

Accepted Manuscript

A probabilistic model for track random irregularities in vehicle/track coupled dynamics

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PII: S0307-904X(17)30419-5
DOI: [10.1016/j.apm.2017.06.027](https://doi.org/10.1016/j.apm.2017.06.027)
Reference: APM 11831



To appear in: *Applied Mathematical Modelling*

Received date: 5 March 2017
Revised date: 12 June 2017
Accepted date: 21 June 2017

Please cite this article as: Lei Xu , Wanming Zhai , Jianmin Gao , A probabilistic model for track random irregularities in vehicle/track coupled dynamics, *Applied Mathematical Modelling* (2017), doi: [10.1016/j.apm.2017.06.027](https://doi.org/10.1016/j.apm.2017.06.027)

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Highlights

- Random field modeling and high efficient sample selection are developed against track random irregularities.
- Power spectral density and time-frequency transformation are used to characterize and simulate track irregularities.
- Vehicle-track interaction model and track irregularity probabilistic model are effectively coupled.
- Verifications from aspects of PDF, amplitude response and frequency are presented.

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