Manipulating Light on a Chip

Michal Lipson
Electrical & Computer Engineering
Cornell University

PhD Technion, Israel
Postdoc MIT
OSA Fellow, IEEE Senior Member

In this talk I will review the challenges and achievements
in the field of Silicon Nanophotonics and present our recent results.

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Sloan Auditorium, Goergen Building
Refreshments following lecture

Manipulating Light on Chip

Michal Lipson, Cornell University, Ithaca, NY

Photonics on chip could enable a platform for monolithic integration of optics and microelectronics for applications of optical interconnects in which high data streams are required in a small footprint. In this talk I will review the challenges and achievement in the field of Silicon Nanophotonics and present our recent results. Using highly confined photonic structures, much smaller than the wavelength of light, we have demonstrated ultra-compact passive and active silicon photonic components with very low loss. The highly confined photonic structures enhance the electro-optical and non-linearities properties of Silicon. We demonstrated several active components including all-optical and electro-optic low power switches and modulators on silicon.

Michal Lipson is an Associate Professor at the School of Electrical and Computer Engineering at Cornell University, Ithaca NY. Prior to this appointment, she was a postdoctoral associate at the Department of Material Science and Engineering at MIT, following her Ph.D. in Physics at the Technion - Israel Institute of Technology. Her research focuses on novel on-chip Nanophotonics devices. She holds several patents on novel micron-size photonic structures for light manipulation, and is the author of over 100 technical papers in journals in Physics and Optics. Professor Lipson's honors and awards include OSA Fellow, IEEE Senior Member, IBM Faculty Award, and NSF Early Career Award. More information on Professor Lipson can be found at nanophotonics.ece.cornell.edu.