

National Laser Users' Facility and External Users' Programs

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Under the facility governance plan implemented in FY08 to formalize the scheduling of the Omega Laser Facility as a National Nuclear Security Administration (NNSA) User Facility, Omega Laser Facility shots are allocated by programs following NNSA guidance. The majority (~69%) of the Omega target shots each year are committed to the national Inertial Confinement Fusion (ICF) Program and the High-Energy-Density (HED) Program conducted by scientists from Lawrence Livermore National Laboratory (LLNL), Los Alamos National Laboratory (LANL), Sandia National Laboratories (SNL), the Naval Research Laboratory (NRL), and LLE. In FY19, about 78% of the total Omega shots were delivered for the ICF and HED campaigns.

The Fundamental Science program at the Omega Laser Facility with projects selected through open-call and peer-reviewed processes, is typically allotted between 25% to 29% of the total Omega Laser Facility shots. The program has two distinct components: (1) the NLUF grant program awarded to an individual principal investigator (PI) on a two-year cycle with the associated Omega Laser Facility time (~18% of the overall facility time each year) for experiments led by U.S. academia and business; and (2) the Laboratory Basic Science (LBS) Program for basic science experiments (~11% of the facility time) conducted by the NNSA ICF laboratories including LLNL, LANL, SNL, NRL, LLE, and some of the Office of Science laboratories such as SLAC, Princeton Plasma Physics Laboratory (PPPL), and Lawrence Berkeley National Laboratory (LBNL). In FY19, the Fundamental Science Program obtained a total of 416 target shots that accounted for 18% of the overall 2320 Omega Laser Facility shots. The relative lower fraction of the Fundamental Science shots in FY19 is due to the postponed NLUF solicitation for the 2019 and 2020 periods that resulted in no new NLUF projects. Some of the shot time reserved for the NLUF allocation in FY19 was redistributed to LBS, ICF, and HED.

The Omega Laser Facility was also used for several campaigns (a total of 78 target shots) led by teams from the Commissariat à l'énergie atomique et aux énergies (CEA) of France, CELIA at the University of Bordeaux of France, and the joint Rutherford Appleton Laboratory (RAL) and University of York of the United Kingdom. These externally funded experiments are conducted at the facility on the basis of special agreements put in place by the UR/LLE and participating institutions with the endorsement by NNSA.

The facility users during this year included eight collaborative teams participating in the NLUF Program with the Omega Laser Facility shot allocation from the FY17–FY18 awards; 25 teams led by scientists from LLNL, LANL, LLE, and SLAC participating in the LBS Program; many collaborative teams from the national laboratories (LLNL and NRL) and LLE conducting ICF experiments; investigators from LLNL, LANL, SNL, and LLE conducting experiments for HED programs; and scientists and engineers from CEA, the University of Bordeaux, and RAL/York.