A Paradox without Paradox: Physical Laws Are Still Unshakable

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Abstract. A recent report claims that a new physical paradox has been discovered, "the essence of which is the possibility of increasing the amplitude of mechanical vibrations of an object without external influence" [1]. The article briefly explains why this phenomenon cannot be called a paradox, and why this new information does not overwhelm the foundations of traditional theoretical physics. This article is not a refutation of the terminology of a journalist article, it is a discussion on a scientific topic with people of science, since this publication refers to the opinion of the "Scientific Group led by corresponding member of the RAS Anton Krivtsov". Probably, journalists could introduce their own distortions into the original text, which, unfortunately, happens, however, the scientific publications of this collective are apparently read by a much smaller number of people than populist messages, so some brief comments are necessary not only to maintain the level of scientific discussions on This topic, but also to protect students from an opinion that is already becoming commonplace, consists in the fact that nothing can be known reliably in science, since any knowledge with its development is not only clarified, but also completely refuted. This article shows that, fortunately, this is not so.

Keywords: automation, feedbacks, cybernetics, dynamical system, stability, instability, resonance, oscillations, self-oscillations, damped oscillations, undamped oscillations, oscillatory instability

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The paper has been received on 06/07/2020.