

Accepted Manuscript

A transfer matrix method capable of determining the exact solutions of a twisted Bernoulli-Euler beam with multiple edge cracks

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PII: S0307-904X(16)30483-8
DOI: [10.1016/j.apm.2016.09.013](https://doi.org/10.1016/j.apm.2016.09.013)
Reference: APM 11344



To appear in: *Applied Mathematical Modelling*

Received date: 7 January 2016
Revised date: 18 August 2016
Accepted date: 15 September 2016

Please cite this article as: Jung Woo Lee , Jung Youn Lee , A transfer matrix method capable of determining the exact solutions of a twisted Bernoulli-Euler beam with multiple edge cracks, *Applied Mathematical Modelling* (2016), doi: [10.1016/j.apm.2016.09.013](https://doi.org/10.1016/j.apm.2016.09.013)

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Highlights

- Transfer matrix method can compute exact eigenpairs of a twisted beam with cracking.
- The method can produce an infinite number of eigenvalues using only two sub-elements.
- Effects of twisting on a cracked beam are examined for some twist angles.
- Effects of cracking for the in-plane and out-of-plane bending vibrations are both considered.
- Effects of cracking on twisted beams are analyzed through a parametric study of the size and location of cracking.

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