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PII: S0020-7403(15)00077-6

DOI: <http://dx.doi.org/10.1016/j.ijmecsci.2015.03.001>

Reference: MS2942

To appear in: *International Journal of Mechanical Sciences*

Received date: 4 October 2014

Revised date: 26 January 2015

Accepted date: 5 March 2015

Cite this article as: K. Vijayan, M.I. Friswell, H.H. Khodaparast, S. Adhikari, Non-linear energy harvesting from coupled impacting beams, *International Journal of Mechanical Sciences*, <http://dx.doi.org/10.1016/j.ijmecsci.2015.03.001>

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# Non-linear energy harvesting from coupled impacting beams

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## Highlights

- A coupled two beam system with non-linearity from impact and asymmetry is used to improve the energy harvested.
- The influence of different system parameters, such as contact stiffness, clearance and asymmetry on the energy harvested was identified.
- The power generated depends on the number of close modes within the bandwidth of excitation of the non-linear impact.
- The asymmetry of the close mode shapes and the frequency spacing alters the power generated.

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## Abstract

Energy harvesting has many potential applications for structures with broadband excitation, such as aircraft noise and low frequency vibrations from human motion. The advantage with a vibro-impacting system is the capability of converting low frequency response to high frequencies. A coupled beam system is base excited and the influence of different system parameters are studied. Exciting the system at a single resonant frequency highlights the influence of clearance and base excitation

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