Mines Physics Department, Mines Society of Physics Students, and the Payne Institute for Public Policy

Hybrid Presentation

4:00 P.M. MT | February 13, 2024

Green Center | Friedhoff Hall

Dr. Donna Strickland

Professor, Department of Physics & Astronomy, University of Waterloo, *Nobel Laureate*

Generating High-Intensity, Ultrashort Optical Pulses

With the invention of lasers, the intensity of a light wave was increased by orders of magnitude over what had been achieved with a light bulb or sunlight. This much higher intensity led to new phenomena being observed, such as violet light coming out when red light went into the material. After Gérard Mourou and I developed chirped pulse amplification, also known as CPA, the intensity again increased by more than a factor of 1,000 and it once again made new types of interactions possible between light and matter. We developed a laser that could deliver short pulses of light that knocked the electrons off their atoms. This new understanding of laser-matter interactions, led to the development of new machining techniques that are used in laser eye surgery or micromachining of glass used in cell phones.

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