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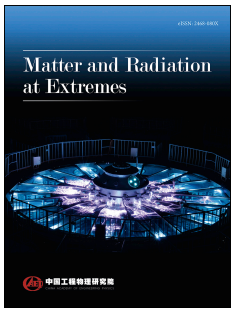

Laser-direct-drive program: Promise, challenge, and path forward

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Laser-direct-drive program: Promise, challenge, and path forward

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Abstract

Along with laser-indirect (X-ray)-drive and magnetic-drive target concepts, laser direct drive is a viable approach to achieving ignition and gain with inertial confinement fusion. In the United States, a national program has been established to demonstrate and understand the physics of laser direct drive. The program utilizes the Omega Laser Facility to conduct implosion and coupling physics at the nominally 30-kJ scale and laser–plasma interaction and coupling physics at the MJ scale at the National Ignition Facility. This article will discuss the motivation and challenges for laser direct drive and the broad-based program presently underway in the United States.