

סמינר - SEMINAR

הנדך מוזמן/ת להרצאה סמינריונית של הפקולטה להנדסת מכונות, שתתקיים ביום ד' 22.01.2020 (כ"ה בטבת תש"פ), בניין דן קאהן, אודיטוריום 1, 13:30.

מרצה:

Assist. Prof. Gal Shmuel
Faculty of Mechanical Engineering
Technion

על הנושא:

Elastodynamic metamaterials

The seminar will be given in English

להלן תקציר ההרצאה:

Current technology enables the production of composites with tailored microstructure at the nanoscale. The nature of the constituents has also changed, with the development of *active materials* which significantly deform in response to non-mechanical stimuli, and *resilient soft materials* capable of undergoing large strains. When these artificial composites exhibit properties not found in nature, they are termed *metamaterials*.

In this talk, I will first overview how my group contributed to understanding the mechanics of these media, paving the way for materials with enhanced properties and functionalities. Then, I will focus on our recent report of anomalous wave phenomena in elastic composites. Specifically, by revising the problem of in-plane waves in periodic laminates, I will demonstrate that waves impinging on such media may anomalously refract negatively—a phenomenon that can be harnessed for cloaking. I will show that the negative refraction is the hallmark of *exceptional points* in the frequency spectrum, at which two waves coalesce. I will conclude the talk with a glance at our future plans for harnessing counterintuitive phenomena that emerge from exceptional points towards novel applications.

בברכה,

פּוֹלֵם אֶתִי סאָס
מרכז הסמינרים