



Solid State Institute
המכון למחצב מוצק

TECHNION
Israel Institute
of Technology



הטכניון
מכון טכנולוגי
לישראל

SPECIAL SEMINAR

סמינר מיוחד

Magneto-optical study of confined electrons and holes in semiconductor quantum dots

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Abstract

We present an experimental study of the influence of externally applied magnetic field in the Faraday configuration on the photoluminescence of single InAs/GaAs self-assembled quantum dots. We comprehensively study 18 well characterized optical transitions from the same, optically excited quantum dot in various charge and occupation states. In our measurements, the emitted light was in the direction of the magnetic field and along the symmetry axis of the quantum dots. The Zeeman splitting as well as the diamagnetic shifts of these transitions are accurately measured and analyzed. The measurements are then accurately fitted using 4 g-factors for ground and first excited energy levels of the confined electron and hole. While the g-factors of the ground levels agree with previous measurements, those of the excited levels are reported here for the first time, to the best of our knowledge.

Surprisingly, the g-factor of the ground level heavy hole is reversed in sign from that of the excited heavy hole. Possible explanations for this sign reversal will be discussed.

ההרצאה תתקיים ביום רביעי, 16.11.2016 בשעה 14:30

בבניין פיסיקה (לידוב), קומת כניסה, בחדר הסמינרים על שם נתן רוזן (חדר 300)

The lecture will take place on Wednesday, 16.11.2016 at 14:30 at the Physics Building (Lidow), entrance floor, Nathan Rosen seminar room (Room No. 300)

M.Sc. Student of Professors David Gershoni and Daniel Podolsky