

Cover Photos

Top left: The High School Summer Research Program carried out its 24th year at LLE with 16 high school students investigating real-world problems while being supervised by scientists and engineers at the Laboratory. Shown is Aimee Owens along with her advisor, system scientist Tanya Kosc, at a liquid crystal circular polarizer (LCP). Tasked with identifying and testing possible degradation mechanisms, she is being shown the test fixture and technique for measuring the LCP's *in situ* in the OMEGA Laser Bay.

Middle left: P.-Y. Chang is shown inspecting the target end of the magneto-inertial fusion electrical discharge system (MIFEDS) assembly that is used to conduct experiments on the interaction of laser-driven targets with externally imposed magnetic fields.

Bottom left: Horton fellow Heather Howard uses Nomarski differential interference contrast (DIC) microscopy to inspect a multilayer dielectric (MLD) grating sample for defects following a chemical cleaning.

Top right: Image provided courtesy of Patrick Hartigan, a National Laser Users' Facility (NLUF) participant from Rice University, taken with the 4-m NOAO telescope at Cerro Tololo, Chile. The photograph shows a color composite of a small portion of the Carina star formation region. Astrophysicists who are working on developing models of such spectacular regions in interstellar space are conducting experiments at the Omega Laser Facility to validate their models.

Bottom right: Photograph taken of the inside of the OMEGA target chamber during an NLUF experiment, led by Paul Drake of the University of Michigan, to characterize the spatial temperature profile of a blast wave. Several OMEGA beams drive a blast wave in a carbon foam. After a delay of several nanoseconds, a second set of beams irradiates a nickel foil creating an x-ray source for the imaging x-ray Thomson-scattering (IXTS) diagnostic. The IXTS is used to measure the spatial profile of this scattering. Timing of the beams was adjusted to probe the evolution of the blast wave.

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For questions or comments, Laboratory for Laser Energetics,
250 East River Road, Rochester, NY 14623-1299, (585) 275-5286.
www.lle.rochester.edu