
    - GMXI in TIM-4 as well as KB μscopes
- **Characterization studies:**
  - Uniformity
  - Penumbral γ imaging with variable filtering
  - Neutron sensitivity and “shutter” extinction

Experimental configuration and diagnostics

- 60 beams, 1ns square pulse with phase plates, at 27 kJ
- 875 µm OD CH 15 µm wall thickness, 10 atm fill. & 1200 µm OD SiO_2 4 µm wall thickness 10 atm DT fill.
- Diagnostics:
  - Nuclear:
    - Yield, T_{ion}, BT, GRH, GRI
  - X-ray Diagnostics
    - GMXI, KB µ-scopes, TIM6 film/CR-39 pack
  - Optical
    - Backscatter



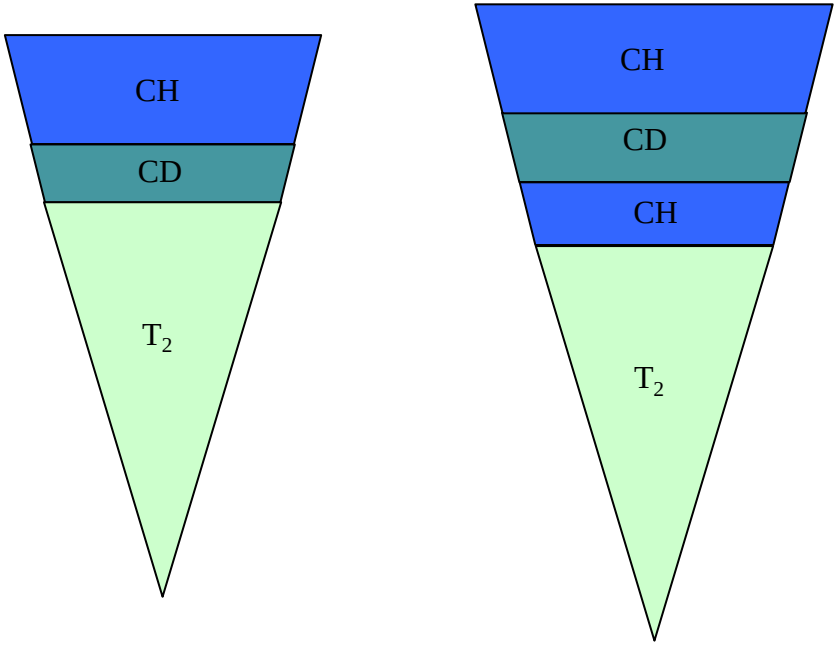
HBURN experiment will address thermonuclear reactions in a heterogenous mix zone.

- **Purpose: To study heterogeneous mix using separated reactant ICF capsules (CD and CH shells filled with T_2)**
- **Motivation: The state of mix (heterogeneity) as well amount of mix determine the effect on burn. This experiment extends the results of Wilson, Sangster et al. (2005).**
- **FY13 Goal: Repeat Wilson et al experiments and add buried layer configuration.**
- **PI/Designer: Grim/Fincke**
- **Major Issues: Reliable T2 filling, mounting and shipping of CD/CH shells**

Summary Shot Table	*Q1FY13*	*Q2FY13*	*Q3FY13*	*Q4FY13*
Total shots				*10*

Experimental configuration and diagnostics

- 60 beams, 1ns square pulse with phase plates, at 27 kJ
- 875 µm OD CH 15 µm wall thickness, 10 atm fill.
- Diagnostics include:
  - Yield
  - T_{ion}
  - Bang time,
  - Reaction history
  - Neutron imaging
  - Gated X-ray imaging
  - Backscatter



