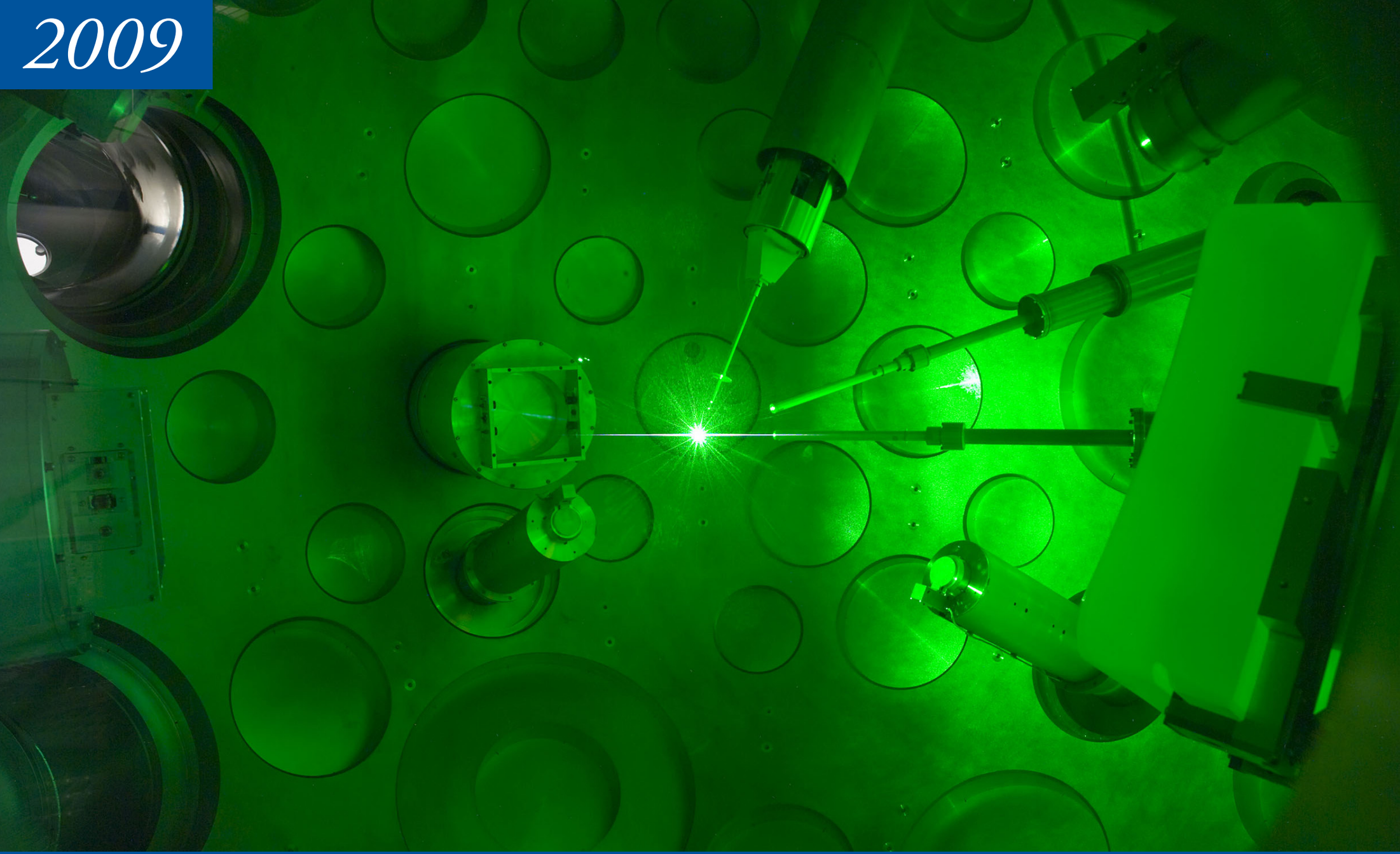
2009



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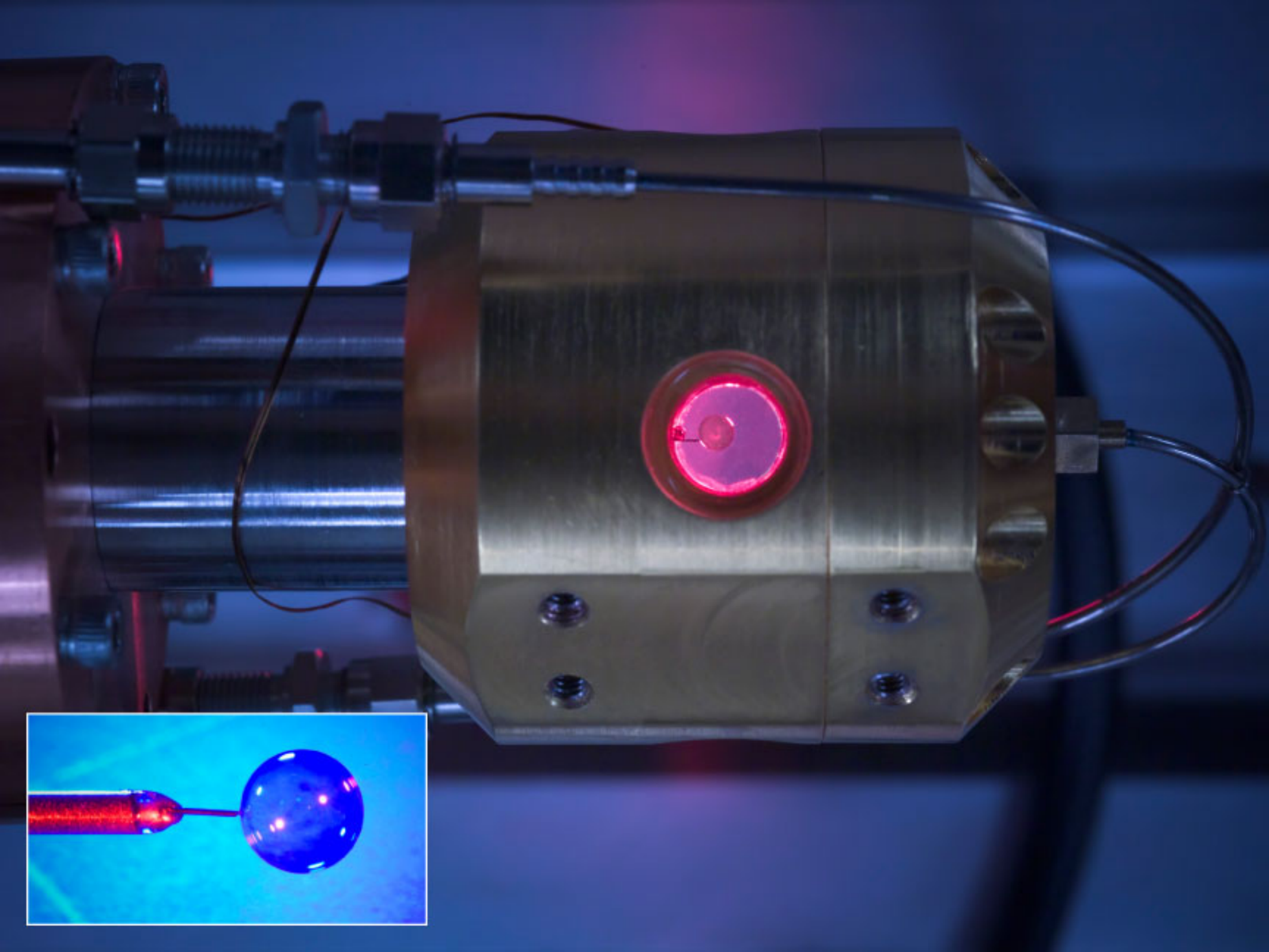
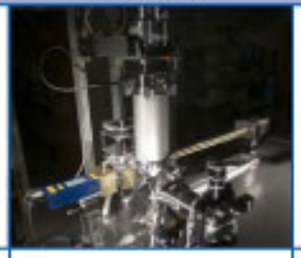


Cryogenic Fill Test Facility

Cryogenic fill-tube capsule visible in a layering sphere; fuel flows to the target through a small tube in the support stalk. This target concept can be extended to direct drive on the National Ignition Facility (NIF) and cone-in-shell advanced ignition targets at LLE.

