

סמינר - SEMINAR

הנך מוזמנת/ת להרצאה סמינריונית של הפקולטה להנדסת מכונות, שתתקיים ביום ב' 20.11.17 (ב' בכסלו, תשע"ח), בבניין דן קאהן, אודיטוריום 1, 14:30.

ירצה:

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על הנושא:

Nonlinear dynamics of carbon nanotubes (CNTs)

להלן תקציר ההרצאה:

The results of analytical and numerical study of the resonant interaction of the CNTs nonlinear normal modes (NNMs) are presented. It is shown that in spite of extraordinary mathematical complexity of the problem it can be reasonably simplified to provide an efficient solution with using the multiple scale asymptotic expansions. Five significant consequences of intermodal resonance are discussed: 1) modal instability with formation of additional NNMs and separatrix which encircles them; 2) formation of weakly interacting *coherence domains*; 3) intensive inter-domain energy exchange which is described by limiting phase trajectories (LPTs); 4) possible LPT-instability with transition from intensive energy exchange to nonstationary energy localization in the initially excited *coherence domain*; 5) transition from the localized excitation in the finite system to a breather in the continuum infinite model.

The first of considered resonances which is caused by the specific frequency crowding relates to the circumferential flexure branch corresponding to the most low-frequency optical-type vibrations with gap frequency about 20 inverse cm. The second resonance relates to high-frequency radial breathing modes which demonstrate a qualitatively different behavior. At last, the most complicated case of inter-branch resonance is discussed.

המארח: פרופ' גדנדלמן אולג

בברכה,

ד"ר איתן סאס

מרכז הסמינרים