

## 静电悬浮转子微陀螺信号发生电路有源带通滤波器设计

作者: 邵珺珺 陈文元 肖奇军 崔峰 张卫平

单位: 上海交通大学微纳科学技术研究院 薄膜与微细技术教育部重点实验室 微米/纳米加工技术国家级重点实验室,上海200240

基金项目:

摘要:

信号发生电路是静电悬浮转子微陀螺系统的重要组成部分。本文介绍了DDS信号发生电路的原理及基本构成和微陀螺信号电容检测的要求、特点以及主要技术指标,并根据具体带宽、中心频率的要求,设计了具有不同参数的有源滤波电路。通过电路模拟仿真实验表明了该电路的可行性之后,在具体实验的操作过程中,成功滤去了DDS信号发生电路产生的低频直流偏置和高频噪声,从而提高了电路的整体信噪比和控制精度,并为后续静电悬浮转子微陀螺检测控制电路提供了较为理想的信号源。

关键词: 微陀螺 静电悬浮 直接数字频率合成 有源带通滤波

## Design of the Active Band Pass Filter on the Signal Generator of the Electrostatically Suspended Micro Gyroscope

**Author's Name:** Shao Dangdang, Chen Wenyuan, Xiao Qijun, Cui Feng, Zhang Weiping

**Institution:** Research Institute of Micro/Nanometer Science and Technology, Shanghai Jiaotong University, Shanghai 200030, China

**Abstract:**

The signal generator is the important part of the electrostatically suspended micro gyroscope system. This article introduces the principle and the structure of the DDS signal generator circuit. According to the request of the detailed band pass and the central frequency, we design the active filter circuit with different parameters. Through the simulation of the circuit, it comes out that the function is realizable. In the actual test, we succeed to filter the direct current and the alternating current which generate from the circuit so that we raise the total Signal-to-Noise and control precision of the circuit and provide a good signal generator for the further circuit.

**Keywords:** micro gyroscope, electrostatic suspension, direct digital synthesis, active band pass filter

投稿时间: 2010-04-27

[查看pdf文件](#)