

סמינריון

הנך מוזמן/ת להרצאה סמינריונית של הפקולטה להנדסת מכונות, שתתקיים ביום ד' 21.01.15 (א' בשבט, תשע"ה), בבניין דן-קאהן, קומה 0, באודיטוריום 1 בשעה 13:30.

ירצה : שמרית כץ

מנחה : פרופ"מ ספי גבלי

על הנושא:

The spatial organization of a two-component lipid bilayer with imposed geometry

להלן תקציר ההרצאה:

The lipid membrane is a dynamic structure in the sense that it can acquire a variety of shapes and compositions, thus defining the characteristic morphology of the cell surface and of intracellular organelles. Phase separation of membrane components such as proteins, lipids, and cholesterol, i.e., the formation of aggregates on cell membrane, is also an important process that determines cell behavior. Membranes formed from multiple lipid components can laterally separate into coexisting liquid phases, or domains, with distinct compositions. It has been found experimentally, that the two aforementioned phenomena may be closely related in living cells. There, the membrane deforms by protrusions, and this deformed region possesses a significantly different composition compared to flat regions.

In this study we develop a mathematical model that enables a systematic understanding of the phase-behavior of a membrane, composed of two lipid phases with different mechanical properties, subjected to an imposed curvature pattern. We compare our results with the experiments of Parthasarathy et-al published in 2006. There, microfabricated surfaces were used to impose specific curvature patterns onto lipid membranes. Our results agree well with experimental observations, and also motivate new experiments aiming at quantitative insights regarding the mechanism dominating the coupling between shape and composition in lipid membranes. .

בברכה,

פרופ' / מ אמיר אט

מרכז הסמינרים