

## Abstract

### Dynamics of Structures Bi-Modal Elements

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Bi-modal link is a nonlinear spring with multiple equilibria. The link may be reversible or damageable (irreversible). Structures of bi-modal links and masses model phase transition in solids, plasticity, tension they possess abnormally high resistance to dynamic impact. When impacted, the structure initiates waves that carry away the energy of the impact, transform low-frequency motion of an impact into high-frequency vibration, fairly distribute “partial damage” over the structure.

The paper outlines the study of dynamics and effective behavior of these structures, conducted in collaboration with Alexander Balk, Elena Cherkaev, Leonid Slepyan, Toshio Yoshikawa, and Liya Zhornitskaya.

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