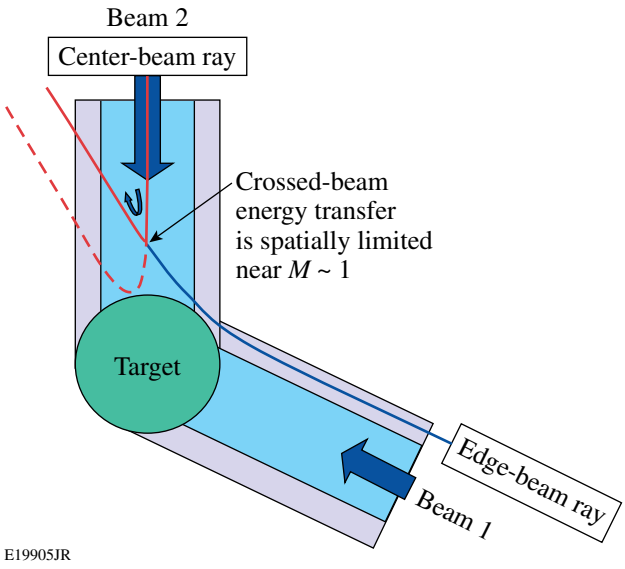
About the Cover:

The cover photo highlights scientist Dr. Igor Igumenshchev presenting his results on the effects of crossed-beam energy transfer (CBET) in directly driven implosions. In the background is a schematic illustration detailing the physics and main equations underlying the CBET process. This process causes the transfer of energy from incoming laser light rays to outgoing rays and results in a reduction of laser coupling and hydrodynamic efficiency during the implosion. Simulations using the CBET model reproduce the reflected light and bang times of a variety of implosion experiments performed on OMEGA. Controlling the effects of CBET in direct-drive implosions is an important consideration for achieving ignition on the National Ignition Facility.



The figure on the left illustrates the CBET process. An incident ray (shown in blue) at the edge of Beam 1 is refracted outward from above the critical radius. As it proceeds away from the target, this ray interacts through a low-gain stimulated Brillouin scattering process with an incoming ray. This process peaks at the high-intensity center of Beam 2 (shown in red) resulting in the transfer of some Beam 2 energy to the outgoing ray. As a result, rays in the center of Beam 2 deliver less energy to the target, reducing the overall laser absorption.

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For questions or comments, contact Alex Shvydky, Editor
Laboratory for Laser Energetics
250 East River Road
Rochester, NY 14623-1299
(585) 275-9539
www.lle.rochester.edu