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Deactivation of the gyroscope's inertial forces is the physical phenomena

An inertial gyroscope in engineering manifests remarkable property which nature is still not well described in classical mechanics. Researchers unsuccessfully try to explain this gyroscope peculiarity since the Industrial Revolution. The new study demonstrates that origin of the gyroscope properties is more complex than presented in known publications. The gyroscope effects are result of the action of the internal torques that generated by the centrifugal, common inertial and Coriolis forces of the rotating mass elements as well as changes the change in the angular momentum. These inertial forces produce eight inertial torques acting interdependently around two gyroscope axes. The action of inertial torques manifests the resistance torques based on centrifugal and Coriolis forces and precession torques based on common inertial force and the change in the angular momentum. These inertial torques represent the fundamental principles of gyroscope theory. The action of inertial forces demonstrates unexplainable properties validated by practical tests that contradict the principles of physics. Blocking of the motion around one axis for the gyroscope with one side support deactivates the resistance torques acting around other axis and the running gyroscope turns to dawn under the action of the gravity force only. At the same time, the precession torques are acting at the new condition. These phenomena of deactivation of the resistance torques and action of the precession torques are the demonstration with the high probability of the unknown property of inertial forces acting on the gyroscope. The physical origin of the deactivation of the inertial forces for the running gyroscope represents the new challenge for researchers and need deep investigation. The action of the inertial forces on any rotating objects is not described in publications and new research should cover this gap in the science of classical mechanics.

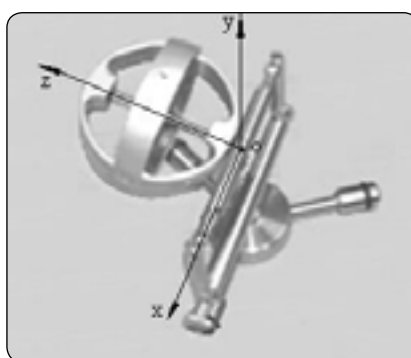


Figure 1: Gyroscope with one side support

Recent Publications

1. Usubamatov R (2016) A mathematical model for motions of gyroscope suspended from flexible cord. Cogent Engineering, 3(1):1245901.
2. Usubamatov R (2017) Mathematical models for gyroscope properties. Mathematics in Engineering, Science and Aerospace, 8(3):359-371.

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3. Usubamatov R (2018) Inertial forces acting on gyroscope. Journal of Mechanical Science and Technology. 32 (1):101-108..

Biography

Ryspek Usubamatov, Doctor Engineer graduated from Bauman Moscow State Technical University. Russia. He is a Professional Engineer in Mechanical, Manufacturing and Industrial Engineering, completed PhD in 1972 and Dr Tech Sc in 1993. He worked as an Engineer at a company and Lecturer in universities of Kyrgyzstan and Malaysia. He is a Professor of Razzakov Kyrgyz State Technical University. He has supervised around 100 Professional Engineer 15 MSc and 7 PhD students. His key research are productivity theory for industrial engineering, gyroscope theory and wind turbines represented by 7 books, 30 brochures and more than 300 manuscripts in reputed journals and 60 patents.

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