

论文

高精度雷管逐孔起爆地震信号的精确时频分析

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摘要:

靠近煤炭筒仓建筑等的重要设施进行台阶爆破时, 必须严格控制爆破振动低频带上能量的大小。基于HHT(希尔伯特-黄变换)方法, 结合别斯库都克露天煤矿台阶爆破逐孔起爆方案, 研究爆破振动信号的时频及能量分布特征。结果表明: 研究建(构)筑物受爆破振动响应, 选用爆破振动信号水平分量更为合理; 分析爆破振动信号时频特征需结合爆破参数、场地等多因素; 高精度雷管逐孔起爆方案可以使爆破振动信号能量分布更均匀, 减少能量在10 Hz以下低频带上的分布。

关键词: 高精度雷管; 逐孔起爆; HHT; 爆破振动

Precise time-frequency analysis on seismic signal by hole initiation using high-precision detonators

Abstract:

Foundation excavation of deep hole controlled blasting around the blasting area close to the complex environment, must strictly control the size of the blasting vibration energy of low-frequency, to avoid the surrounding buildings(structures) to buildings and harm. Based on HHT method and combine with Biesikuduke opencast coal mine bench blasting by hole initiation, researching vibration signal time-frequency energy distribution characteristics. The results show that it is more reasonable that selecting horizontal component of blasting vibration signal when studying the response of buildings(structures) by blasting vibration; it to be combined with blasting parameters, the venue and other factors when analysing blasting vibration signal frequency characteristics; The program of high precision detonators by hole initiation makes the blasting vibration signal energy distribution more uniform and reduce the distribution of energy in the low frequency below 10 Hz.

Keywords: electronic detonators; precision delay; HHT; blasting vibration

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