

## 利用AR模型进行动态寻北中有色噪声的控制

作者：蒋庆仙, 王成宾, 马小辉, 白云超

单位：西安测绘研究所

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摘要：

采用旋转调制技术，研究了以动调陀螺为角速率传感器的全姿态寻北仪。为了控制有色噪声对动态寻北的影响，利用观测残差建立了有色噪声的AR模型，对有色噪声进行了拟合与预报，并利用改正后的观测信息、基于抗差估计原理构造了高崩溃污染率的初值辅以IGGIII方案迭代解算的混合算法。计算结果表明：采用AR模型对有色噪声进行拟合与预报，能够有效控制有色噪声的影响，并提高动态寻北的精度和可靠性。

关键词：寻北仪；旋转调制；抗差估计；有色噪声拟合；AR模型

## Control Methods on Colored Noise by Using AR Model in Dynamic North Seeking

**Author's Name:**

**Institution:**

**Abstract:**

An all-attitude north seeker adopting rotary modulation technology is researched, which employs dynamically tuned gyroscope as angular velocity sensor. In order to control influence of colored noises on dynamic north seeking, AR model of colored noise is established and model parameters are fitted as well as colored noises are predicted by using observation residuals. On the basis of robust estimation, a mixed iterative algorithm based on high breakdown point initial value and assisted by IGGIII scheme is constructed by using corrected observations. The calculations show that fitting and predicting colored noises by adopting AR model can effectively control influence of colored noises on dynamic north seeking. In turn, precision and reliability of dynamic north seeking are improved.

**Keywords:** north seeker; revolution-modulation; robust estimation; colored noise fitting; AR model

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