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
	DECEMBER S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31		FEBRUARY S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28	1 New Year's Day University Holiday	2	3
4 ◐	5	6	7	8	9	10 ○
11	12	13	14	15	16	17 ◑
18	19 Martin Luther King Jr. Day	20	21	22	23	24
25	26 ●	27	28	29	30	31

JANUARY 2009

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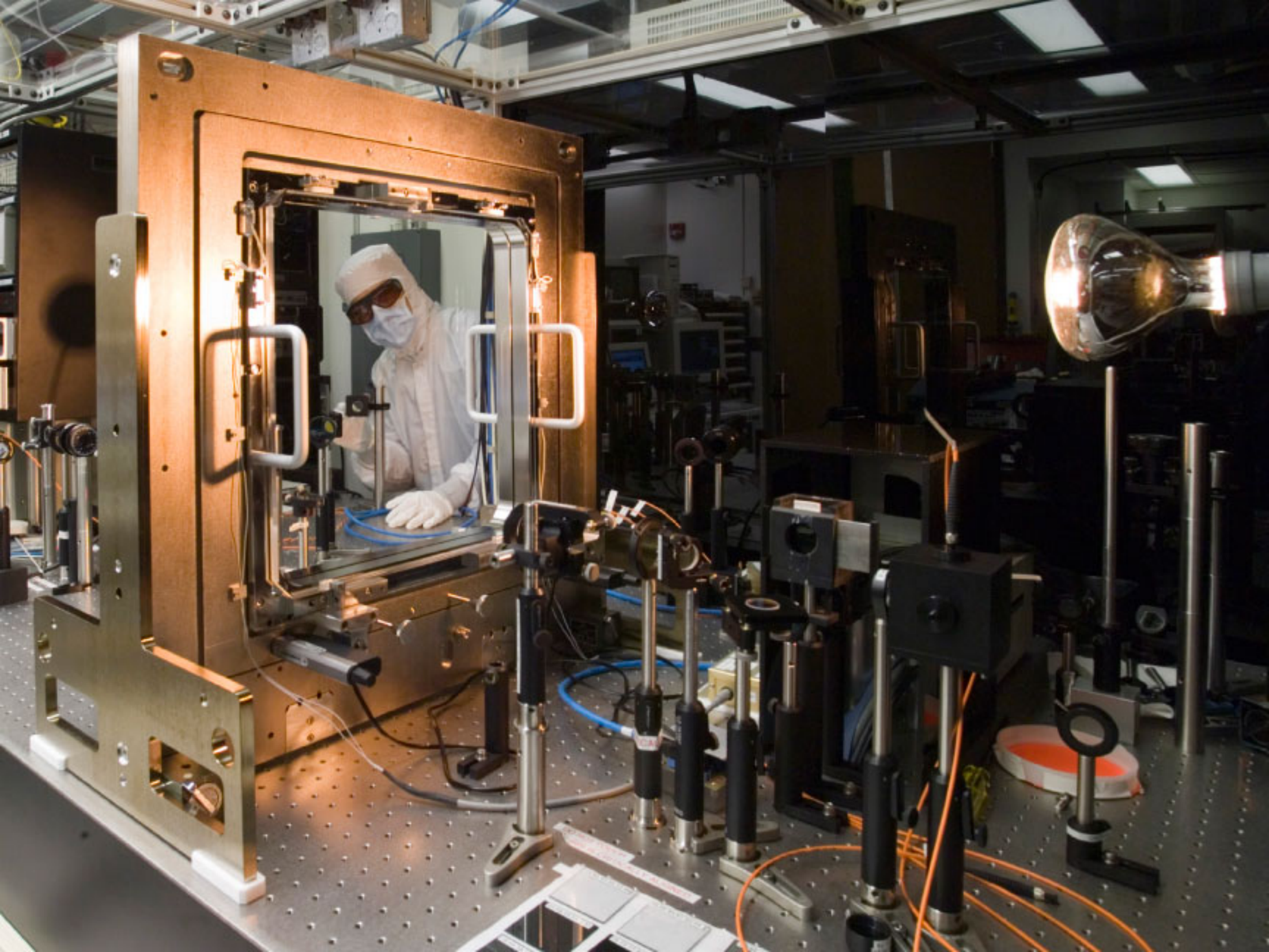


FCC Tuning Table

OMEGA EP frequency-conversion crystals (FCC's) are prepared for laboratory tuning. When installed, these crystals efficiently convert the infrared beams to ultraviolet.

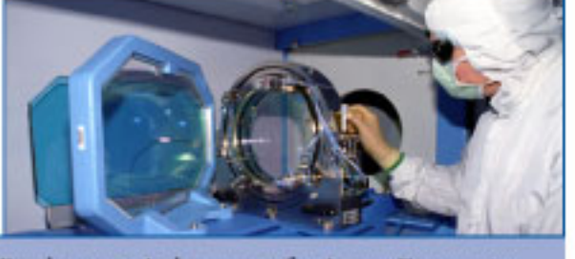
SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
1	2 ◐	3	4	5	6	7
8	9 ○	10	11	12	13 LLE Season's Party	14
15	16 Presidents' Day ◑	17	18	19	20	21
22	23	24 ●	25	26	27	28

JANUARY

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

MARCH

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				



FEBRUARY 2009

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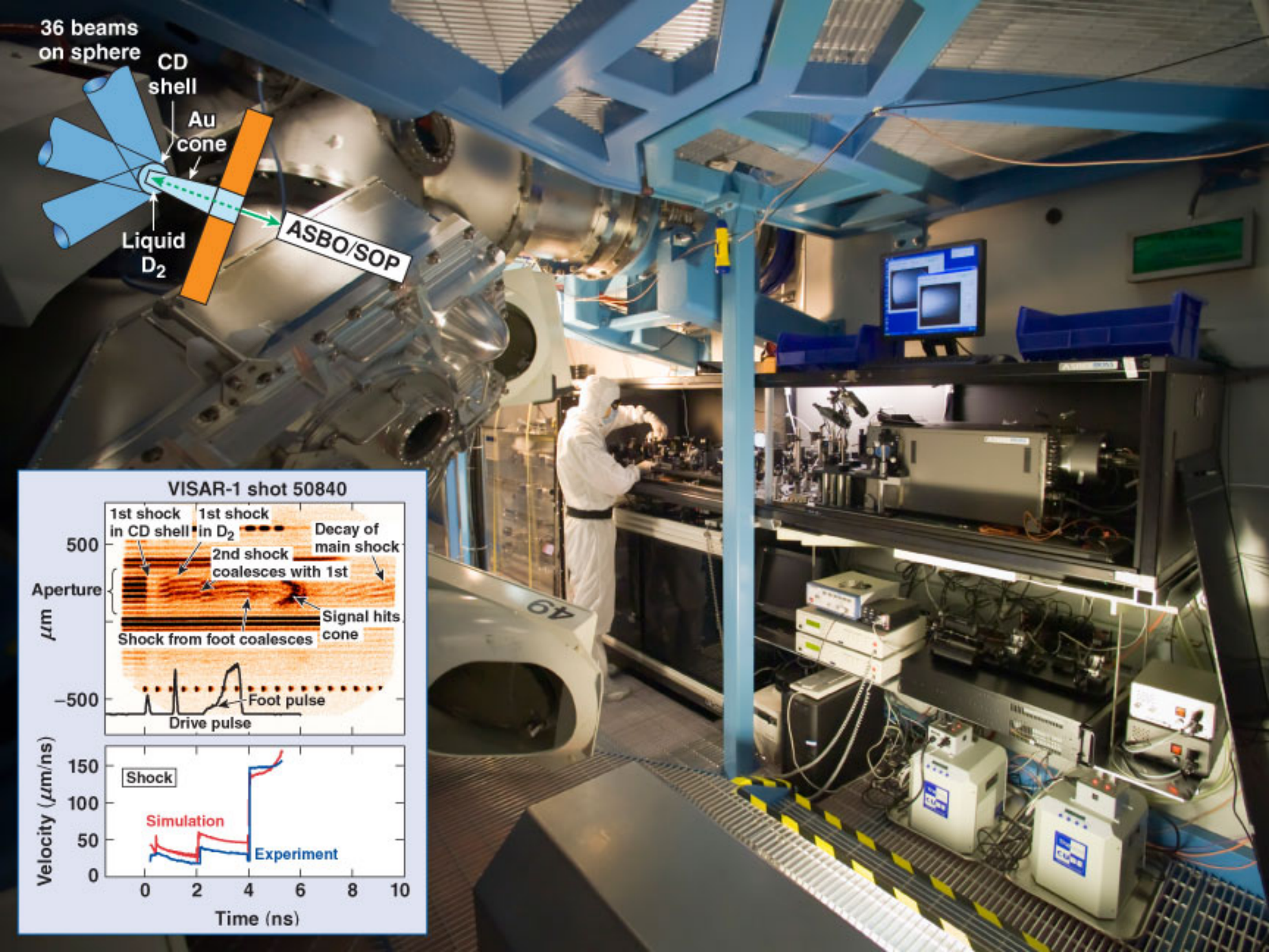
36 beams on sphere
CD shell
Au cone
Liquid D_2
ASBO/SOP
VISAR-1 shot 50840
1st shock in CD shell
1st shock in D_2
Decay of main shock
2nd shock coalesces with 1st
Signal hits cone
Shock from foot coalesces
Foot pulse
Drive pulse
Aperture
μm
500
−500
Shock
Simulation
Experiment
Velocity (μm/ns)
150
100
50
0
0
2
4
6
8
10
Time (ns)

ASBO Diagnostic

The Active Shock Breakout (ASBO) diagnostic measures the timing of shock waves inside an imploding cryogenic D_2 sphere. The position of ASBO fringes (upper image) is proportional to the velocity; the results of a double-foot pulse experiment shows the coalescence of waves (lower graph).