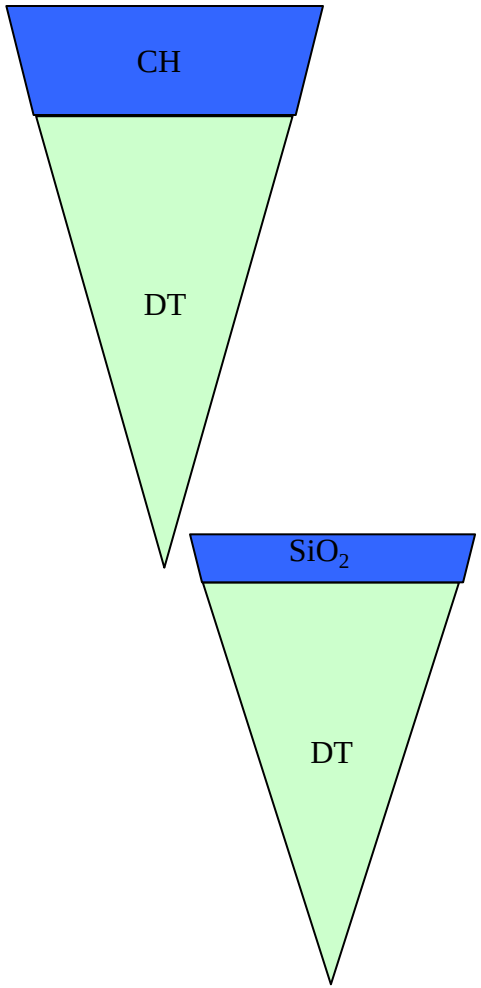
Proposed experiment: Will characterize the reconstructed resolution of the NIF neutron imager.

- **Purpose: Characterization of the NIF neutron imaging system.**
- **Motivation: The neutron imaging system is now operational at NIF, but one more set of characterization measurements are required in order to determine the reconstructed resolution of the imaging system.**
- **FY13 Goal: Radiograph test objects which have been designed to mockup NIF measurements, providing a known data set to test our analysis and reconstructions algorithms, extracting the reconstructed resolution.**
- **PI/Designer: Merrill**
- **Major Issues: DT fill and test object fabrication**

Summary Shot Table	*Q1FY13*	*Q2FY13*	*Q3FY13*	*Q4FY13*
Total shots		*10*		

Experimental configuration and diagnostics

- 60 beams, 1ns square pulse with phase plates, at 27 kJ
- 875 µm OD CH 15 µm wall thickness, 10 atm fill. & 1200 µm OD SiO_2 4 µm wall thickness 10 atm DT fill.
- Diagnostics include:
  - Yield
  - T_{ion}
  - Bang time,
  - NI
  - Gated X-ray imaging



LANL request summary

Campaign	PI	Shot Days	Constraints/preferred Q	notes
BeARM	Loomis	1	(move to Jan. due to target fab constraints)	
HED-MMI	Benage	1*	Q1 (late Q1 only. remove ABEX.)	
AlCap	Kline	1	Q2 (or Q3)	
DPeos	Benage	2	Q2 & Q4	
NIF5	Benage	2	Q2 & Q3	
CoaxDiff	Kline	2	Dec or later	
Shear-13A	Loomis	1	Q2 (or Q3)	
MagLPI	Montgomery	1		4ω
Knudsen	Kim	1		
DiME-13A	Cobble	2	back-to-back in Jan. FY13	
GRI	Grim	1	Q3 FY13	DT
CDMixCap	Grim	1	Q4 FY13	
NIS-13	Merrill	1	two days before/after GRI	DT

