

הנדך מוזמנות להרצאה סמינריונית של הפקולטה להנדסת מכונות במסגרת הדוקטורט, שתתקיים  
ביום די 3.07.2019 (לי בסיון, תשע"ט), בניין דן קאהן, חדר 217, 13:30

נדיה אוסטרומחוב : מרצה

פרופ'ח מורן ברקוביץ : מנחה

די"ר גובינד קייגלה, IBM : מנחה שותף

על הנושא:

## Microscale flow confinement on surfaces using pressure- and electric- actuation

The seminar will be given in English

תקציר ההרצאה :

Highly localized interaction of liquid with interfaces such as additive patterning, molecule extraction, stimulation, or reaction is required in a wide range of applications including biology, chemistry, medicine, biotechnology, optics, microfabrication, electronics and materials science.

The microfluidic probe (MFP) is a scanning probe technology which allows confinement of liquids at the tip of a microfluidic chip brought in close proximity (~order 10  $\mu\text{m}$ ) from surfaces of interest.

In the first part of my talk I will present novel methods for rapid switching of processing liquids on the MFP, enabling sequential delivery of reagents to a reaction site with minimal dispersion of their interfaces. Such rapid switching allows to perform highly automated multi-step assays on surfaces, and I will demonstrate the applicability of the method for analysis of genetic mutations in cells through fluorescence in situ hybridization (FISH).

In the second part of my talk I will present theoretical analysis and experimental demonstration of a new concept for a non-contact scanning probe, in which transport of fluid and molecules is entirely driven by electric fields. I will present the physical mechanism and design criteria for such probe, and demonstrate its compatibility with a wide range of processing solutions and pH values, as well as its unique capabilities for localized heating and sample focusing.

בברכה,

ד"ר ניר אהרן

מרכז הסמינרים