Technion-Israel Institute of Technology
Faculty of Mechanical Engineering

הטכניון-מכון טכנולוגי לישראל
הפקולטה להנדסת מכונות

סמינריון

הנך מוזמן/ת להרצאה סמינריונית של הפקולטה להנדסת מכונות, שתתקיים ביום ה׳ 1.08.2019
(כ״ט בתמוז, תשע״ט), בניין דן קאהן, אודיטוריום 1, 13:45

מרצה: נאור צמח

מנחה: פרופ׳ אולג גנדלמן

על הנושא:

Accelerating oscillatory fronts in a chain with nonlocal interactions: effect of linear spectrum

The seminar will be given in English

תקציר ההרצאה :

The behavior of a Accelerating oscillatory fronts are encountered in forced sonic vacuum with non-local interactions. Such behavior appears in simple model dynamical systems, was explored by considering such as a chain of particles oscillating in the plane and coupled by linear springs with fixed ends. Continuous counterpart of the latter system – elastic string with fixed ends without pre-tension.

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This behavior is affected by the mass density, Young's modulus and the length of the beam. In addition, the denoted area and the moment of inertia of the beam cross section has effect on that behavior. The work will be devoted to exploration of effect of small linear perturbations (like small pre-tension or nonzero bending elasticity) on the propagation of the oscillatory fronts in the sonic vacuum. This Preliminary work studies demonstrates that such perturbations have profound effect on propagation of the oscillatory fronts. We derived the asymptotic relationship that describes the front propagation, with a crossover from acceleration to constant velocity. It was demonstrated numerically that small local perturbations of the bending and elasticity coefficients don't affect the front propagation.

In addition to the propagating oscillatory fronts, we revealed the localized states without profound front propagation, and without clear separation between longitudinal and transversal motion.

בברכה,

פרופ"א מתי סאס
מרכז הסמינרים