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论文

# 煤矿采掘过程中煤岩体电磁辐射特征及应用

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摘要： 运用研制的KBD5矿用本安型电磁辐射监测仪测试了煤矿采掘过程中工作面煤岩体的电磁辐射，分析了电磁信号与采掘工艺及煤岩动力灾害危险性等的关系。研究表明，煤矿采掘过程伴随产生电磁辐射，电磁辐射是煤岩体受到采动影响后应力重新分布或变形破裂趋向新平衡的结果；有煤与瓦斯突出和冲击地压危险时，有明显的电磁异常前兆；采取防治措施后，电磁辐射显著下降。电磁辐射技术在煤矿可以用于预测煤与瓦斯突出、冲击地压等煤岩动力灾害。

关键词： 煤矿采掘过程 电磁辐射异常 煤与瓦斯突出 冲击地压

## Electromagnetic radiation characteristics of coal and rocks during excavation in coal mine and their application

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Abstract: Electromagnetic radiation(EMR) signals produced by coal and rocks in working faces during excavation in coal mine were measured with the KBD5 electromagnetic radiation monitoring equipment.We analyze the relationships between electromagnetic

radiation signals and excavtion,dynamic disaster fatalness of coal and rocks.Our research shows that the electromagnetic radiation is produced in the course of excavation,which is the result of the stress redistribution or deformation and fracture of coal and rocks tending to a new balance when affected by excavation.There is obvious electromagnetic anomaly precursor when there is danger of coal and gas outburst or rock burst,and electromagnetic radiation intensity drops notably after taking measures.The electromagnetic radiation technology can be used for forecasting