

הנדך מוזמן/ת להרצאה סמינריונית של הפקולטה להנדסת מכונות, שתתקיים ביום ב' 5.11.2018 (כז' בחשוון, תשע"ט), בניין דן קאהן, אודיטוריום 1, 14:30.

**מרצה:** פדריקו פרטורה

**מנחה:** פרופ' ח מורן ברקוביץ

**על הנושא:**

## Microscale Flow Patterning by Dynamic Modulation of Surface Charge

The seminar will be given in English

**תקציר ההרצאה:**

A wide range of scientific and technological advancements rely on mechanisms of fluidic transport for their operation. At the microscale, this is typically achieved using microfluidic devices that can broadly be divided between to continuous phase devices and discrete phase (droplets) devices. While a large number of mechanisms are available for precise control of droplets, microscale control of continuous phases remains a substantial challenge.

In this talk, I will present a method that allows establishing desired flow patterns in a microfluidic chamber, solely by controlling the surface charge distribution, without the use of physical walls. Using chemical deposition of weak polyelectrolytes and/or an array of embedded electrodes, we locally pattern the chamber walls, thus dictating a spatial distribution of surface charge. This translates to a non-uniform electric double layer, which upon interaction with an external electric field applied along the chamber, generates non-uniform electroosmotic flow, giving rise to desired pre-defined flows. I will present our latest experimental results, demonstrating the creation of such flow patterns, and illustrate their use for the modulation of flow streams, for mixing, and for separation of chemical species.

בברכה,

פרופ' ח מורן  
מרכז הסמינרים