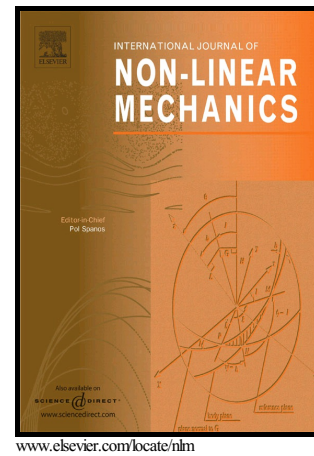


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Novel method for research on exposure to nonlinear vibration transferred by suspension of vehicle

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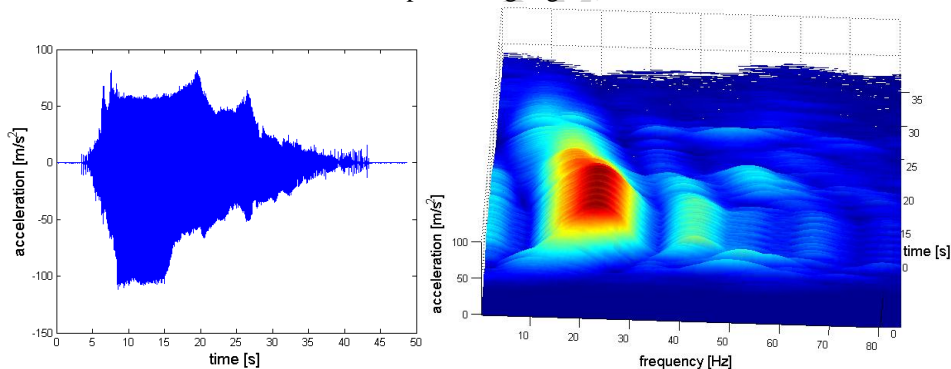
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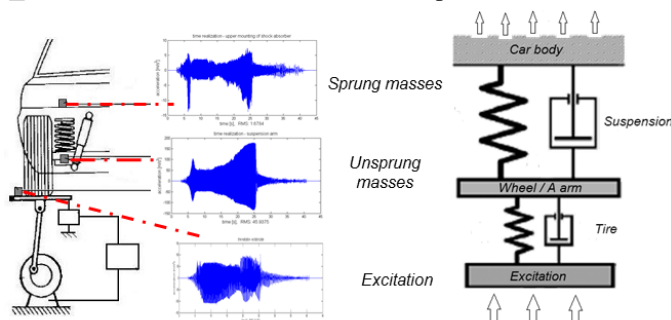
## Abstract

The paper presents novel method for research on exposure to nonlinear vibration of passenger car suspension as nonlinear dynamical system. Also paper provides a discussion on the results of studies addressing the impact exerted by damping properties of shock absorber on the vibrations being generated. The research was conducted on the car forced to vibration by the exciter machine with changeable frequency. The paper addresses results of analysis of application of one of the time-frequency representation techniques to the identification of structure of vibration. The obtained representation of the vibration allows determining time function of separate frequency bands, which represents the isolated vibration dynamics phenomena. Considering the variability of the time and frequency distribution of the vibration even in selected analyzed bands, the time function was developed as exposure to vibration estimator. The recommended method makes use of function of exposure to vibration. The advantage of these method is possibilities of precise analysis of chosen frequency bands. The investigations conducted confirm considerable susceptibility to changes in the technical condition of shock absorber with regard to the assessment of human exposure to vibrations.

## Graphical Highlights



## Vibration of the excitation platform



Scheme of the experimental research

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