



Solid State Institute
המכון למחצב מוצק

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סמינר

Shape-preserving Accelerating Beams in Curved Space

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Abstract

We present the first experimental observation of shape-preserving accelerating beams in curved space. More specifically, we study, theoretically and experimentally, shape-preserving accelerating beams propagating on spherical surfaces. We find close form-solutions to the wave equation that manifests non-geodesic dynamics, resulting in wavepackets that are propagating on trajectories different from a shortest path between two points. The evolution of these beams is manifesting the intriguing interplay between interference effects and the curvature of space, self-reproducing in periodic fashion once in a hemisphere.

Finally, we study a new platform for experimenting with optics in curved space: optical beams propagating within the shell of a soap bubble (probably the thinnest natural liquid film possible). Surprisingly, a laser beam launched into the shell of a soap bubble is propagating without a diffraction, regardless of power, thermal effects, and soap concentration. Can this have anything to do with the molecular rearrangement?

ההרצאה תתקיים ביום רביעי, ה- 21.9.16 בשעה 12:30

בבניין פיסיקה (לידוב), קומת כניסה, נתן רוזן 300

The lecture will take place on Wednesday, 21.9.16 at 12:30

at the Physics Building (Lidow), entrance floor, Nathan Rosen 300

M.Sc. Student of a Distinguished Professor Moti Segev