



Solid State Institute
המכון למצב מוצק

TECHNION
Israel Institute
of Technology



הטכניון
מכון טכנולוגי
לישראל

SEMINAR

סמינר

Reschedule to 11:00!

"Towards ultrafast sub-wavelength microscopy"

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Abstract

Progress in super-resolution microscopy has been pushing forward many fields in science, medicine and technology. While proliferation of super-resolution techniques have been established, they all suffer from relatively long acquisition time because they either require point-by-point scanning or necessitate multiple exposures. For many applications, both high spatial and temporal resolutions are desired.

I will present major progress towards ultrafast, label-free, subwavelength and linear microscopy of complex (amplitude and phase) objects, by overcoming two critical limitations in ptychography - a powerful scanning-based coherent diffraction imaging technique. First, I will present a method for single-shot ptychography, where tens or hundreds of intensity diffraction patterns from array of partially overlapping illuminating spots are recorded in a single exposure. Then, I will show sub-wavelength ptychography by employing two approaches: i) utilization of the fact that in ptychography, the accuracy of the probes relative positions (which corresponds to the accuracy of the scanning step size) can be sub-wavelength. ii) The sought information (the complex-valued transmission function of the object) can be represented compactly (sparsely) in real space or in a suitable mathematical basis.

11:00 ההרצאה תתקיים ביום רביעי, ה-18.5.16 בשעה

בבניין המכון למצב מוצק, בחדר הסמינרים

The lecture will take place on Wednesday, 18.5.16 at 11:00

at the Solid State Institute, seminar room

Ph.D. Student of Associate Professor Oren Cohen