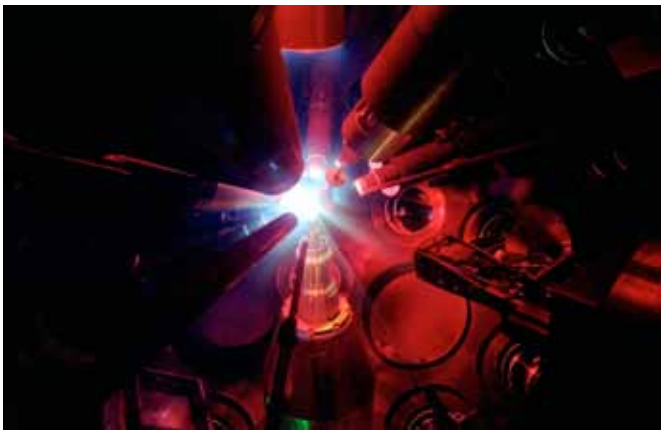
About the Cover:

Top: This photo shows many of the 108 researchers from 29 universities and laboratories around the world, who attended the first OMEGA Users Group Workshop. The spirited workshop offered participants an opportunity to present and discuss, in an interactive but congenial atmosphere, their current work on OMEGA, their proposed experiments, and plans for taking experimental platforms developed on OMEGA to other facilities, such as the National Ignition Facility (NIF). In particular 31 outstanding presentations were made by 32 students and postdocs. The workshop poster sessions offered opportunities for students, professional scientists and engineers, postdocs, and academics to interact and discuss their research. Professor Roberto Mancini of the University of Nevada explains (bottom left) recent spectroscopic measurements obtained by his group to Prof. Michel Koenig of École Polytechnique, France. Through the National Laser Users' Facility Program, Dr. Mancini and his students are often frequent experimenters at the Omega Facility. Dr. Gilbert Collins of Lawrence Livermore National Laboratory describes (bottom right) how the inaccessible—the deep interiors of planets—becomes accessible through innovative experiments currently being conducted on OMEGA and, in the near future, the NIF.



The OMEGA chamber during an experiment.

The focus of the 62 workshop presentations was often on the variety of OMEGA experiments (one of which is shown here and on the cover) that probe regimes of high-energy-density physics—a form of matter, radiation, and fields that can ordinarily be found only in the deep interior of stars and planets. For a few billionths of a second, these experiments are able to create unique stellar conditions—pressures of the order of 500 billion atmospheres (nearly twice that at Sun center); densities of about 300 g per cc (twice that of Sun center); temperatures of 100 million degrees C (seven times that of Sun center); and magnetic fields of 100 million gauss (the Earth's is about 0.3 gauss).

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