The Institute of OPTICS

Colloquium

UNIVERSITY OF ROCHESTER

Temporal magnification, compression, and cloaking of light

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School of Applied and Engineering Physics
Cornell University
BS and PhD in Optics, Rochester

3:00 pm Monday, March 5, 2012
Sloan Auditorium, Goergen 101

I will describe our recent work that uses nonlinear optics to create time lenses that can magnify, compress, and Fourier transform optical waveforms in the temporal domain. Through use of more exotic lenses, temporal gaps in light beams can be opened and closed which can be used to cloak events over short periods of time.

HAJIM SCHOOL OF ENGINEERING & APPLIED SCIENCES

Joint Colloquium with Department of Physics and Astronomy and the Optics Industrial Associates

Temporal magnification, compression, and cloaking of light

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Abstract: Recent research has shown that the properties of a light beam can be manipulated to perform ultrafast all-optical signal processing in the time domain. I will describe our recent work that uses nonlinear optics to create time lenses that can magnify, compress, and Fourier transform optical waveforms in the temporal domain. Through use of more exotic lenses, temporal gaps in light beams can be opened and closed which can be used to cloak events over short periods of time.

Biography: Alex Gaeta received his B.S degree in 1983 and his Ph.D. in 1991, both in Optics from the University of Rochester. In 1992 he joined the faculty at the School of Applied and Engineering Physics at Cornell University where he is currently a Professor and the Director. His research interests include integrated nonlinear optics, nanophotonics, ultrafast nonlinear optics, the development and application of photonic crystal fibers, and quantum effects in nonlinear optics. He is a Fellow of the OSA and the APS.