



Solid State Institute
המכון למצב מוצק

TECHNION
Israel Institute
of Technology



הטכניון
מכון טכנולוגי
לישראל

SPECIAL SEMINAR

סמינר מיוחד

"Photonic Topological Insulators"

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Abstract

The direct observation of lattice edge phenomena has recently gained a substantial boost by the use of photonic lattices. The optical experiments allow easy observation of wave phenomena unobservable in solid state and in cold atom experiments.

Light propagating in a lattice of coupled optical waveguides evolves as would an electron in a two dimensional lattice. We use this equivalence to demonstrate wave phenomena in two dimensional lattices. Specifically, we arrange the waveguides in a honeycomb structure, resulting in a system which is equivalent to graphene, a hexagonal lattice of carbon atoms. This system was thus named photonic graphene.

In my talk I focus on the observation of edge states in photonic graphene and the discovery of an edge state that was not previously predicted. I then discuss how we used photonic graphene to demonstrate the first photonic topological insulator: a photonic lattice with unidirectional, topologically protected edge states. This was also the first demonstration of a Floquet topological insulator.

I end my talk by discussing some of the research that followed these discoveries and ongoing projects.

ההרצאה תתקיים ביום רביעי, ה-29.4.15 בשעה 12:30

בבניין המכון למצב מוצק, בחדר הסמינרים

The lecture will take place on Wednesday, 29.4.15 at 12:30

at the Solid State Institute, seminar room

Ph.D. Student of Distinguished Professor Moti Segev