MECHANICAL ENGINEERING STUDENT SEMINAR

Thursday, January 12 2023 at 13:30, D. Dan and Betty Kahn Building, Auditorium 1.

2D Intermodal targeted energy transfer in MDOF oscillator

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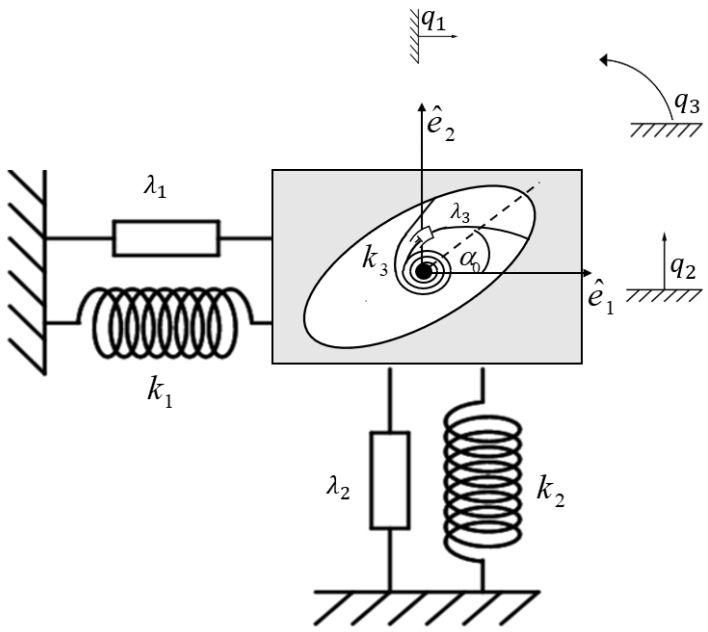
Resistance of structures to external loads, such as harmonical forcing or blasts has been a challenging problem for engineers for a long time. One of the most substantial problems within this area is to mitigate the excitation at the first few cycles of the oscillations for shock excitations, and to decrease the amplitude of resonant structures. In this research, we consider a non-resonant mechanism for redistribution of the excitation energy among the oscillatory modes for various excitation patterns. This mechanism is referred to as intermodal targeted energy transfer (IMTET). By generating interactions between the eigen-modes of linear system, the settling time in case of external shock or the amplitude in case of harmonical forcing can be decreased drastically. In this research the IMTET phenomenon is extended for multi-dimensional structures. As a particular example, we demonstrate the ability of IMTET to mitigate the 2D rigid body oscillations.



Note: the seminar will be given in Hebrew

Seminars Coordinator: Assoc. Prof. Matthew Suss.