



沪昆线与金温线轨道不平顺谱的分析

Analysis of Track Irregularity Spectrum of Shanghai-Kunming and Ji

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英文关键词: [railway track](#) [irregularity](#) [PSD analysis](#) [coherence analysis](#)

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中文摘要

首先比较了国内轨道不平顺统计谱与国外轨道标准谱的差异。根据沪昆和金温两条线路的轨道不平顺检测数据,利用Matlab功率谱要明显好于美国六级铁路的不平顺谱,而金温线轨道谱接近于美国五级铁路的不平顺谱。利用相干函数对轨道不平顺与车体的垂功率谱分析,归纳出轨道不平顺不利波长的范围,为轨道的养护维修和管理提供了理论和实践指导。然后再对各项轨道不平顺谱值有很好的相关性,从而验证了用功率谱评价轨道质量的可靠性。最后建议将轨道不平顺功率谱作为控制提速线路轨道质量的主要指标

英文摘要

The difference between China railway track irregularity statistic spectrums and abroad railway track irregularity spectrum values are much smaller than the US class 5 railway's. The coherence functions are utilized to analyze the relationship between track irregularity spectrum values and car body vibration accelerations. Together with car body vibration acceleration spectrum analysis, the conclusion that the track irregularity spectrum values has been drawn, thus providing theoretical and practical guidance for track maintenance and management. The results show that each TQI has a close relationship with each track irregularity spectrum values. Finally, the track irregularity spectrum is suggested to be used as the main index to control the track geometry for speed-up railway.