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工程与应用

智能算法在金属矿山品位动态优化中的应用

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摘要 对遗传算法、神经网络和模糊逻辑等智能算法进行深入研究并将其应用于复杂的矿山生产系统中，解决放矿截止品位和入选品位的优化问题。首先应用神经网络建立以品位指标为自变量的多目标优化函数模型，再对其进行模糊综合评判，将得到的模糊隶属度函数作为遗传算法的适应度函数，全局搜索出使适应度函数最大即最优的品位指标组合，实现截止品位和入选品位的动态优化，为矿山企业放矿生产提供决策。

关键词 截止品位 入选品位 遗传算法 神经网络 模糊评判

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Application of intelligent algorithm in dynamic optimization of metal mine grades

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Abstract

An in-depth study on genetic algorithms such as genetic algorithm，neural networks and fuzzy logic is carried through and applied to the complex mine production system to resolve the optimization of cut-off grade and beneficiation feed grade.Firstly，it uses neural networks to establish the multi-objective optimization function with grades index as independent variable，then the fuzzy integrated evaluation is processed and takes its fuzzy membership function for a fitness function of genetic algorithm so that search out the optimal grade combinations globally to get fitness function the most value，accordingly realize the dynamic optimization of both grades and provide decision-making for ore production.

Key words cut-off grade beneficiation feed grade genetic algorithm neural network fuzzy evaluation

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