Modal Identification and Damage Detection of Bridges by Moving Test Vehicles

Y. B. Yang[1] J. D. Yau[2] and Judy P. Yang[3]

[1] School of Civil Engineering, Chongqing University, Chongqing, China; email: ybyang@cqu.edu.cn
[2]Department of Architecture, Tamkang University, New Taipei City, Taiwan; email: jdyau@mail.tku.edu.tw
[3]Department of Civil Engineering, National Chiao Tung University, Hsinchu, Taiwan; email: jpyang@nctu.edu.tw

In 2004 Yang and co-workers proposed the idea of extracting bridge frequencies from the dynamic response of a moving test vehicle[1] and had the idea verified by a field test.[2] This technique was quickly extended to construction of mode shapes[3] and damage identification of bridges. It was referred to as the *indirect method* for bridge measurement, in that no vibration sensors need to be mounted on the bridge, but only one or few vibration sensors are required on the test vehicle. Compared with the conventional *direct method* that relies fully on the response of the bridge fitted with vibration sensors, the advantage of the indirect method is obvious: mobility, economy, and efficiency. Over the past years, a rapidly growing number of research has been conducted along the lines of the indirect method for bridge measurement, with significant advances made on various aspects of application.[4] Recently, the indirect method was renamed as the *vehicle scanning method for bridges*,[5] for its direct conveyance of the meanings implied. In this minisymposium, we shall invite all the experts to present their state-of-the-art research along the lines of the subject, and to exchange the ideas for enhancing the technique of indirect approach for modal identification and damage detection of bridges using the moving vehicles.

References

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