

הנדך מוזמן/ת להרצאה סמינריונית של הפקולטה להנדסת מכונות שתתקיים ביום ה' 13.12.2018
(ה' בטבת, תשע"ט), בניין דן קאהן, אודיטוריום 1, 13:30.

מרצה: נועה שבן

מנחה: פרופ' אולג גנדלמן

על הנושא:

Non-reciprocity in waveguides with essentially nonlinear coupling

The seminar will be given in Hebrew

תקציר ההרצאה:

We suggest a new design of a nonlinear acoustic diode. A unique feature of this design is that minimal distortion of the harmonic content of the transmitted wave occurs, in contrast to current designs where nonlinear non-reciprocity is achieved at the expense of rather strong distortion of the transmitted signals. The proposed system consists of two non-dispersive waveguides with two different grounded end masses, coupled by essentially nonlinear spring. In that way, the design is both asymmetric and nonlinear. We derive approximate analytical solutions for simple case of harmonic wave transmission and reveal strong non-reciprocity in terms of efficiency of energy transmission in opposite directions. Stability properties of the observed solutions in the space of parameters are also explored. We show that, for appropriate selection of the parameters the proposed system acts as the acoustical diode, allowing the transmission of acoustic waves in one direction and strongly suppressing the reverse transmission.

בברכה,

ד"ר איתי סאס

מרכז הסמינרים