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
1	2	3	4 ◐	5	6	7
8 Daylight Savings Time Begins	9	10 ○	11	12	13	14
15	16	17	18 ◑	19	20 Vernal Equinox	21
22	23	24	25	26 ●	27	28
29	30	31				

FEBRUARY

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28

APRIL

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

MARCH 2009

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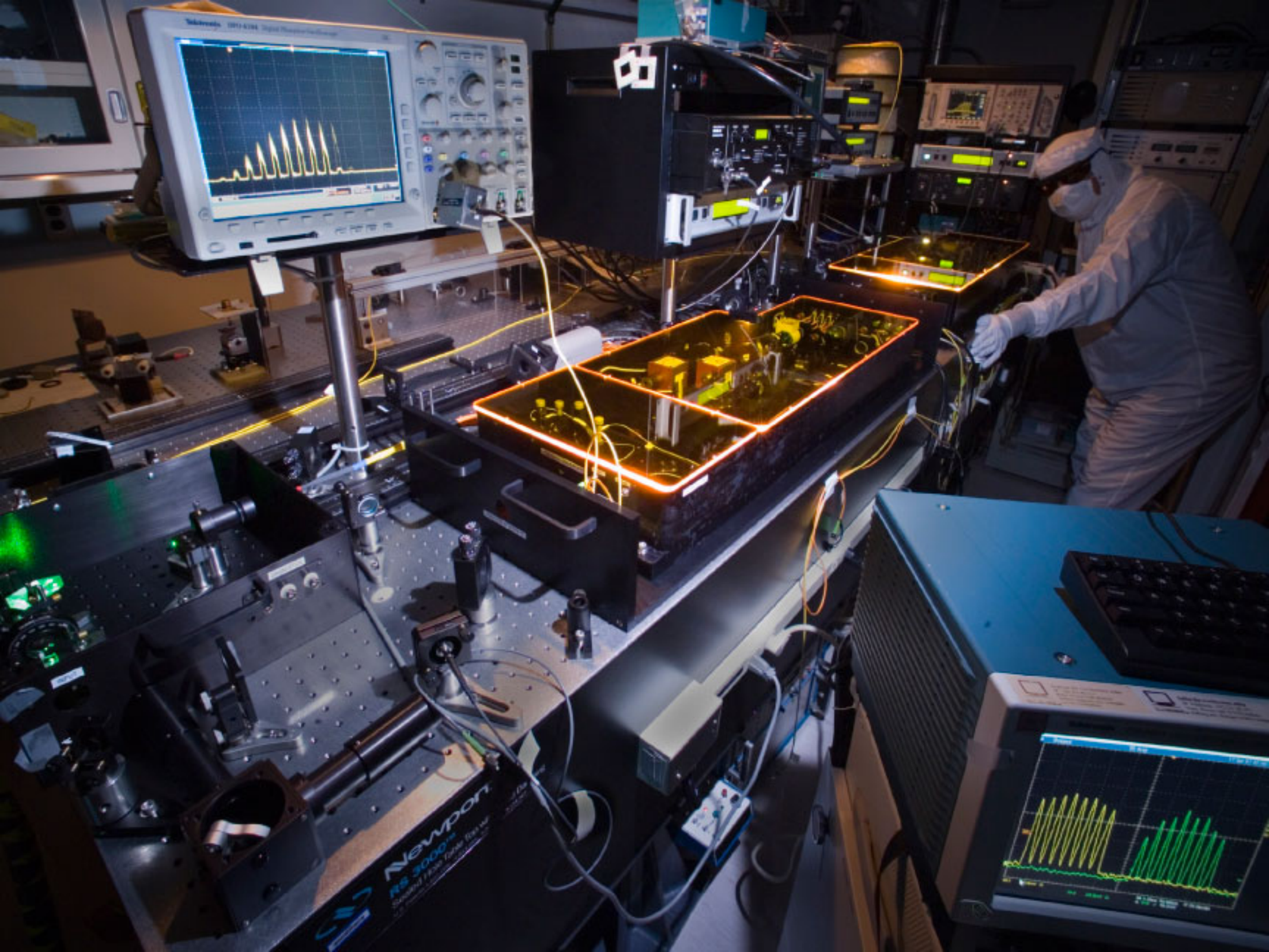
Newport

Fiducial Test Bed

OMEGA timing fiducial produces infrared, green, and ultraviolet eight-pulse "combs" that are used for timing and calibration. Full tests were completed in a test bed prior to installation in the OMEGA Target Bay (below).

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

MARCH

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

MAY

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

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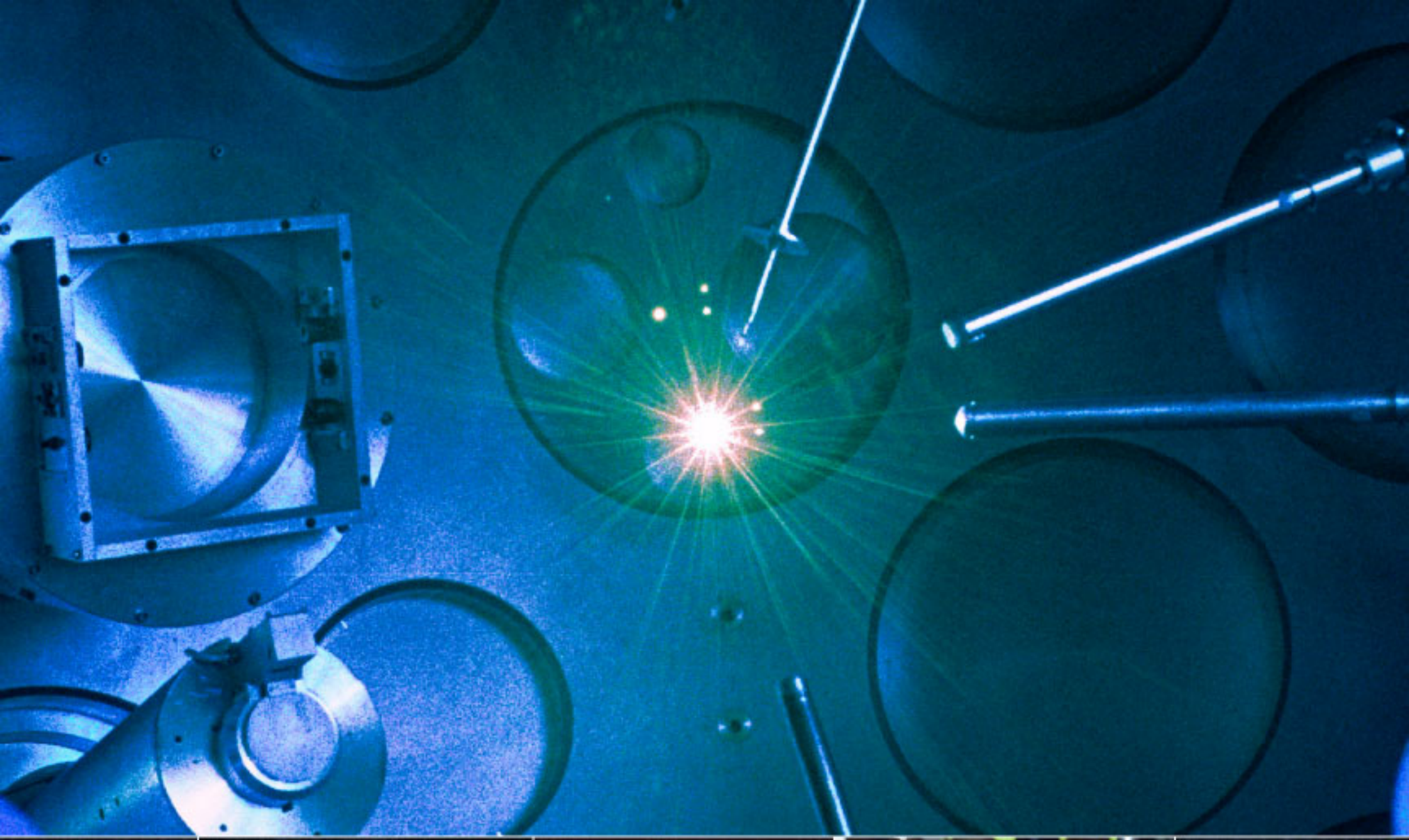

OMEGA EP Laser Dedication

On Friday, 16 May 2008, Dr. Robert McCrory dedicated the new OMEGA EP laser at the Robert L. Sproull Center for Ultra High Intensity Laser Research at the Laboratory for Laser Energetics.

