



*Applied Physics & OSA
Optics Seminar*

Optical Interactions in Photonic Crystal Fibers

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Abstract:

Photonic crystal fibers (PCF's) are optical fibers with a cross section that consists of a periodic array of airholes with a "defect" that corresponds to the fiber core. These recently developed fibers offer exceptional flexibility in their light propagation characteristics, including the ability to guide light in a hollow core. In our recent studies we investigate the properties PCF's with sub-wavelength cores, and show that such fibers can be used to generate single-cycle laser pulses. In addition, we perform experiments with atoms and molecules injected into hollow-core PCF's, and for the case of Rb atoms injected into the core, coherent nonlinear interactions at extremely low light levels can be achieved.

Brief Biography:

Alex Gaeta received his Ph.D. in Optics from the University of Rochester in 1991. 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 Associate Director. His research interests include ultrafast nonlinear optics, the development and application of photonic crystal fibers, nanophotonics, and quantum effects in nonlinear optics. He is a Fellow of the OSA and the APS.

Tuesday, March 27, 2007.

4:00pm-5:00pm.

Watson 104

Refreshments will be available in the Watson Lobby at 3:45pm