הטכניון – מכון טכנולוגי לישראל **הפקולטה להנדסת מכונות**

סמינריון

הנך מוזמן/ת להרצאה סמינריונית של הפקולטה להנדסת מכונות, שתתקיים ביום ב' 7.09.15 (כג' באלול, תשע"ה), בבניין דן-קאהן, קומה 0, באודיטוריום 1 בשעה 14:30.

יוצר: שמואל קמינסקי

מנחה: פרופ'/ח טל כרמון

על הנושא:

Tweezers controlled resonator

להלן תקציר ההרצאה:

Optical traps serve in the most sensitive biological-force measurements as well as in chemistry and physics research. As optical tweezers can trap almost perfectly spherical droplets while precisely controlling their position, it is natural to check if we can activate tweezed droplets as optical microresonators. We experimentally demonstrate trapping a micro-droplet with an optical tweezers and then functionalize it as a micro-resonator by bringing it close to a tapered fiber coupler. Our tweezers facilitated tuning of the coupling from the under-coupled to the critical coupling regime with an optical Q of 12 million and micro-resonator size at the 85 um scale. We prove the concept of using an optical trap for activating oil droplets as fiber-coupled micro-resonators. We believe that our technique will extend to several resonators and then to an optical circuit where the shape and position of many optical devices will be controlled.

Our long-term vision includes optical circuits where a multi-minima optical trap shapes and positions multiple resonators. Being practical, we start here with modestly proving this concept by activating one μdrop as a resonator, and using an optical trap to hold and position it next to a tapered-fiber coupler.

בברכה,

פרופ'/א אמיר שפ

מרכז הסמינרים