A new signal processing method of ZPRA based on geomagnetic sensor

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Abstract: A new signal processing method is put forward in basis of geomagnetic sensor for High Rolling Velocity Guided Projectile (HRVGP), whose Zero Position of Rolling Angle (ZPRA) is unable to bind directly and whose real-time rolling angle can be recorded. Through reconstructing attitude transformation matrix, the mathematic model of computing method of ZPRA is established. Then it's used the model to compute and simulate the ZPRA in the foundation of triaxial geomagnetic information simulated by Matlab R2006b/Simulink, and it is validated by the pitching experimentation of the sample magnetic product. The results indicate that the computing method of ZPRA can be used in some type of guided projectile.

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