SLAC COLLOQUIUM SERIES

Opportunities in Intense Ultrafast Lasers:
Reaching for the Brightest Light

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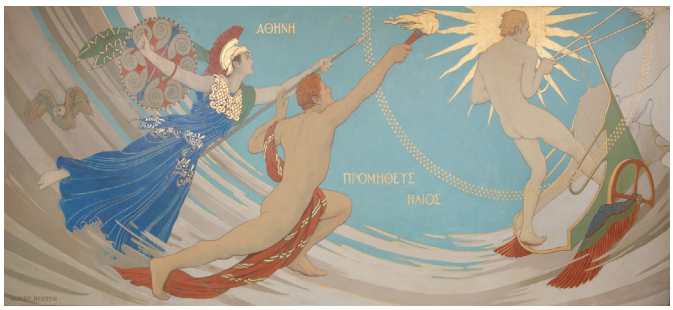
Abstract:
The laser has revolutionized many areas of science and society, transforming the ways we investigate science and enabling trillions of dollars of commerce. Now a second laser revolution is underway with pulsed petawatt-class lasers (1 petawatt: 1 million billion watts) that deliver nearly 100 times the worldís total power consumption in less than one-trillionth of a second. Such light sources create unique, extreme laboratory conditions that can accelerate and collide intense beams of elementary particles, drive nuclear reactions, heat matter to conditions found in stars, or even create matter out of the empty vacuum. They also deliver applications beyond scientific discovery, in medicine, industry, and the stewardship of the nuclear weapons stockpile.



The National Academy of Sciences has just released a report commissioned by the Federal government, wich surveys high-intensity laser science and assesses U.S. technical capabilities. It has found that powerful lasers were originally developed in the United States, but the US has failed to deploy them for research use so the vast majority of high-intensity laser systems are located overseas. The report recommends a path forward for possible U.S. efforts in high intensity lasers and the science that they make possible.

March 5, 2018, 4:00 PM, Kavli Auditorium, Refreshments Served at 3:45