סמינריון

הנך מוזמן/ת להרצאה סמינריונית של הפקולטה להנדסת מכונות שתתקיים ביום ה' 20.08.2020 (ל' באב, תש"פ), בשעה 13:30 באמצעות הזום :

https://technion.zoom.us/j/96457019356

מרצה: עומר מוסקוביץ

מנחה: פרופ' אולג גנדלמן

על הנושא:

Resonance and Energy Transfer in Forced Vibro-Impact Systems with Compliance

The seminar will be given in Hebrew

תקציר ההרצאה :

The work treats a non-stationary dynamics of vibro-impact oscillator with linear compliance; the forcing is assumed to be single-harmonic. The account of compliance aims to overcome the inaccuracies in the description of the impact dynamics, caused by use of traditional Newton impact model. The model with compliance is more realistic, since it substitutes the instantaneous Newtonian impact by elastic interaction with the impact barrier. As a result, one deals finite deformations and finite interaction forces. From the other side, relatively simple mathematical description of the Newtonian impact should be substituted by more involved methods.

The analytic treatment is based on well-known approximation of isolated resonance. To this end, appropriate set of action-angle (AA) variables is formulated for the single-DOF conservative vibro-impact oscillator with linear compliance. At the next stage, the dynamics of forced system is considered under assumption of primary 1:1 resonance, most common in applications. The approximation of isolated resonance reduces the dynamics to planar resonance manifold (RM) with foliation induced by global invariant derived for 1:1 isolated resonance flow. This foliation allows appropriate presentation of the modulated and transient responses, and their bifurcations. The results are verified versus direct numeric simulations.

בברכה,

פרופ"א מתי סאס

מרכז הסמינרים