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
			APRIL S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	JUNE S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	1 ◐	2
3	4	5	6	7	8 ○	9
10	11	12	13	14	15	16
17 ◑	18	19	20	21	22	23
24 ●	25 Memorial Day University Holiday	26	27	28	29	30 ◐
31						

MAY 2009

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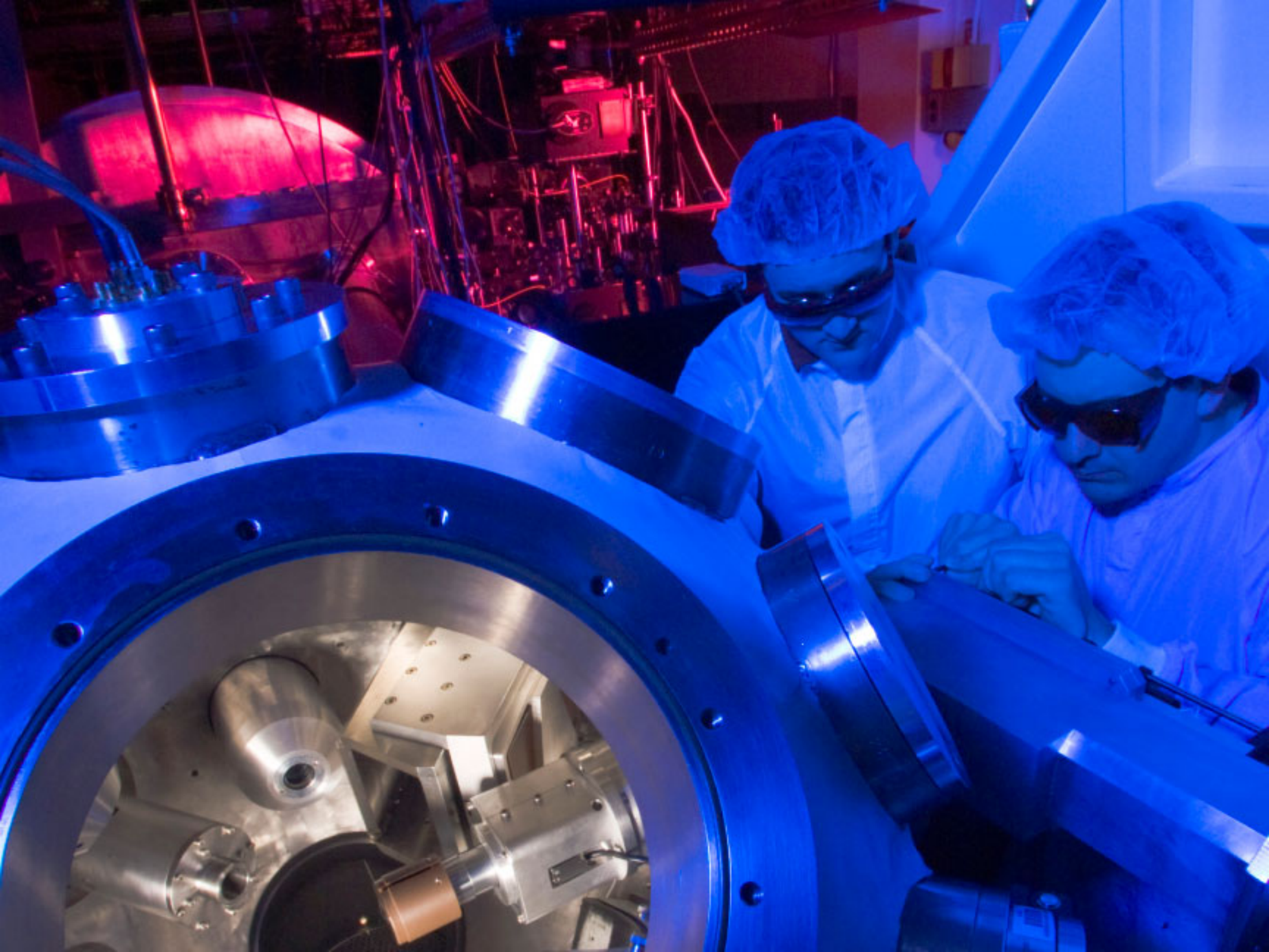

MTW The Multi-Terawatt (MTW) Laser Facility supports small-scale target-physics experiments as well as laser- and target-diagnostic development for OMEGA EP. Here, LLE scientists prepare the optical transition radiation diagnostic for operation.

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
MAY S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	1	2	3	4	5	6
7 ○	8	9	10	11	12	13
14	15 ◑	16	17	18	19	20
21 Summer Solstice	22 LLE Golf Tournament at Blue Heron Hills ●	23	24	25	26	27
28	29 ◐	30				

JULY

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

JUNE 2009

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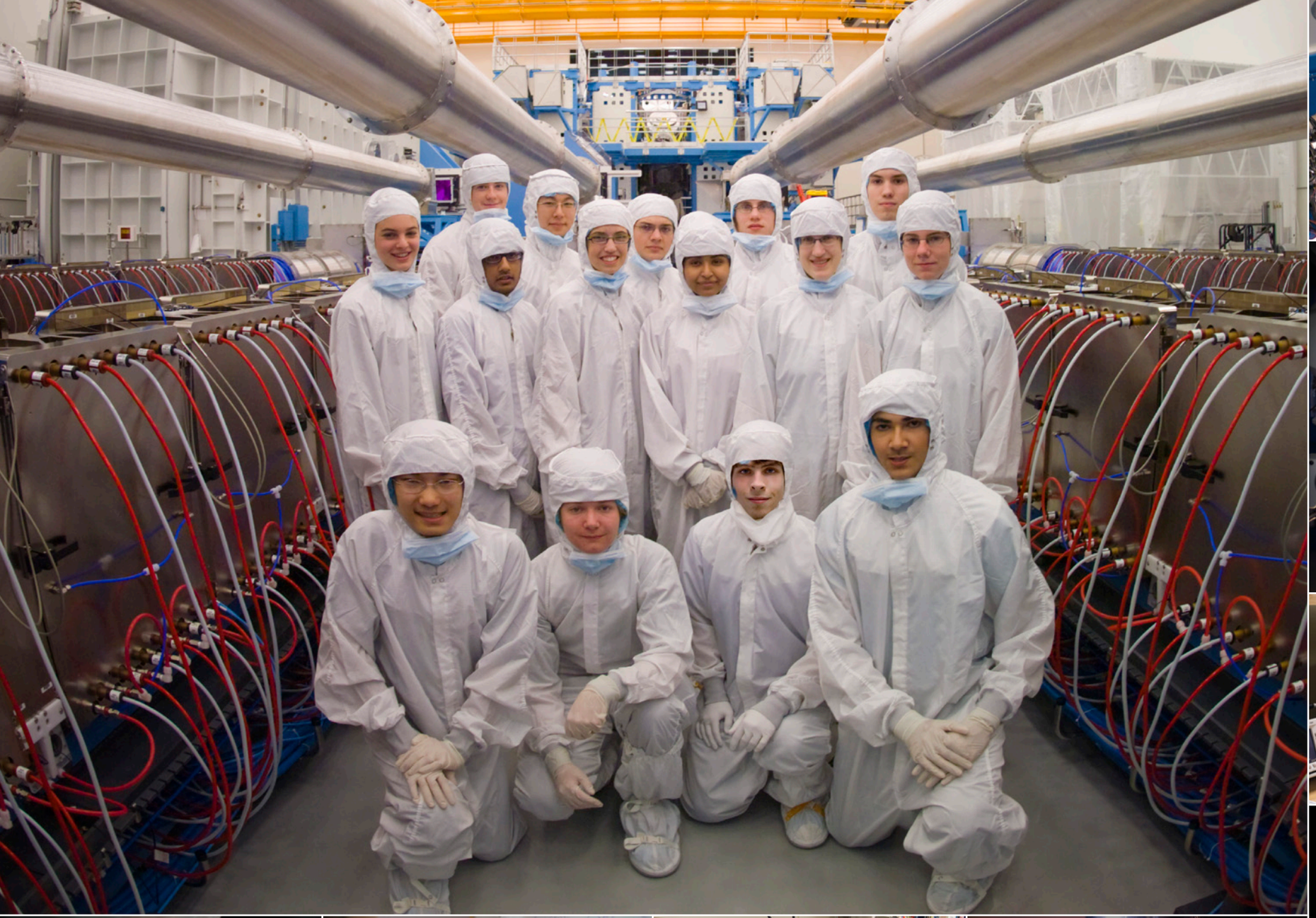


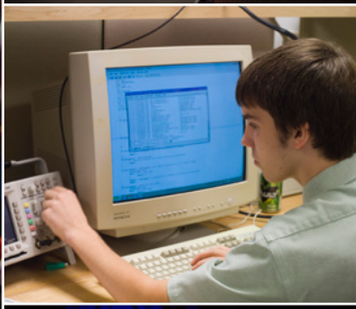
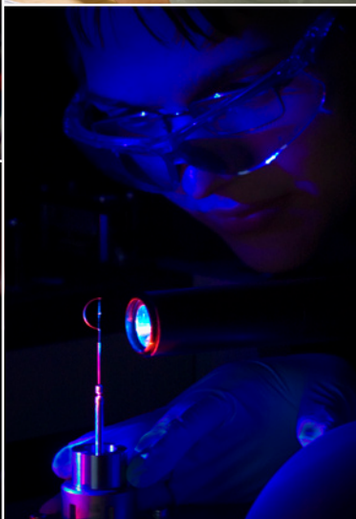


