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#### PHYSICAL PENDULUM ON A VIBRATING BASE

Consider the work of analyzing the effects of vibration on the base behavior of a physical pendulum, as well as methods of investigation on its dynamic properties. Proposed a new method of research to find centers of forced oscillations of a physical pendulum with not small amplitudes of the vibration, the amplitudes of these oscillations and the natural frequencies relatively to the center found. Application of the method to study the behavior of the pendulum in different types of vibration of the suspension point is observed. The effectiveness of the method is tested by the computer simulation with numerical integration of the differential equation of the pendulum. Further research can be devoted to the study parametric oscillations of a physical pendulum.

**Keywords:** physical pendulum, the averaging method, the method of balance.