ICF

Be ablative Richtmyer-Meshkov (BeaRM) Omega campaign

Omega FY13

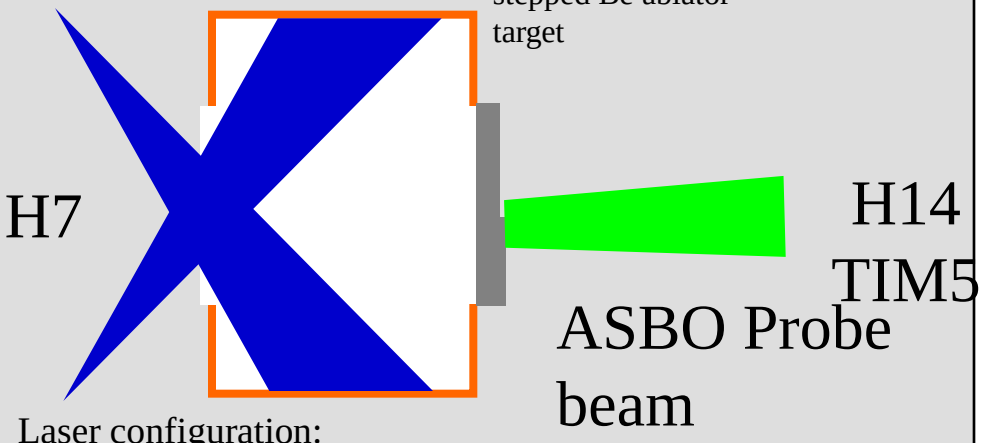
- Purpose:
  - Quantify ablator drive from shock speed determination
  - Measure ablative Richtmyer-Meshkov growth of isolated bumps on Be ablators at 3 Mbar
- Specific Deliverable of this campaign :
  - Measurement of shock speeds in Be ablator during foot
  - Areal density of features out to 7 ns
- What would we do with results:
  - Validate EOS models
  - Change/redesign NIC foot shape to minimize IC for ablative RT
- PI/Designer: E. Loomis/D. Braun
- Major issues: manufacturing of Be bumps. high contrast backlighting for small or low attenuation features

Shock speed measurement

Omega FY13

Experimental Config #2

Omega "NIC Scale 0.9" halfraum



Laser configuration:

Beams	# CPPs	CPP size	Pulse	**Special**
9 C3, 6 C2 (H7)	9	SG4	rr2402	-2.5 ns

Diagnostics required:

Diag	TIM	Priority	Type	**Calib/Chara**
VISAR/SOP	5	1	3	Dove prism rotation
Dante		1	3	
XRFC1 SXR	1	2	3	

Experimental set-up: One for each unique illumination AND diag config, e.g. if you change either, requires a different setup
Priority: (1: must have, 2:like to have , 3: ride-along)
Type: (1:New diag, 2:major mod, 3: minor mod or existing)

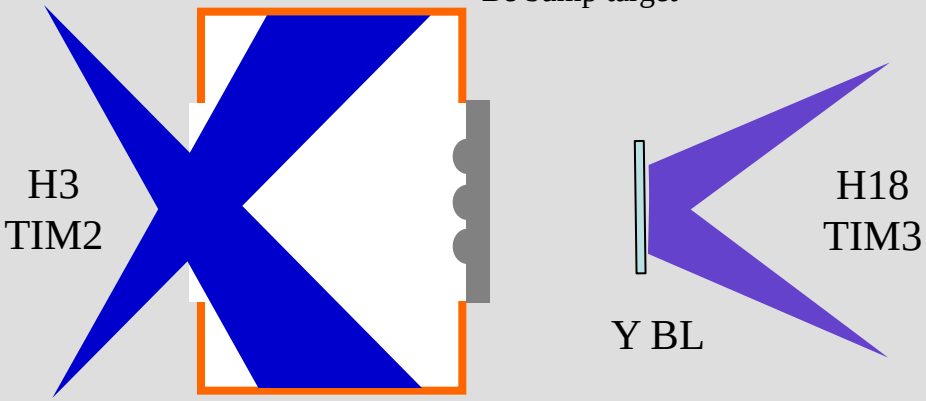
Los Alamos NATIONAL LABORATORY EST.1943

Area backlighting with LANL37x snout

Omega FY13

Experimental Config #2

Omega "NIC Scale 0.9" halfraum



Laser configuration:

Beams	# CPPs	CPP size	Pulse	**Special**
9 C3, 6 C2 (H3)	15	SG4	rr2402	-2.6 ns
C1, C2 (H18)	14	SG8	rr2402	+4.6 ns

Diagnostics required:

Diag	TIM	Priority	Type	**Calib/Chara**
37x snout/ XRFC3	2	1	3	
SSCA	5	2	3	
Henway		1		
XRFC4/1sxr	3/1	2	3	

Experimental set-up: One for each unique illumination AND diag config, e.g. if you change either, requires a different setup
Priority: (1: must have, 2:like to have , 3: ride-along)
Type: (1:New diag, 2:major mod, 3: minor mod or existing)

