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DOUBLE-CHANNEL SCHEME OF DYNAMICALLY TUNED GYRO

Dynamically tuned gyro (DTG) reached widespread occurrence as a quality sensors in different stabilization and orientation systems. The main advantage of DTG is resilient gimbal, which relieves device from dry-friction force moment. The main disadvantage is existence of cross-couplings which are cause an error in output channel.

Dual-channel DTG as a method of removing cross-couplings was invented by Odintsov [1]. This method gives an opportunity to get rid of spurious components. But analyzed motion equations are not full and DTG is in angle sensor mode.

In this article DTG was researched as angular sensor. The dual-channel scheme with the most full motion equations was used. Numerical schemes for single and dual schemes, real and ideal modes were created. As a result of performed researches and comparisons of different system's output signals we can see, that dual-channel scheme no mean declines (about two orders) the impact of cross-couplings.

Deduced positive results of research prove the appropriateness of usage dual-channel scheme in case when two or more DTGs are used. Further research would be direct for searching ways to use that advantage in nonorthogonal orientation sensitive axes block.

Keywords: dynamically tuned gyro, cross-connections, double-channel scheme.