

论文

EMD分解区域的数据研究

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摘要:

本文介绍了一种新的非线性、非平稳信号的处理方法—HHT方法,并运用此方法对地震波进行了理论分析,详细研究了其中的EMD方法及其实现过程;通过大量的数据分析,总结了这一方法的优越性,指出其具有良好筛分及不可良好筛分的适用数值范围,并总结了其中蕴涵的规律。当组合简谐波的频率固定, A2/A1很小,超过某一限值时;或者A2/A1很大,超过某一限值时,数据值不能用EMD方法进行筛分。当组合简谐波的幅值比A2/A1固定不变,而频率变化时,当f2/f1很小时,如超过某一限值;或者f2很接近f1, f2/f1超过某一限值时,数据y值不能用EMD方法进行筛分。

关键词: 希尔伯特—黄变换; 经验模态分解; 本征模态函数; 筛分

Data discussion of the EMD method in the practice

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Abstract:

In this paper, a new nonlinear non steady method for signal treatment is introduced in detail, which is valid and predominant. It is used to analysed the seismic wave.The EMD method and its process are presented through a great amount of data study. A range of good-shift of data is given from a lot of data analysis and the rule is given. When the frequency of combined sine wave is constant, the value of A2/A1 is very small, and it is over a limit; or the value of A2/A1 is large, and it is over a limit, EMD method is not applicable. When amplitude ratio of sine wave A2/A1 is constant, but the frequency varies, if the value of f2/f1 is very small, and it is over a limit; or the value of f2 is very close to f1, and the ratio f2/f1 is over a limit, the value of y is not able to be shifted by EMD method.

Keywords: Hilbert-Huang transform Empirical Mode Decomposition Intrinsic mode function shift

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