

סמינריון

הנדך מוזמן/ת להרצאה סמינריונית של הפקולטה להנדסת מכונות שתתקיים ביום ה' 2.01.2020
(ה' בטבת, תש"פ), בניין דן קאהן, אודיטוריום 1, 13:45.

מרצה: רון זיו

מנחה: פרופ"מ גל שמואל

על הנושא:

Solitary waves and shocks in soft materials

גלים סוליטריים וגלי הלם בחומרים רכים

The seminar will be given in Hebrew

תקציר ההרצאה:

Highly deformable materials with architected microstructure exhibit geometrical and constitutive nonlinearities that give rise to fascinating physics, and specifically unique wave phenomena. Waves in nonlinear solids have recently regained scientific and technological interest, owing to the realization that their features can be harnessed for various applications, such as signal transmission, impact mitigation, energy harvesting and mechanical diodes.

In this talk, I will first focus on finitely deformed materials subjected to combined transverse and axial impacts, and study the resultant nonlinear waves. We employ the Gent constitute models and find that it captures shear shocks and tensile induced shocks, in agreement with experimental results on soft materials.

In the second part, I will apply a numerical method we developed to study waves in soft laminates, which yields the first report of vector solitary waves in a continuum medium. This finding implies that various applications harnessing the unique properties of elastic solitary waves may be implemented with continuum media, and particularly soft laminates.

בברכה,

ד"ר איתי סאס

מרכז הסמינרים