

# “BNC Seminar”

Thursday, June 2, 2016 @ 10:00am  
BRK, ROOM 2001

**Hanan Herzig-Sheinfux**  
Israel Institute of Technology

**Title:** Nanometric Anderson localization of light – beyond the limits of the effective medium approximation

**Bio:** Hanan Herzig-Sheinfux is a Ph.D. student at the Technion – Israel Institute of Technology, under the supervision of Professor Mordechai (Moti) Segev. He conducts experimental and theoretical research, mostly relating to disorder and localization in nanophotonic settings.

**Abstract:** Anderson localization is a cornerstone of our understanding of the interaction of light with disorder. But in the deep subwavelength regime, all photonic transport effects, including Anderson localization, become trivialized and effective medium theory is commonly expected to take over.

The talk will present a study of localization in extreme subwavelength multilayer structures – dielectric layer stacks with an average layer thickness of  $\lambda/20$  (experimentally) or  $\lambda/1000$  (theoretically). But rather than being a weak effect, localization in this regime dominates transport completely, in sharp contrast to the effective medium prescription. Moreover, I will show that thickening a single layer inside the structure by merely 2nm, has a clear influence on transport of visible light – an unusual capability which holds great promise for potential sensing applications.