Solid State Institute
המכון למצב מוצק

TECHNION
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הטכניון
מכון טכנולוגי
לישראל

SPECIAL SEMINAR

סמינר מיוחד

Collective quantum optics with 2D atom arrays

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Abstract

How do atoms radiate together? Although in general this is still an open question, addressing the problem of collective light-matter interactions in specific cases can lead to important insights and applications. In my talk, I will discuss how the collective optical response of a 2D array of trapped atoms renders it as a new platform for quantum science, with potential applications in quantum technologies. In particular, I will show how a dilute 2D array, comprised of even just a few dozen atoms, can perfectly reflect and scatter light, leading to the possibility of observing for the first time opto-mechanical phenomena at the single-photon level. Combining quantum-coherence with strong collective optical and mechanical responses, atomic arrays should open new ways in manipulating the quantum state of light and atoms, and to systematically study the quantum many-body phenomena of collective light-matter interactions.

ההרצאה תתקיים ביום חמישי, ה-20.12.18 בשעה 12:30
באודיטוריום המכון למצב מוצק, קומת כניסה
The lecture will take place on Thursday, 20.12.18 at 12:30
at the Solid State Institute auditorium, entrance floor

Host: Assistant Professor Yoav Sagi