

## 一种基于SVD和改进自适应算法的科氏流量计气体信号频率解算方法

作者：任建新, 边琦, 张鹏, 惠全民

单位：西北工业大学

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摘要：

频率解算是科氏流量计气体信号处理的首要任务。针对实际应用中气体信号信噪比低、频率波动大的特点，本文提出了一种基于SVD和改进自适应算法的科氏流量计气体信号频率解算方法。首先利用SVD对气体信号降噪并重构原信号，然后应用改进自适应算法处理重构信号，解算出频率。仿真及实验结果表明，本方法可以获得更快的收敛速度和更高的频率跟踪精度。

关键词：科氏流量计；气体信号；频率解算；奇异值分解；改进自适应算法

## Frequency measuring method based on SVD and improved ALE arithmetic for gas Coriolis flowmeter

**Author's Name:**

**Institution:**

**Abstract:**

Frequency calculation is the primary task of the gas coriolis flowmeter signal processing. According to the low signal noise ratio, frequency fluctuation of gas signal in the practical application, a new method based on the improved ALE frequency calculation is presented: first use the SVD to denoising and reconstructing the original signal of gas signal, and then applied the improved adaptive algorithm for signal reconstruction, calculate the frequency. The simulation and experimental results show that, this method can obtain a faster convergence speed and higher frequency tracking accuracy.

**Keywords:** Coriolis flowmeter; Gas signal; frequency calculation; singular value decomposition; Improved adaptive arithmetic

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