

הנדך מוזמנת להרצאה סמינריונית של הפקולטה להנדסת מכונות, שתתקיים ביום ה' 5.07.2018 (כב' בתמוז, תשע"ח), בניין דן קאהן, אודיטוריום 1, 13:30.

מרצה: טלי רוזנפלד

מנחה: פרופ' ח מורן ברקוביץ'

על הנושא:

Electrokinetics on paper-based microfluidic devices: development of low-cost and highly sensitive biomolecular diagnostics

The seminar will be given in English

תקציר ההרצאה:

Microfluidic paper-based analytical devices have gained significant attention in recent years due to their potential as a low-cost, durable, and simple to use diagnostic platform. The most common use of paper-based tests to date is in lateral flow tests, such as home pregnancy tests and malaria detection. However, despite well identified biomarkers, many diagnostic needs cannot be met by the current sensitivity of such tests.

Isotachopheresis (ITP) is an electrophoretic technique capable of focusing sample ions of interest at a sharp electric field gradient formed between a high electrophoretic mobility leading electrolyte (LE), and a low electrophoretic mobility trailing electrolyte (TE).

In this seminar I will present the development of several novel engineering concepts aimed at significantly increasing the utility of such tests by coupling them with electrokinetic transport. In particular, I will present the implementation of isotachopheresis focusing on paper-based device and its integration into a hand-held device. I will then discuss the optimization of an amplification-free assay for detection of DNA on small (7-mm) channels, enabling a 5 pM limit of detection, multiplexing, and operation at low voltages. Finally, I will present the use of electroosmotic flow for controlling capillary filling on paper, providing lateral flow strips with an additional functionality for accurate time-controlled delivery of samples.

בברכה,

פרופ' ח מורן
מרכז הסמינרים