

## 一种新的MEMS系统噪声建模方法

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摘要:

提出了一种基于Matlab中Simulink工具箱的行为级仿真建模方法。通过提取微机械陀螺的机械结构参数以及外围电路的主要参数, 利用传感器的运动方程和系统的传递函数在Simulink平台上建立起MEMS陀螺系统的行为级仿真平台.并在该平台中加入了陀螺器件和电路部分的噪声源.同时对AD630解调电路进行了建模以及噪声性能测试, 分析了此种 开关型解调电路的优化应用条件.

关键词: MEMS陀螺; 噪声; 建模; AD630

## A New Modeling Method of MEMS System' s Noise

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**Abstract:**

This paper proposed a behavioral level simulation and modeling method based on Simulink within Matlab. MEMS gyroscope simulation system is built, using motion equations and transfer functions, by picking-up mechanical parameters of micromachined gyroscope and main parameters in external circuits. Noise of gyroscope and circuits are added in the simulation platform. Then, noise performance of AD630 demodulation circuit is simulated and tested; the optimized application of this circuit is analyzed.

**Keywords:** MEMS gyroscope; noise; modeling; AD630

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