

PHOTONICS SEMINAR

Professor A.M. Weiner

Ultrafast & Broadband Photonic Signal Processing: Microdevices, Combs, and Control of RF Propagation

May 15, 2013

2:00-3:00 p.m.

Room 339

Photonics Center

8 Saint Mary's Street

*Refreshments will
be served!*



Recent research from the Purdue University Ultrafast Optics and Fiber Communications Laboratory will be discussed, with a focus on ultrafast and broadband optical signal processing. Examples from three inter-related themes will be discussed.

The first theme comprises generation of high repetition rate frequency combs and pulse trains from continuous-wave lasers, either by strong electro-optic modulation or nonlinear optics. A second theme involves application of ultrafast optical techniques, including pulse shaping and frequency combs, for ultrabroadband radio-frequency signal processing. A final theme involves innovative microdevices, implemented in integrated optics in silicon or silicon nitride films, for signal processing applications.

Professor Andrew M. Weiner graduated from M.I.T. in 1984 with an Sc.D. in electrical engineering. Upon graduation he joined Bellcore, first as Member of Technical Staff and later as Manager of Ultrafast Optics and Optical Signal Processing Research. Professor Weiner moved to Purdue University in 1992 and is currently the Scifres Family Distinguished Professor of Electrical and Computer Engineering. His research focuses on ultrafast optics signal processing and applications to high-speed optical communications and ultrawideband wireless. He is especially well known for his pioneering work on programmable femtosecond pulse shaping using liquid crystal modulator arrays. Professor Weiner is the author of a textbook entitled Ultrafast Optics (Wiley, 2009), has published six book chapters and over 250 journal articles, and is the inventor of 13 U.S. patents.