1970

Laboratory for Laser Energetics Founded

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University of Rochester President Robert L. Sproull

With the support of University of Rochester president and respected physicist Robert L. Sproull, the Laboratory for Laser Energetics (LLE) was founded in the fall of 1970. The mission of the Laboratory was to investigate the interaction of intense laser radiation with matter. LLE was established as a multidisciplinary teaching and research center for the College of Engineering and Applied Sciences. It was the first of its kind at any U.S. university. LLE's founding director was Moshe Lubin.

The initial operating budget was $250,000 per annum, and its initial sponsors included the New York State Science and Technology Foundation, National Science Foundation (NSF), Atomic Energy Commission (AEC), Air Force Office of Scientific Research (AFOSR), General Electric (GE), Union Carbide, and Owens-Illinois. LLE began with 13 faculty and staff members and was housed in Gavett Hall and the Hopeman Engineering Building.

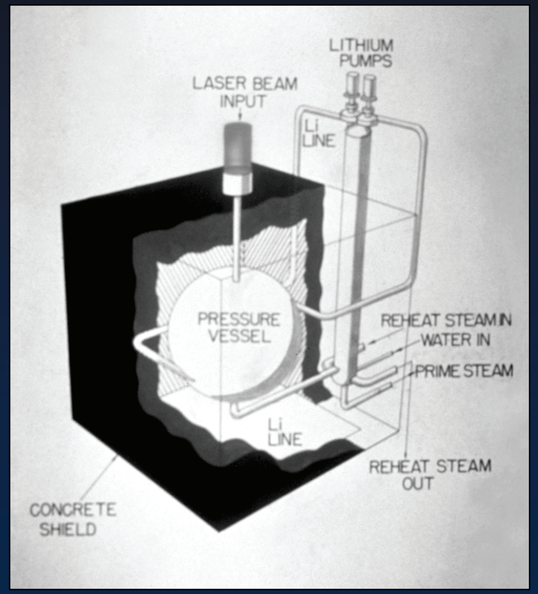
1971

Construction of the DELTA Laser in Gavett Hall

Construction of the DELTA laser began with the emptying of a large room in the ground floor of Gavett Hall

In 1971, LLE began building DELTA, the first multibeam laser at the Laboratory for Laser Energetics. As a four-beam facility, DELTA had many unique features, including large water-cooled rod amplifiers, superconducting Faraday rotators, cryogenic deuterium targets, frequency conversion to the second harmonic, pulse shaping, and liquid-cooled slab amplifiers.

Fusion by Laser

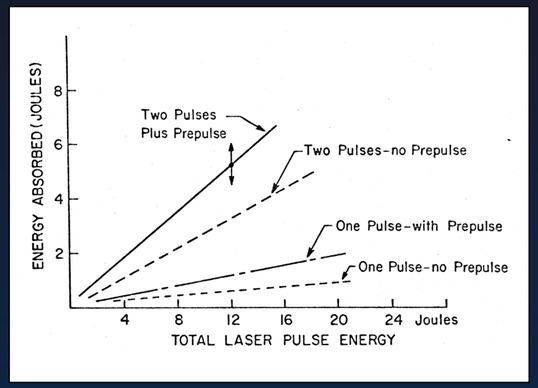


Conceptual laser-fusion reactor

In June 1971, almost one year after the formal establishment of the Laboratory for Laser Energetics, an article entitled "Fusion by Laser" appeared in *Scientific American* authored by Moshe J. Lubin (LLE Director at that time) and Arthur P. Frass of Oak Ridge National Laboratory. The summary for this article states: "Experiments indicate that energy-releasing fusion reactions can be initiated, and to some extent, controlled without a confining magnetic field by focusing a powerful laser on a frozen pellet of fuel."

M. J. Lubin and A. P. Frass, "Fusion by Laser," Sci. Am. ***224*** *(6), 21–33 (1971).*

Laser–Matter Interaction Workshop



From laser–matter interaction workshop

At a laser–matter interaction workshop held at Rensselaer Polytechnic Institute (RPI), LLE scientists presented the first results on the use of multiple short laser pulses to enhance absorption of laser light by laser-fusion targets. Multiple-laser-pulse irradiation (pickets) is a feature of current high-gain, direct-drive target designs.