סמינריון

הנך מוזמן/ת להרצאה סמינריונית של הפקולטה להנדסת מכונות שתתקיים ביום ד׳ 07.04.21
(כ״ה, ניסן, תשפ״א), בשעה 13:30 באמצעות הזום: https://technion.zoom.us/j/92573932181

מרצה: עלאא בדר

מנחה: פרופ׳ אולג גנדלמן

על הנושא:

Supratransport in a vibro-impact oscillatory chain

The seminar will be given in Hebrew

תקציר ההרצאה :

Energy delocalization in the attenuation zones of nonlinear oscillatory dynamical systems has been a matter of interest in the engineering fields. Initiation and propagation of discrete breathers (DB) is commonly perceived as the most efficient and ubiquitous delocalization mechanism. However, it turns out that this mechanism is not unique.

In this research we considered a boundary-forced vibro-impact chain and studied the energy delocalization in the attenuation zone, referred to as supratransport/ supratransmission. The delocalization reveals itself as a result of bifurcation (or series of bifurcations) of the localized edge state in the forced chain. Stability of this periodic solution (in an approximation of semi-infinite chain) can be conveniently studied, since the monodromy matrix in this rare occasion is formulated explicitly. The delocalization occurs, since certain harmonics of the bifurcated solution enter the propagation zone. Thus, the supratransport in the vibro-impact model has nothing to do with breather propagation, since only one or few edge particles are involved in the impacts, and the rest of the system behaves linearly. Analytic results are supported by direct numeric simulations of the system response.

בברכה,

פרופ״ח אתי סאס
מרכז הסמינרים