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הטכניון
מכון טכנולוגי
לישראל

SEMINAR **סמינר**

Sparse Ptychography

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Abstract

In any practical microscopy measurement system, noise presents a limiting factor. Although improvement in signal to noise ratio is always desirable, in some cases it only comes at the expense of parameters such as acquisition time, or sample radiation dose, in a manner detrimental to successful application (e.g. real time applications, photo-toxicity).

In my talk, I will focus on ptychography – a lensless microscopy technique of growing interest in recent years. In ptychography the object of interest is reconstructed algorithmically from measured diffraction patterns. I will present a variant on ptychographic reconstruction algorithms utilizing signal sparsity in a known basis. Signals which are not fully random, tend to admit to sparse representation (i.e. representation with only a few non-zero coefficients) in a basis bearing their inner structure. Knowledge of the basis allows for significant improvement in noise robustness. I will show numerical results demonstrating the extent of performance enhancement with sparsity, and discuss further ideas.

ההרצאה תתקיים ביום רביעי, ה-17.10.18 בשעה 12:30

באודיטוריום המכון למצב מוצק, קומת כניסה

The lecture will take place on Wednesday, 17.10.18 at 12:30

at the Solid State Institute auditorium, entrance floor

M.Sc. Student of Distinguished Professor Moti Segev