

## 双自由度双解耦陀螺的结构设计与仿真

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摘要:

设计了一种新颖的陀螺结构, 该结构采用双自由度设计增大检测带宽, 并缓解了品质因数对陀螺灵敏度的影响; 采用了双级解耦的结构设计, 减小了驱动模态频耦合干扰。文中对结构进行了电学模型建模, 并进行了相应的时域和频域分析。

关键词: MEMS; 微机械陀螺; 双自由度检测; 双级解耦

## Design and simulation of a 2-DOF and Doubly-Decoupled Micromachined Gyroscope

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**Abstract:**

A Novel micromachined gyroscope with 2-DOF for improving bandwidth and depressing the influence of quality factors on the system sensitivity is presented. The doubly decoupled mechanism is realized by utilizing independent folded beams, which reduces cross-coupling between the two modes. The time and frequency domain results are given based on the equivalent circuit model of the gyroscope, which validates the design.

**Keywords:** MEMS; gyroscope; 2-DOF; doubly-decoupled

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