



The aim of this thesis is to investigate nullifying generalized basic Eigenmodes on a two Degrees Of Freedom (2 DOF) torsional oscillating device by means of the Principle of Least Action of Classical Mechanics.

The Eigenmodes shall be generated by harmonic and non harmonic excitation of the device, the amplitudes of its Eigenforms shall be measured and special nullifying effects on its kinetic behavior near the resonance shall be investigated by connection of a third DOF consisting of a tuned spring-mass oscillator.

The following tasks shall be performed:

1. Connection and tuning of the nullifying spring-mass system to generate nullifying effects near the resonance point
2. Investigation of harmonic energy magnifying effects of the tuned oscillator near the resonance point

The investigation is related to the dynamics of ship propulsion shafting systems, especially the behavior of the crankshaft Eigenmodes near resonances.



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