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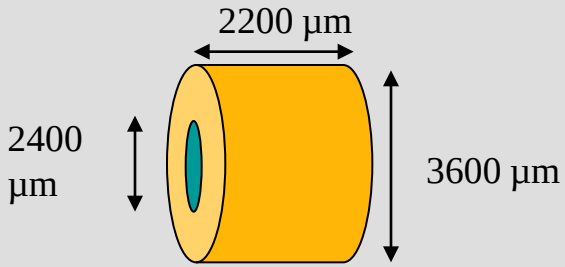
Campaign Name: BeARM_13

Omega
FY13

Target #1: Type C

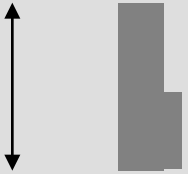


Au, 25 µm wall

Target #1: Type B

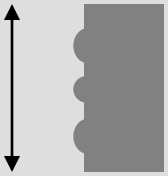
BL: 12.5 µm-thick Be coated with 200 nm Ta

Target #1: Type B



ablator with steps (≈ 20 µm height difference).

Target #1: Type B



Be ablator with sinusoids (≈ 3 µm amp., 30 µm wavelength)

Use vacuum NIC Scale 0.9 halfraum platform to delay Au stagnation

LPI mitigation using magnetic insulation (MagLPI) Omega campaign

Omega FY13

- Purpose:
  - Measure suppression of LPI and hohlraum performance with external B_z field to increase plasma temperature using magnetic insulation

- Specific Deliverable of this campaign :
  - Measure LPI losses, hot electrons & T_{rad} with and without B_z field in a gas-filled hohlraum (C_5H_{12})
  - Measure plasma conditions with 4ω Thomson scattering with and without B_z (secondary goal)

- What would we do with results:
  - Demonstrate viability of magnetic insulation for LPI mitigation
  - Benchmark RadHydro/MHD design capability

- PI/Designer: D. Montgomery/ A. Simakov

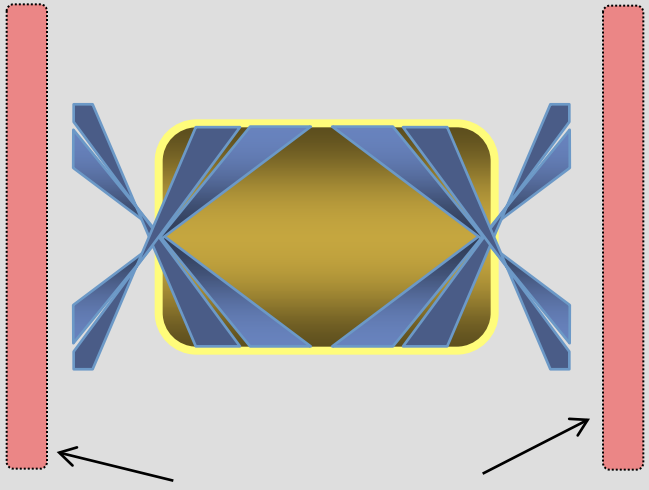
- Major issues: do MIFEDS test stand experiments prior to measure B-field soaking into hohlraum target (dielectric window)

LPI mitigation using Magnetic Insulation

Omega FY13

Experimental Configuration

Omega 2.3-mm x 1.6-mm gas filled hohlraum
C_5H_{12} gas-fill, 0.6-μm thick polyimide windows



MIFEDS coils

Laser configuration:

Beams	# CPPs	CPP size	Pulse	**Special**
10 C1, 10 C2, 20 C3	40	Elliptical	SG1018	

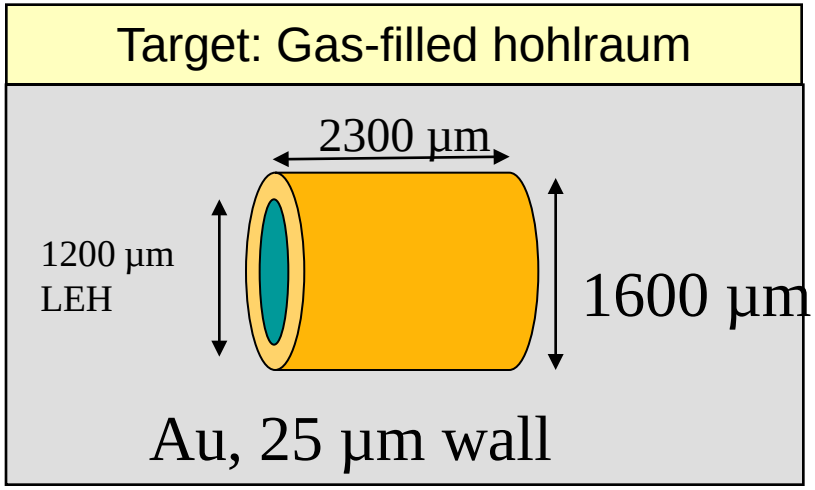
Diagnostics required:

