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Fatigue Evaluation and Prognosis for Steel Bridges with Remote Acoustic Emission Monitoring

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Remote acoustic emission (AE) monitoring is desirable for fatigue damage evaluation and life prediction for in-service steel bridges. Understanding the mechanism of AE signals corresponding to the fracture events in the material of interest is the basis of AE monitoring applications. Conventional fatigue tests along with AE monitoring were performed for correlating AE signals with crack growth behavior. Signal identification approaches based on load pattern and waveform features were employed in data filtering and reduction procedures. AE parameters from the filtered dataset were associated with corresponding crack growth parameters for damage evaluation. It has been indicated that AE parameters can robustly identify fatigue damage level. The parameters in terms of signal energy are suitable for fatigue life prediction.

Ключевые слова:

Содержание.

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