Applied Physics & OSA

Optics Seminar

Can Silicon Change Photonics?

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Abstract:

The electronic chip industry embodies the height of technological sophistication and economics of scale. The industry mass produces complex circuitry, boasting over one billion components at such low cost that they appear in consumer products. Fabricating inexpensive photonic components by leveraging this mighty manufacturing infrastructure has been the impetus behind the development of silicon photonics. If it can be done economically and in an energy efficient manner, empowering silicon with optical functionality will bring optical communications to the realm of computers where limitations of metallic interconnects are threatening the industry's future. Guided by such visions and propelled by pioneering research conducted in the 1980's and 1990's, silicon photonics has enjoyed spectacular progress. This talk will review these with an emphasis on nonlinear optical devices in silicon, such as amplifiers, wavelength converters and multi-wavelength sources. It will describe a new 3-D integration technology aimed at addressing the economics of IC manufacturing. The talk will conclude with discussions on mid-wave IR and ultra-fast A/D conversion - applications that extend the reach of silicon photonics beyond optical interconnects.

Brief Biography:

Bahram Jalali is a Professor at UCLA. He is a Fellow of IEEE and OSA, and recipient of R.W. Wood Prize from OSA. In 2005 he was elected into the Scientific American Top 50. From 2001-2004, he served as a consultant at Intel Corporation. He received the BrideGate 20 Award in 2001 for his entrepreneurial accomplishments and serves on the Board of Trustees of the California Science Center.

Thursday, November 29th, 2007.
4:00pm-5:00pm.
Watson 104

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