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Physics of a spinning object cyclic inversion at an orbital flight**Ryspek Usubamatov***Kyrgyz State Technical University, Kyrgyzstan*

Space flights discover unknown physical phenomena to humanity. One of them is a spinning object cyclic inversion revealed and classified on the MIR space station in 1985. Later, the NASA International Space Station discovered the same effect and showed it to the entire world. This phenomenon was starting studied by physicists and mathematicians. They developed only approximated and numerical models on the level of assumptions. The inversion of the spinning objects at the condition of free flight is the subject of gyroscope theory. The spinning object at the orbital flight generates the two systems of the kinetically interrelated inertial torques. The first system is the inertial torques of the spinning object generated by the set of the centrifugal, Coriolis forces and the change in the angular momentum that are kinetically interrelated about two axes. The second system is the inertial torques generated by the curvilinear motion of the object around the earth. The action of these two systems of the inertial torques on the spinning object manifests cyclic inversions maximally when its axle coincides with the line of flight. This phenomenon is the gyroscopic effects at the orbital flight. A weak cyclic inversion of a spinning object is expressed at the condition of the free fall. The theory of the gyroscopic effects describes the method of application of the system of the kinetically interrelated inertial torques, the physics of all gyroscopic effects, and mathematical models for the motions of any rotating objects at any condition of their functioning.

Biography

Ryspek Usubamatov graduated Mechanical and Manufacturing Engineering at Bauman Moscow State Technical University as a professional engineer in 1966 and received his Ph.D. in 1972. His postdoctoral research graduated with the degree of Dr. Tech. Sc. at the Kyrgyzstan Academy of Sciences. He has published over 400 research manuscripts in reputed journals, 8 books, and 61 patents of inventions. His fundamental works are Productivity Theory for Industrial Engineering and Theory of Gyroscopic Effects. Currently, he is a part-time Professor of Kyrgyz State Technical University, Kyrgyzstan. He is a member of several scientific societies and EBM of the seven journals.

ryspek0701@yahoo.com