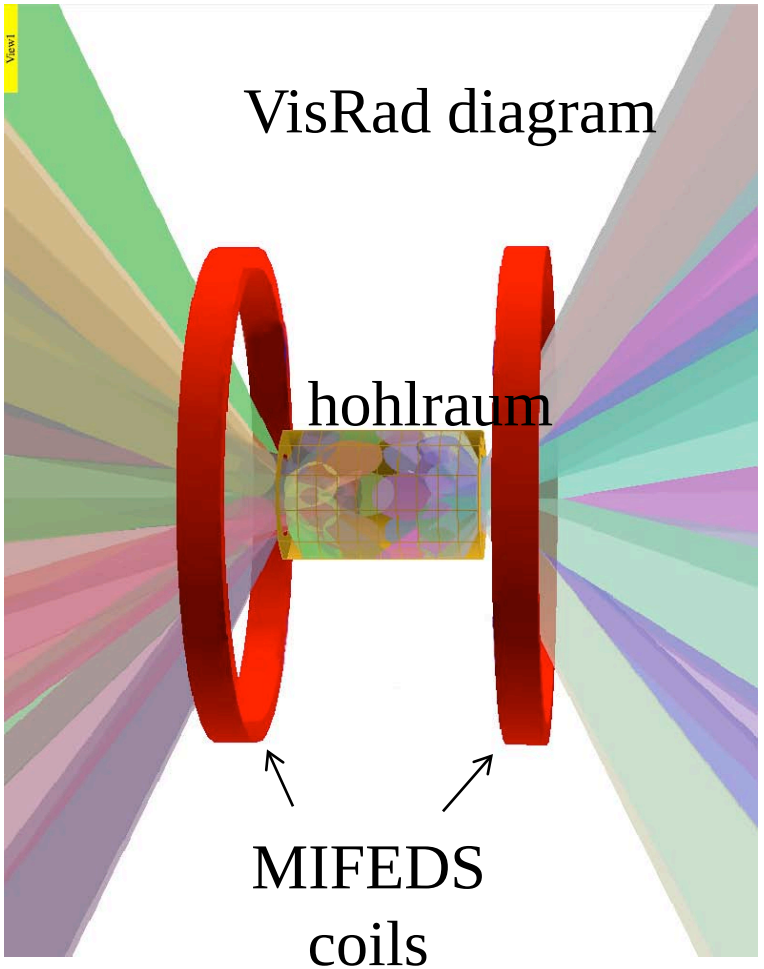
Diag	TIM	Priority	Type	Calib/Cam
TTPS (gas-fill positioner)	3	1	3	
Dante		1	3	
MIFEDS	4	1	3	
HXRD		1	3	
FABS 30, 25		1	3	
4w TS	6	2	3	
XRPHCs		2	3	

Experimental set-up: One for each unique illumination AND diag config, e.g. if you change either, requires a different setup
Priority: (1: must have, 2:like to have , 3: ride-along)
Type: (1:New diag, 2:major mod, 3: minor mod or existing)

Place holder, will work with LLE to define TIMs compatible with MIFEDS & TTPS for this geometry

Campaign Name: MagLPI, 1 shot day (12 targets)





- All experiments performed with MIFEDS inserted
- MIFEDS vary B_z 0-Tesla (off) up to 10-Tesla
- primary diagnostics:
  - DANTE
  - FABS, NBI
  - HXRD
- secondary diagnostics:
  - 4ω TS
  - XRPHC