

סמינר - SEMINAR

הנדך מוזמן/ת להרצאה סמינריונית של הפקולטה להנדסת מכונות, שתתקיים ביום ב' 12.06.2017 (יח' בסיון, תשע"ז), בבניין ליידי-דייויס, חדר 641, 14:30.

ירצה:

Prof. Edward Bormashenko

Ariel University, Engineering Faculty, Chemical Engineering, Biotechnology and Materials

Department, P.O.B. 3, 40700, Ariel, Israel

על הנושא:

New Investigations of Marangoni-Flow-Driven Self-Propulsion

The seminar will be presented in English

להלן תקציר ההרצאה:

Marangoni-flow driven self-propulsion of various objects, including liquid marbles, superoleophobic micro-boats and plastic tubing was studied experimentally and theoretically. The self-propelled, longstanding rotation of the polymer tubing containing camphor continuing for dozens of hours is reported. The rotator is driven by the solutocapillary Marangoni flows owing to the dissolution of the camphor. The phenomenological model of the self-propelling is suggested and verified. Scaling laws describing the self-propelling are proposed and tested experimentally. The change in the surface tension, arising from the dissolution of camphor, driving the rotator is estimated as 1-3 mN/m.

The self-propulsion of a heavy, superoleophobic, metallic boat carrying a droplet of aqueous ethanol solution as a fuel tank is reported. Maximal velocities of the self-propulsion were registered as high as 0.1 m/s. The thermal field formed under the self-propulsion was studied. Both soluto- and thermo-capillary Marangoni flows promote the self-propulsion. The mechanism of the self-locomotion is discussed. The phenomenological model of the process is introduced.

בברכה,

המארח : פרופ' אולג גנדלמן

פרופ' א. שואף אוסובסקי
מרכז הסמינרים