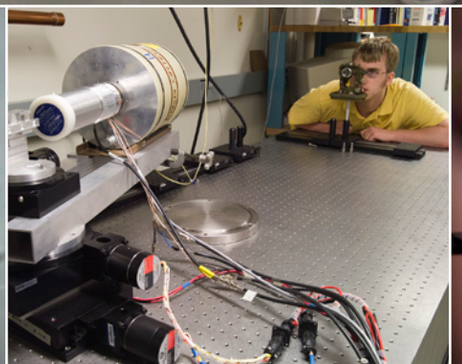
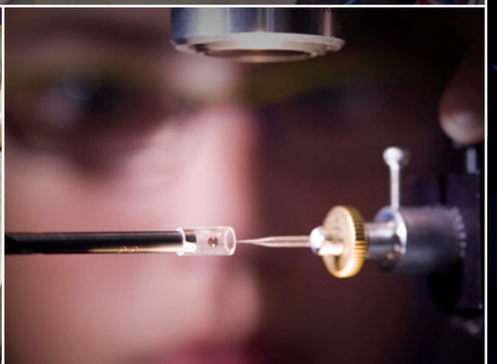

High School Program

Participants in LLE's 20th Summer High School Research Program are shown in the OMEGA EP Laser Bay and at work on their projects. (Below) Dr. Stephen Craxton, Program Director, with Ms. Jane Bowdler, recipient of the 2008 William D. Ryan Inspirational Teacher Award.

JUNE

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
			1	2	3 Independence Day Observed University Holiday	4 Independence Day
5	6	7 ○	8	9	10	11
12	13	14	15 ◑	16	17 LLE Golf Tournament at Mill Creek	18
19	20	21 ●	22	23	24	25
26	27	28 ◐	29	30	31	

AUGUST

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

JULY 2009

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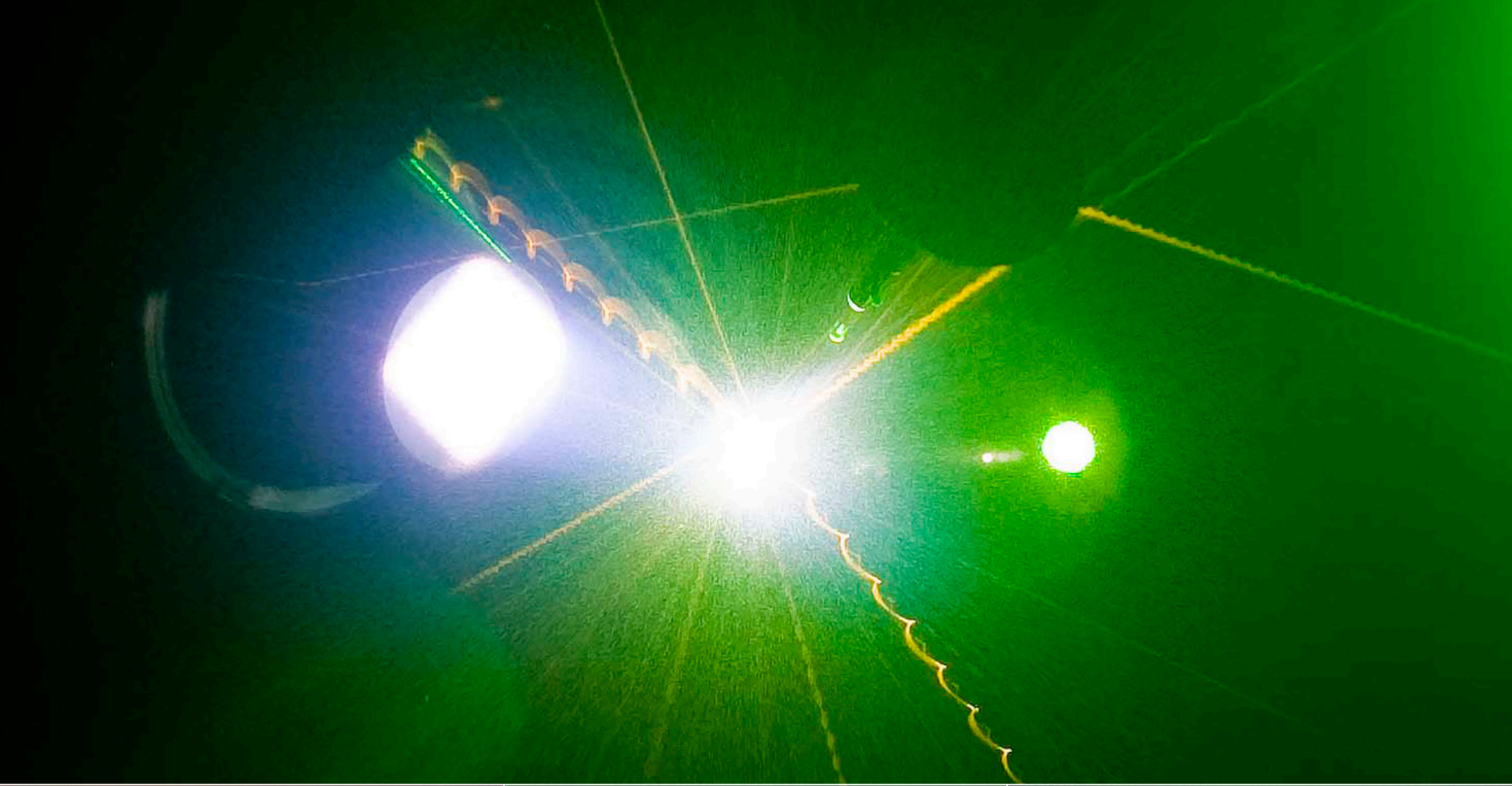
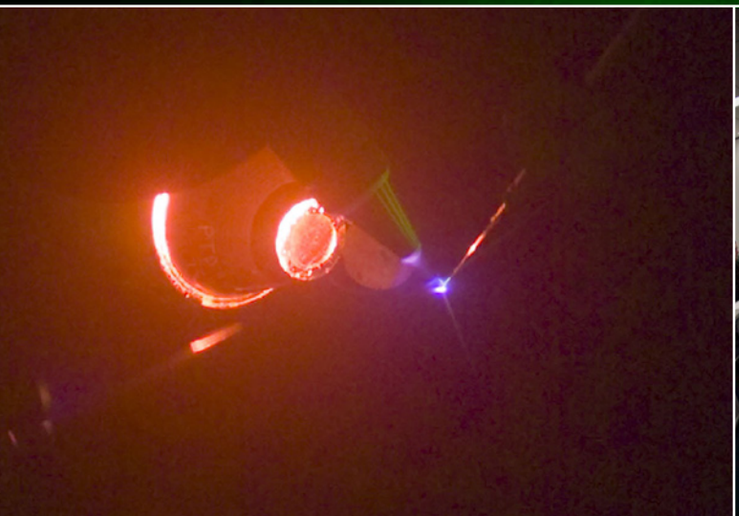
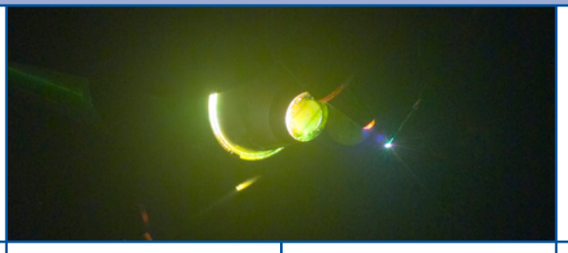




Joint Operations

Target-implosion images from the first joint OMEGA and OMEGA EP target shots. Watchstanders from both the OMEGA and the OMEGA EP shot crews are briefed for a day of joint facility shots (bottom, center).

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
		**JULY** S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	**SEPTEMBER** S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30			1
2	3	4	5 ○	6	7	8
9	10	11	12	13 ◑	14	15
16	17	18	19	20 ●	21	22
23	24	25	26	27 ◐	28	29
30	31					

AUGUST 2009

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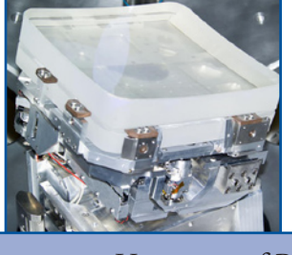
Off-Axis Parabola Inserter/Manipulator

A view inside the OMEGA EP target chamber shows target diagnostics and engineers performing final checks on the off-axis parabola inserter/manipulator.

