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采场冒顶灾害的声发射预报技术①

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摘　要： 简要介绍了用于监测岩体稳定性的声发射源定位系统SDL- 1和便携式声发射智能监测仪DYF- 1，这些仪器能获取一个声发射事件所包含的尽量多的信息，基于这些信息开发了一种有效可靠的预测冒顶技术。该技术利用多个声发射参数(AE事件率、AE能量和-m值)评价声发射活动，在这些参数的监测数据基础上应用灰色系统理论预测将来的声发射，预测值通过训练好的冒顶模式识别，由于人工神经网络模型输出对应的冒顶模式(较大规模的顶板塌落、小规模掉块和稳定)。实例研究结果表明，该方法的预测结果与实际情形具有很好的一致性。

关键字： 冒顶模式 声发射 灰色理论 神经网络 预测预报

INTELLIGENT PREDICTION OF ROOF FALL BY AE TECHNIQUE

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Abstract: A mine-wide A coustic Emission(AE) Source Location System(SDL-1)and a Portable Intelligent AE M on it oring Device(DVF-1)were described . These instruments can acquire AE dat as much as those associated with an AE event . An effective and reliable technique to predict the occurrence of roof fall hazards has been devel-oped, based on the AE data measured. It has utilized several AE indicators(AE rate, AE energy and m value)to e-valuta the AE activity and applied grey system theory to the trained artifivial neural net work for adaptive roof fall modes recognition to automatically identify the roof fall modes(collapse, small blocks fall and stable).The case study showed that the result of forecase on the occurrence of roof fall modes has a good agreement with the practice.

Key words: roof fall mode acoustic emission grey theory neural network prediction