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Mechanical Resonance. Free and forced SHM of a torsional pendulum

By Laura Imperatori

Grin Verlag Gmbh Feb 2014, 2014. Taschenbuch. Book Condition: Neu. 210x148x1 mm. This item is printed on demand - Print on Demand Titel. Neuware - Scholarly Essay from the year 2012 in the subject Physics - Mechanics, , language: English, abstract: In order to test SHM, the behaviour changes of a torsion pendulum due to different damping factors as well as its changes due to applying an external exciter were observed and compared with the theoretical expectations. The quality factor of the same damping state (with a brake current of 6A in the eddy brakes) was calculated using two different approaches and the resulting values were found to be within o of each one, as $Q_1 = 6.0 \pm 1.3$ and $Q_2 = 7.5 \pm 0.7$. The first approach was based on measuring the maximum displacement for each successive oscillation and deducing the slope from the plot of the natural logarithm of the amplitude against the number of oscillations. Differently, the second estimate of Q was obtained under forced oscillation conditions by taking the ratio of the experimentally determined resonance amplitude and the amplitude of natural oscillation. 16 pp. Englisch.



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