

ngle random walk (ARW) is a significant specification of FOG (Fiber Optic Gyro) and one of the critical error sources in INS(Inertial Navigation System).To recognize the effect of ARW on system accuracy thoroughly, propagation characteristics of navigation errors caused by ARW are investigated from the point of view of statistics. Analytical expressions for the standard deviation of navigation errors caused by ARW are developed by considering system errors owing to ARW as the output of the INS stimulated by incorrelate random pulse series. Computer simulation is made to validate the correctness of these expressions. The simulation result indicates that the theoretical expressions are used to describe propagation characteristics of navigation error caused by ARW well. The analytic expressions will help quantify to what extent ARW degrades the system accuracy over any time interval and for any one gyro. This is valuable to system performance evaluation, error analysis and design.

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### 光纤惯导角度随机游走误差传播特性研究

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### Study of Error Propagation Characteristics of FOG ARW in INS

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