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## Magneto-Optics Studies of Spin Qubits in Semiconductor Quantum Dots of Various Symmetries

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### Abstract

Quantum dots, in which charged carriers are strongly confined, serve as an interface between anchored spin qubits and flying photonic qubits. Since spin qubits can be effectively controlled by external magnetic field, it is important to study the behavior of confined charge carriers - electrons and holes, under application of such a field.

In this talk I will present experimental magneto optical studies of single semiconductor quantum dots of two different materials and two different symmetries under external magnetic field in various directions. Our polarization sensitive measured spectra will be compared with a relatively simple 4X4 Hamiltonian. The eigenvalues of the diagonalized Hamiltonian provide the energies of the observed spectral lines, and its eigenvectors provide insight into the polarization selection rules of these spectral lines. Finally, I will discuss the influence of the external magnetic field on same carrier exchange interaction.

**ההרצאה תתקיים ביום רביעי, ה-30.10.19 בשעה 12:30**

**באוודיטוריום המכון למצב מוצק, קומת כניסה**

**The lecture will take place on Wednesday, 30.10.19 at 12:30  
at the Solid State Institute auditorium, entrance floor**

**M.Sc. Student of Professor David Gershoni**