

Cover Photos

Top left: Two of the targets used for an OMEGA NLUF experiment carried out by a team from MIT's Plasma Science and Fusion Center to study jet formation using proton radiography. The large, 20-mm-diam conical structures shield the diagnostic systems from x-ray radiation generated by the laser beams that are used to form the jet in the foam cylinder behind the cones.

Middle left: Participants at the first Omega Laser Users Group Workshop held at LLE from 29 April–1 May 2009. The workshop attracted 110 researchers from 29 universities and laboratories and 4 countries. The purpose of the workshop was to facilitate communication and exchanges among the individual users and between the users and LLE. Almost 50 presentations highlighting ongoing and proposed research experiments were given, most of which were presented by the 32 students and postdoctoral candidates in attendance.

Bottom left: A new type of detector comprised of (Cd,Mn)Te (CMT). It is being investigated as a viable material for radiation detection because it can be used for x-ray energies of up to 100 keV and is relatively easy to grow as large, high-quality (homogeneous) single crystals.

Top right: A photograph of the gold-plated copper components for the moving-cryostat upgrade. They have highly polished surfaces to create a low surface emissivity. This reduces both the radiation heat load to the cold head and the need for multilayer insulation.

Middle right: Colorful spectral dispersion observed through diffraction from a multilayer-dielectric grating. Several large-aperture diffraction gratings are used to compress the pulse width of the OMEGA EP short-pulse laser beams. LLE is investigating high-damage-threshold grating designs and manufacturing processes to increase the energy delivered to target.

Bottom right: A view of the OMEGA EP Laser Bay during a four-beam laser shot. The beamline structures are illuminated by the flash of light that energizes the laser amplifiers. The grating compressor chamber can be seen in the shadows at the right.

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