

## סמינריון

הנך מוזמנת להרצאה סמינריונית של הפקולטה להנדסת מכונות, שתתקיים ביום ה' 11.08.16 (ז' באב, תשע"ו), בבניין דן-קאהן, קומה 0, אודיטוריום 1, 14:30.

ירצה: נדב מכבי

מנחה: פרופ' ח דוד אילתה

על הנושא:

## **Enhancing the Functionality of Unimorph Piezoelectric Actuators**

The seminar will be given in Hebrew

### להלן תקציר ההרצאה:

Tilting motion is crucial for micro-mirror applications. There are several transduction mechanisms that may be used to achieve a tilting motion in micro-scale devices. In this work we focus on piezoelectric actuators which are both power-efficient and easy to package and handle. Previously, tilting motion has been achieved with piezoelectric actuators using the bending response of bimorph structures. This is because there was no simple way to directly induce torsion in piezoelectric beam actuators. Piezoelectric beam actuators that are driven in bending are predominantly constructed in a bimorph configuration, in which two electrodes on both sides of the piezoelectric layer are required for driving the system. Recently, a new method for driving unimorph piezoelectric beams in bending was proposed. A unimorph actuator is constructed from a single piezoelectric layer (with no substrate) and all electrodes are located only on one side of that layer.

In the current work, we redesigned the electrodes of the unimorph piezoelectric actuator and show that the beam actuator can be directly driven in torsion. Test devices that demonstrate the concept were fabricated and characterized. Additionally, a new method for achieving parallel out-of-plane motion in piezoelectric actuators is presented, using the same principle of driving actuators in torsion.

בברכה,

ד"ר ח'מא אמי' א'ת

מרכז הסמינרים