SEMINAR - סמינר

הנך מוזמן/ת להרצאה סמינריונית של הפקולטה להנדסת מכונות, שתתקיים ביום ב׳ 18.11.2019 (כ׳ בחשון תש״פ), בניין דן קאהן, אודיטוריום 1, 14:30.

מרצה:

Tomer Markovich, PhD

Postdoctoral Research Associate, CTBP, Rice University, Fred MacKintosh group
Blavatnik Postdoctoral Fellow, DAMTP, University of Cambridge, Michael Cates group

על הנושא:

Active Matter: 'active thermodynamics' and the dynamics of biopolymer gels

The seminar will be given in English

להלן תקציר ההרצאה:

Active materials are composed of many components that can convert energy from its environment (usually in the form of chemical energy) into directed mechanical motion. Time reversal symmetry is thus locally broken, leading to a variety of novel phenomena such as motility induced phase separation, reversal of the Ostwald process and flocking. Examples of active matter are abundant and range from living matter such as bacteria, actomyosin networks and bird flocks to Janus particles, colloidal rollers and macroscale driven chiral rods. Nevertheless, in many cases experiments on active materials exhibit equilibrium like properties (e.g., sedimentation of bacteria). In the first part of the talk I will try to answer the important question: how do we know a system is `active'? And if it is, can we have generic observables as in equilibrium thermodynamics? Can we measure how far it is from equilibrium? In the second part of the talk I will focus on examples of activity in biopolymer gels, such as the cytoskeleton of living cells. I will show some of the effects of active motors with emphasis on chiral motors. The latter does not have a unique hydrodynamic description, which one can utilize to gain access to the microscopic details of the complex motors using macroscopic measurements. I will also discuss non-motor activity and demonstrate how it can result in contractility, e.g., in the process of cell division.

מארח : פרופ׳ אולג גנדלמן

בברכה,

פרופ"א מתי סאס
מרכז הסמינרים