

## Accepted Manuscript

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D. Breslavsky, O. Morachkovsky, I. Naumov, O. Ganilova

PII: S0020-7462(17)30603-0

DOI: <https://doi.org/10.1016/j.ijnonlinmec.2017.10.020>

Reference: NLM 2924

To appear in: *International Journal of Non-Linear Mechanics*

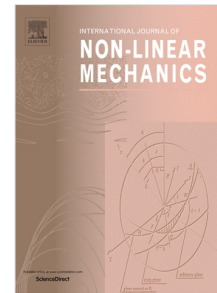
Received date: 23 August 2017

Revised date: 25 October 2017

Accepted date: 25 October 2017

Please cite this article as: D. Breslavsky, O. Morachkovsky, I. Naumov, O. Ganilova, Deformation and fracture of square plates under repetitive impact loading, *International Journal of Non-Linear Mechanics* (2017), <https://doi.org/10.1016/j.ijnonlinmec.2017.10.020>

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## Deformation and fracture of square plates under repetitive impact loading

**D. Breslavsky<sup>1</sup>, O. Morachkovsky<sup>2</sup>, I. Naumov<sup>1</sup> and O. Ganilova<sup>3</sup>**

<sup>1</sup>Department of Computer Modeling of Processes and Systems,  
National Technical University 'Kharkiv Politechnic Institute', Ukraine

<sup>2</sup>Department of Theoretical Mechanics,  
National Technical University 'Kharkiv Politechnic Institute', Ukraine

<sup>3</sup>Department of Mechanical and Aerospace Engineering, University of Strathclyde,  
UK

### **Corresponding author:**

Dmitry Breslavsky, Department of Computer Modeling of Processes and Systems,  
National Technical University 'Kharkiv Politechnic Institute', 2 Kyrpychova str.,  
61002, Kharkiv, Ukraine.

Tel: +380577076454, e-mail: brdm@kpi.kharkov.ua

### **Abstract**

The deformation and fracture of impact loaded thin steel square plates is studied experimentally and numerically. Impacts with low velocities (10-15 m/s) are calculated and an inductive machine (IM) is used as an impact loading device in a developed experimental unit. Impact tests are made for different velocities which correspond to the cases of elastic and elasto-plastic deformation, as well as to punching through the plate. Repetitive impact loading and resulting low cycle punching are both investigated. Experimental data are processed and the coefficients of the dynamic periodic flow equation are determined. A numerical simulation of the impact deformation of plates is performed and the results are compared with the experimental data. The proposed numerical-experimental

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