

סמינריון

הנדך מוזמנת/ת להרצאה סמינריונית של הפקולטה להנדסת מכונות שתתקיים ביום ה' 17.06.21 (ז')

בתמוז, תשפ"א), בשעה 13:00 באמצעות הזום :

<https://technion.zoom.us/j/6054751466>

מרצה : רן אשל

מנחה : פרופ' מורן ברקוביץ'

על הנושא :

Fabrication of diffractive optical elements by programmable thermocapillary shaping of thin liquid films

The seminar will be given in English

תקציר ההרצאה :

We present a novel method for deforming thin liquid-films into desired topographies, driven by a photo actuated thermocapillary effect. Our system consists of a thin liquid film, resting on a flat substrate patterned with an array of metal pads, and a DMD-based illumination system that projects light onto the metal array. Upon projecting a desired pattern, light absorbed by the array is converted to a heat pattern on the bottom surface. This heat pattern induces surface tension gradients at the liquid-air interface, which deform the free surface. By using this effect, we can achieve complex structures with deformations as large as 10 μm over cm-scale actuation regions. The deformed liquid can be dynamically modulated from one configuration to another or be polymerized to yield extremely smooth solid structures. We show the use of this method to fabricate practical optical elements, and demonstrate their use. We believe that this method opens the door to generating complex structures that can be leveraged to rapidly create phase masks and other freeform optical components.

בברכה,

פרופ' רן אשל

מרכז הסמינרים