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Leges Motus*



Seminar über Fragen der Mechanik

zu folgendem Vortrag wird herzlich eingeladen

Montag, **27.04.2015, 14:00 Uhr**, Wetterkreuz 15, Raum 0.267

Dynamics of nonlinear dissipative systems in the vicinity of resonance

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The behavior of nonlinear dissipative 2-DOF mechanical systems in the vicinity of resonance is investigated. Namely, the free vibrations of a spring-mass-pendulum system in the vicinity of internal resonance and the forced vibrations of a 2-DOF dissipative system containing a nonlinear absorber, in the vicinities of external resonances and simultaneous external and internal resonances are considered. A reduced system stated with respect to the system energy, the arctangent of the vibration amplitudes ratio, and the phase difference, is obtained and analyzed. The nonlinear normal mode approach is used in this analysis. Vibration modes stability is investigated. Conditions for bifurcations appearance are obtained. Conditions for vibration energy localization are discussed. New so-called transient nonlinear normal modes are revealed in the resonance vicinity.

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