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
		1	2	3	4 LLE Golf Tournament at Bristol Harbour ○	5
6	7 Labor Day University Holiday	8	9	10	11 ◑	12
13	14	15	16	17	18 ●	19
20	21	22 Autumnal Equinox	23	24	25 ◐	26
27	28	29	30			

AUGUST

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

OCTOBER

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

SEPTEMBER 2009

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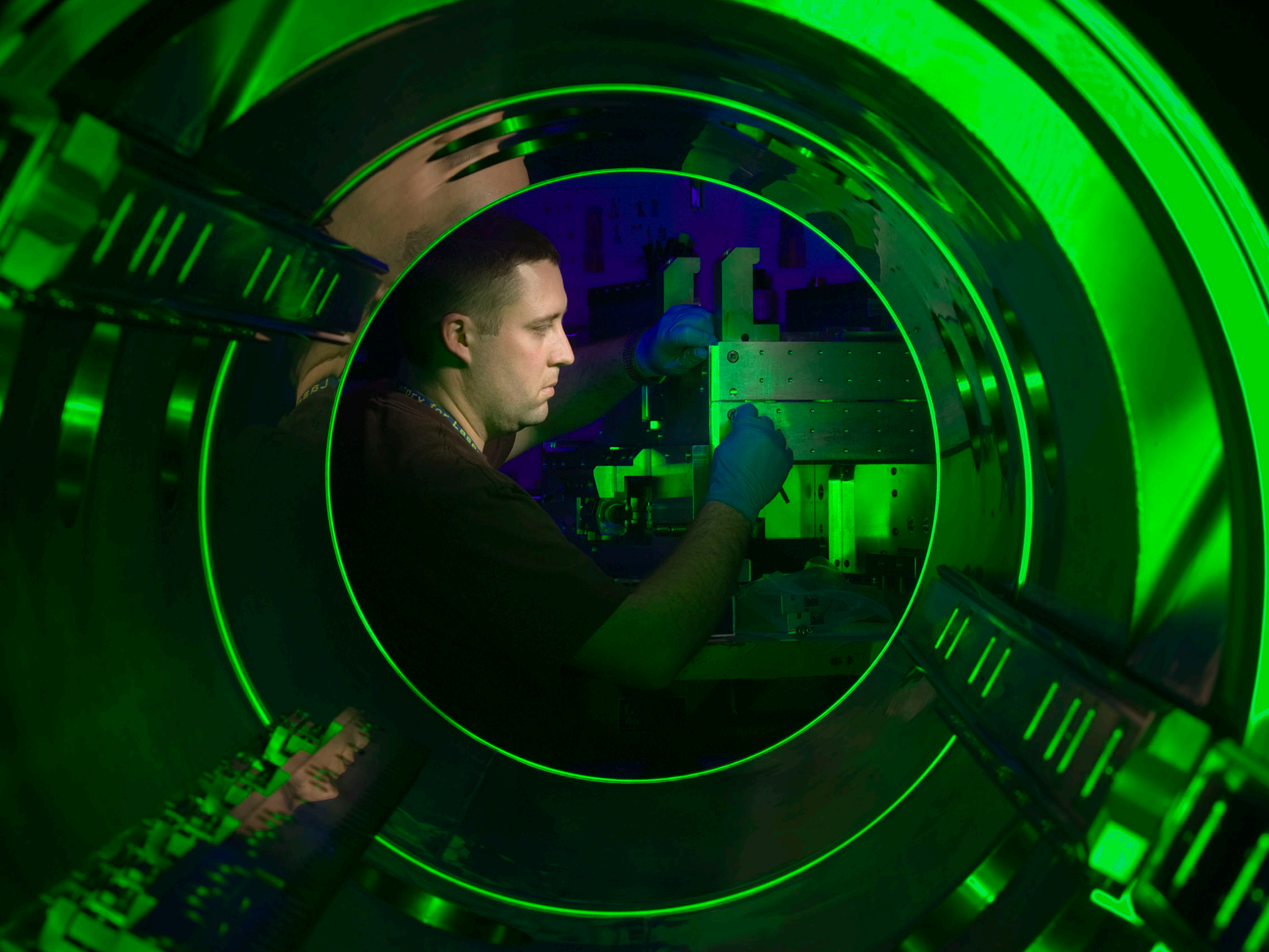

OMEGA EP Short-Pulse Transport

The OMEGA EP off-axis parabola inserter/manipulator is assembled prior to installation on the target chamber; this machine facilitates precise focusing of the short-pulse beam.

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
		**SEPTEMBER** S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	**NOVENBER** S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	1	2	3
4 ○	5	6	7	8	9	10
11 ◑	12 Columbus Day	13	14	15	16	17
18 ●	19	20	21	22	23	24
25 ◐	26	27	28	29	30	31

OCTOBER 2009

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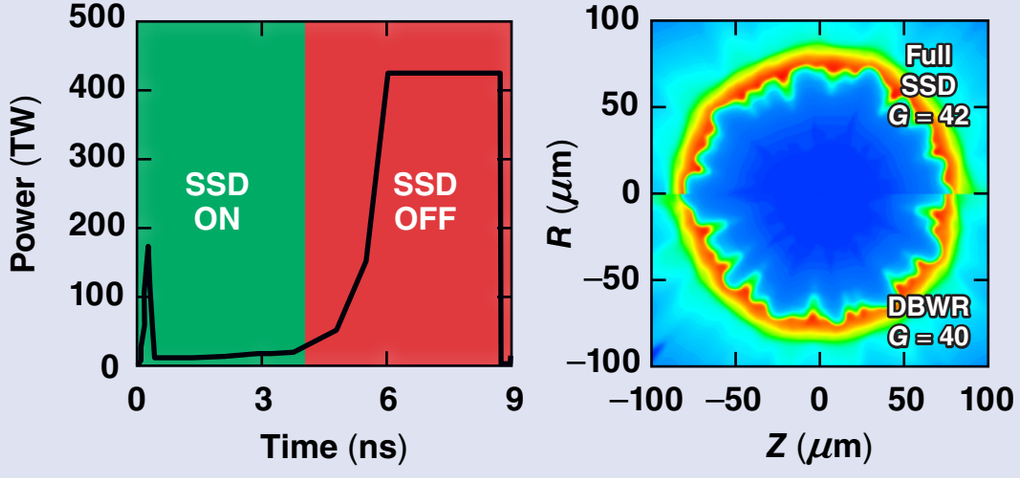
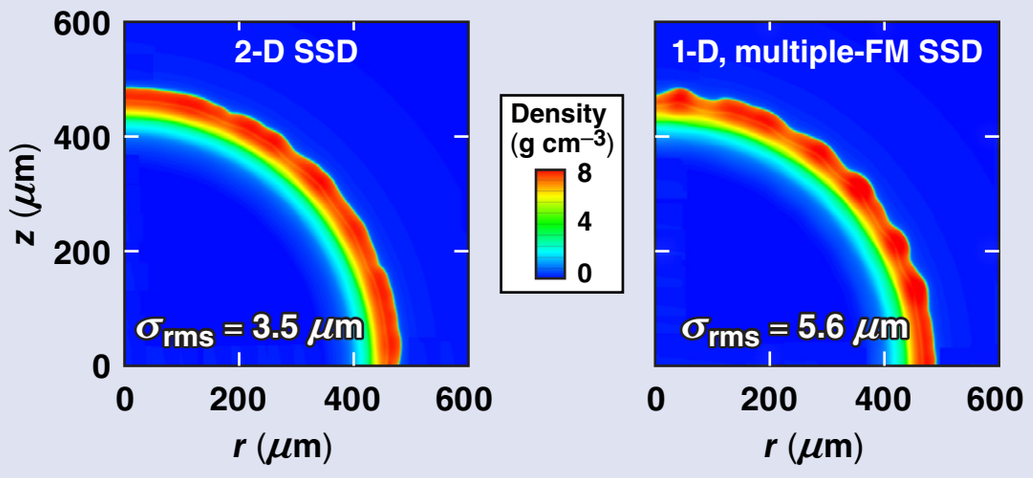

Power (TW)
500
400
300
200
100
0
SSD ON
SSD OFF
0
3
6
9
Time (ns)
R (μm)
100
50
0
–50
–100
Full SSD G = 42
DBWR G = 40
–100
–50
0
50
100
Z (μm)


z (μm)
600
400
200
0
2-D SSD
σrms = 3.5 μm
Density (g cm–3)
8
4
0
1-D, multiple-FM SSD
σrms = 5.6 μm
0
200
400
600
r (μm)
0
200
400
600
r (μm)

NIF PAM

A NIF preamplifier module (PAM) is in preparation for deployment on the OMEGA EP Laser System to test, among other things, polar-drive beam-smoothing techniques such as dynamic bandwidth reduction (left) and 1-D Multi-FM SSD (right) for possible implementation on the NIF.

