Solid State Institute
המכון למצב מוצק

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סמינר

A few surprises in multiple scattering of light

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Abstract

Basic studies of light scattering and transport in disordered media are driven by fundamental issues in mesoscopic physics, and by applications in sensing and imaging. We will present recent results that predict unexpected behaviors of interest for the control of light-matter interaction in complex materials.

We will discuss an invariance property of the average path length in a wave diffusion process, and the first measurement demonstrating this invariance. In the context of imaging through scattering media, we will show that a spatial correlation between the reflected and transmitted intensities persists even in the multiple scattering regime. This makes possible to quantify the mutual information that connects the transmitted and the reflected light. Finally, we will address the influence of correlations in the disorder on the scattering strength. In the case of hyperuniform materials (a specific class of correlated materials), we will show that disordered materials that are both dense and transparent can be designed.

ההרצאה תתקיים ביום רביעי, ה - 12.7.2017 בשעה 12:30
בבניין פיסיקה, חדר סמינרים 502
The lecture will take place on Wednesday, 12.7.2017 at 12:30
at the Physics Building, Seminar Room 502

Host: Professor Boris Shapiro