

## Accepted Manuscript

Determination of dominant degradation mechanisms of RC bridge deck slabs under cyclic moving loads

Pengru Deng, Takashi Matsumoto

PII: S0142-1123(18)30125-7  
DOI: <https://doi.org/10.1016/j.ijfatigue.2018.03.033>  
Reference: JIJF 4634

To appear in: *International Journal of Fatigue*

Received Date: 9 January 2018  
Revised Date: 21 March 2018  
Accepted Date: 28 March 2018

Please cite this article as: Deng, P., Matsumoto, T., Determination of dominant degradation mechanisms of RC bridge deck slabs under cyclic moving loads, *International Journal of Fatigue* (2018), doi: <https://doi.org/10.1016/j.ijfatigue.2018.03.033>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



# Determination of dominant degradation mechanisms of RC bridge deck slabs under cyclic moving loads

Pengru Deng<sup>1</sup> and Takashi Matsumoto<sup>2</sup>

<sup>1</sup>Faculty of Engineering, Hokkaido University, Hokkaido 060-8628, Japan; Tel: +81-90-6213-5982;

Email: dengpengru1989@gmail.com

<sup>2</sup>Faculty of Engineering, Hokkaido University, Hokkaido 060-8628, Japan; Tel: +81-11-706-6171;

Email: takashim@eng.kokudai.ac.jp

## ABSTRACT

In this paper, fatigue behaviors of RC bridge deck slabs which fail in an unexpected but widely observed punching shear failure mode under cyclic moving loads is analyzed following a fracture mechanics based theoretical method. This method is developed focusing on the propagation and failure along the critical punching shear cracks. From analysis, some key indicators of structural fatigue performances, including the fatigue crack growth of critical punching shear crack, stress evolutions of all materials and sectional forces, moments and crack mouth opening displacements (CMODs) due to all components along the critical punching shear crack cross sections and fatigue life, are obtained. These information are then based on to identify the dominant degradation mechanisms of RC bridge deck slabs subjected to cyclic loads, which provides meaningful and reliable references for the development of an efficient and accurate numerical method.

## KEYWORDS

Download English Version:

<https://daneshyari.com/en/article/7171487>

Download Persian Version:

<https://daneshyari.com/article/7171487>

[Daneshyari.com](https://daneshyari.com)