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סמינר

If Time-Energy Entangled Photons are so Cool, Why Nobody Uses Them ?

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Abstract

Time-energy entangled bi-photons (or broadband squeezed light in the continuous version), is in many ways the 'black sheep of the family' in quantum information. Although broadband squeezed light is easily produced with very high optical flux, and demonstrates extreme nonclassical behavior, it is rarely used in quantum information, mainly because of the inability to efficiently detect it with standard photo-detectors and homodyne techniques.

I will present our measurement scheme for broadband squeezed light and time energy entangled bi-photons that is based on quantum interference between the generation amplitudes of bi-photons in two separated nonlinear media. Using an optical nonlinear medium as the homodyne device, we demonstrated direct squeezing detection for ultra-broadband two-mode squeezed light (~80nm bandwidth and ~140THz signal-idler separation), lifting the inherent bandwidth limitation of the standard homodyne measurement with photo-detectors.

ההרצאה תתקיים ביום רביעי, ה-10.2.16 בשעה 12:30

בבניין המכון למצב מוצק, בחדר הסמינרים

The lecture will take place on Wednesday, 10.2.16 at 12:30

at the Solid State Institute, seminar room

Organizer: Associate Professor Oren Cohen