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
1 Daylight Savings Time Ends	2 ○	3	4	5	6	7
8	9 ◑	10	11 Veterans Day	12	13	14
15	16 ●	17	18	19	20	21
22	23	24 ◐	25	26 Thanksgiving Day University Holiday	27 University Holiday	28
29	30					

51st Annual Meeting of the APS Division of Plasma Physics in Atlanta, GA

OCTOBER

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

DECEMBER

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

NOVEMBER 2009

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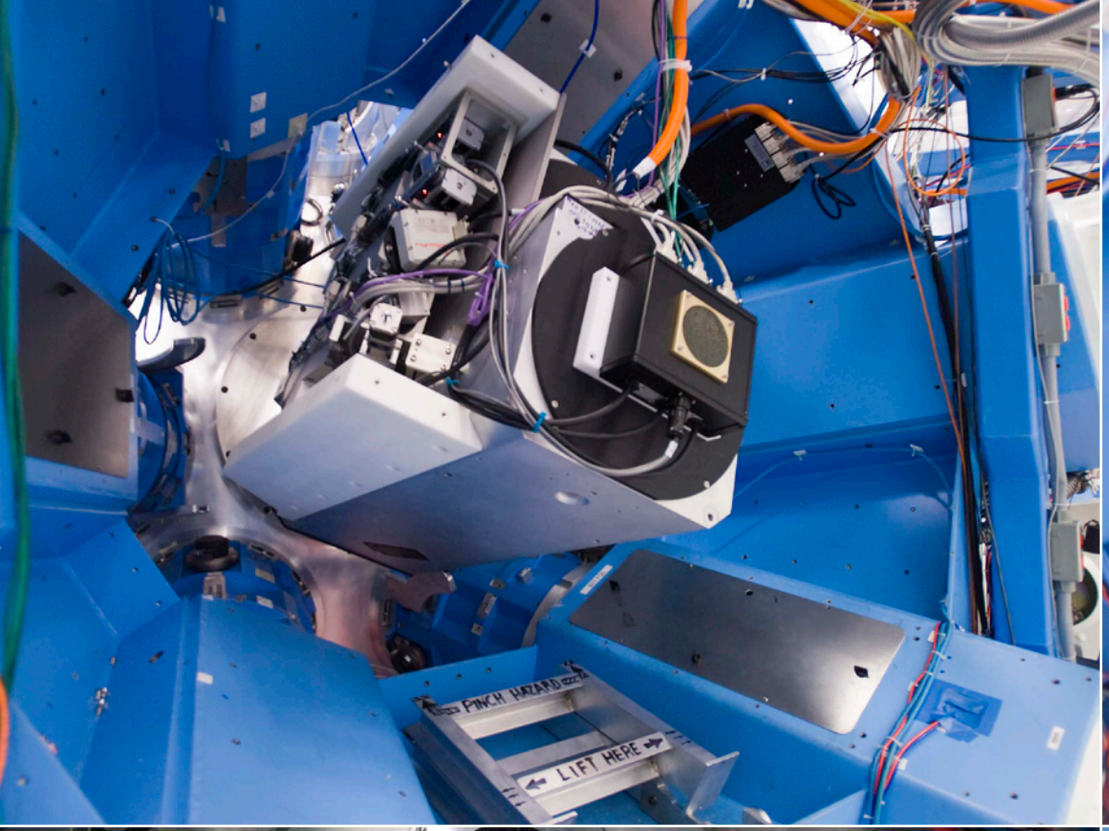
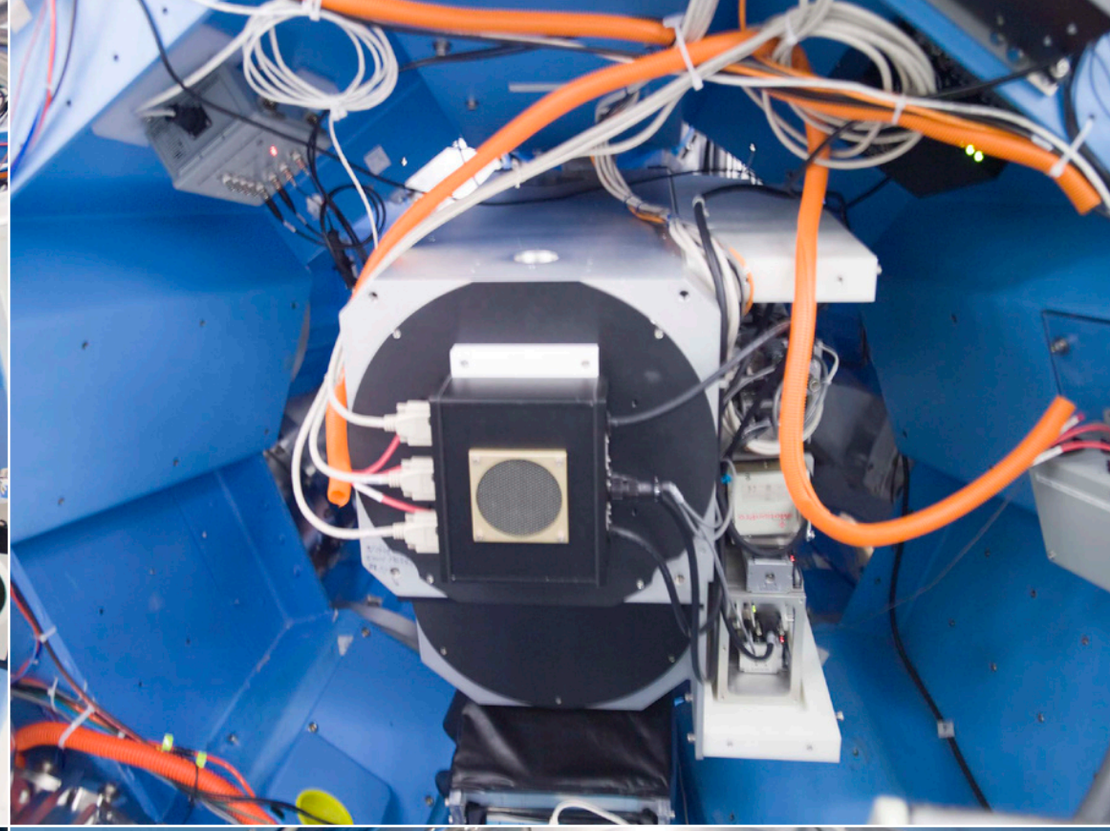
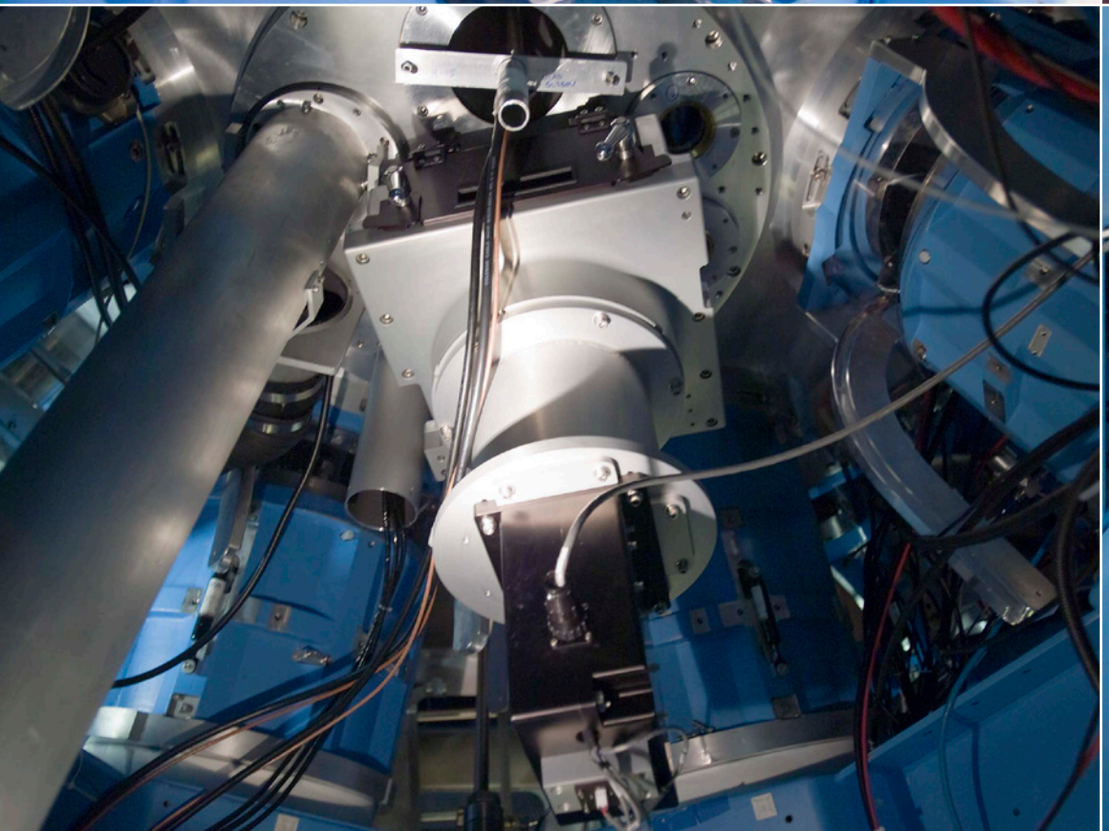
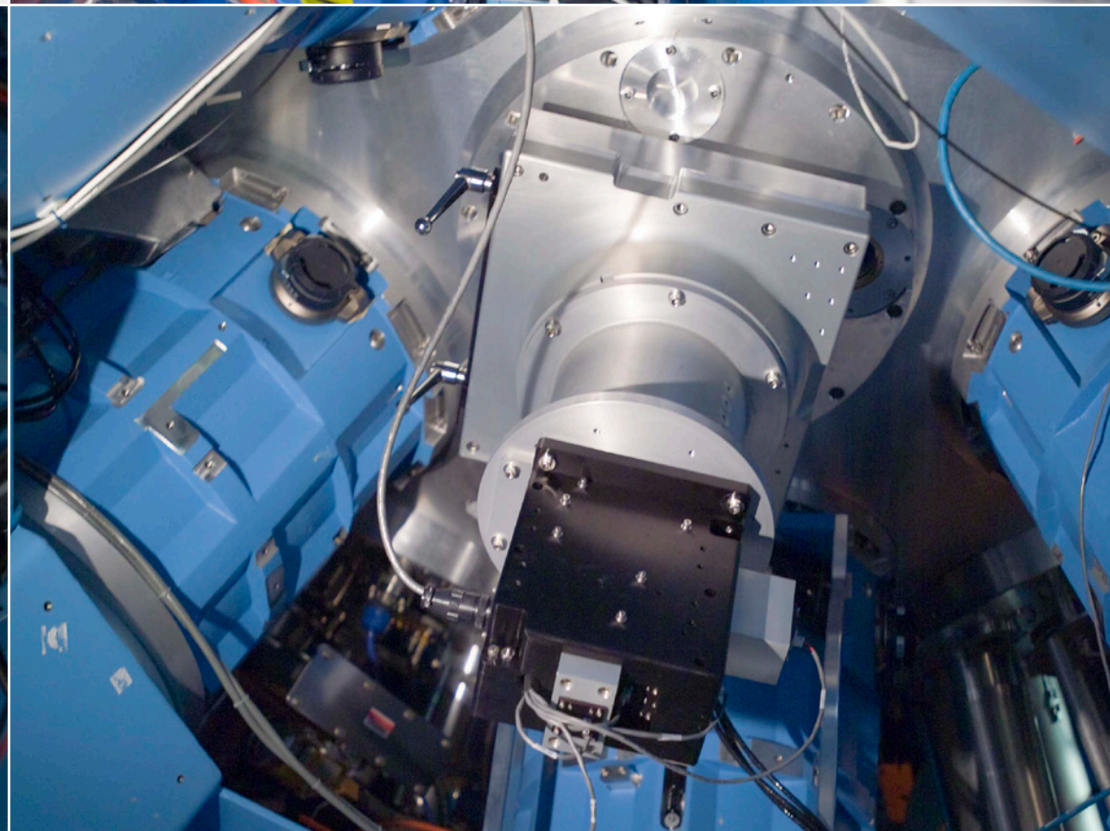

