

אוניברסיטת בן-גוריון בנגב  
Ben-Gurion University of the Negev



פרופ' אמיר שגיא - דיקן הפקולטה למדעי הטבע

מתנגד להזמיע להרצאת אורח בימת הדיקן

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## Non-equilibrium mechanics of cells and cell models

Mechanical processes, such as cell division and growth or cell locomotion, are essential in cell life and are driven and controlled by the cytoskeleton. The polymeric components of the cytoskeleton are semiflexible polymers. The activity of motor proteins drives living cells out of equilibrium.

We study mechanical properties and collective dynamics of cells and of in vitro model systems with microrheology techniques. We use micron-sized probe particles, embedded in the medium to be studied, and laser optical traps to confine the particles, combined with laser interferometry to detect either their Brownian motion or the particles' response to a driving force with sub-nm accuracy and bandwidths up to 100 kHz. We have applied this technology to non-equilibrium systems and have measured, at the same time, the elastic properties and the fluctuations and forces generated by myosin motor proteins interacting with a cross-linked actin network. We have also applied the same type of approach to a mechanosensitive bone cell, MLO-Y4, and have monitored cellular forces transmitted to externally attached probe particles.

יום ה', כ' בשבט, תשי"ע

04 בפברואר 2010, שעה 15:00

אודישוריום מדעי החיים (בניין 38 חדר 010)

לפני ההרצאה יוגש כיבוד קל