PINCH HAZARD
LIFT HERE




TVS-II

OMEGA Target Viewing System imagers (above, upper photos) and illuminators (above, lower photos) create high magnification images within the OMEGA target chamber. These instruments are used to align and characterize targets at chamber center.

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
NOVEMBER S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	**JANUARY** S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	1	2 ○	3	4	5
6	7	8 ◑	9	10	11	12
13	14	15	16 ●	17	18	19
20	21 Winter Solstice	22	23	24 ◐	25 Christmas Day University Holiday	26
27	28	29	30	31 ○		

DECEMBER 2009

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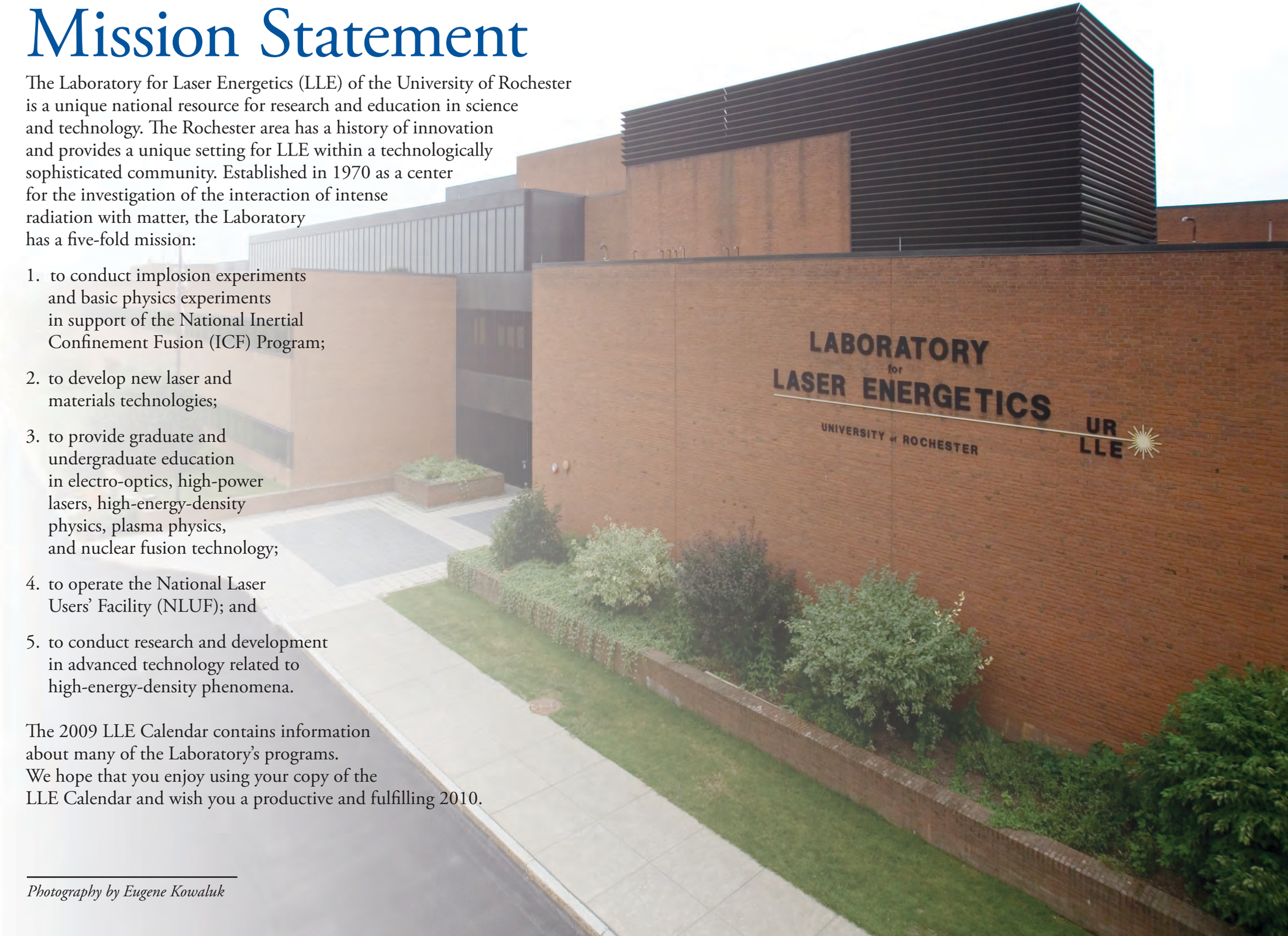
Mission Statement

The Laboratory for Laser Energetics (LLE) of the University of Rochester is a unique national resource for research and education in science and technology. The Rochester area has a history of innovation and provides a unique setting for LLE within a technologically sophisticated community. Established in 1970 as a center for the investigation of the interaction of intense radiation with matter, the Laboratory has a five-fold mission:

1. to conduct implosion experiments and basic physics experiments in support of the National Inertial Confinement Fusion (ICF) Program;
2. to develop new laser and materials technologies;
3. to provide graduate and undergraduate education in electro-optics, high-power lasers, high-energy-density physics, plasma physics, and nuclear fusion technology;
4. to operate the National Laser Users' Facility (NLUF); and
5. to conduct research and development in advanced technology related to high-energy-density phenomena.

The 2009 LLE Calendar contains information about many of the Laboratory's programs. We hope that you enjoy using your copy of the LLE Calendar and wish you a productive and fulfilling 2010.



Photography by Eugene Kowaluk

2009

JANUARY

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

FEBRUARY

S	M	T	W	T	F	S
1	2	3	4	5	6	7
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15	16	17	18	19	20	21
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MARCH

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APRIL

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MAY

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JUNE

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JULY

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AUGUST

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SEPTEMBER

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OCTOBER

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NOVEMBER

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DECEMBER

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2010

JANUARY

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FEBRUARY

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MARCH

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APRIL

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MAY

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JUNE

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JULY

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AUGUST

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SEPTEMBER

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OCTOBER

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NOVEMBER

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DECEMBER

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