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# Energy dissipation during wave propagation in bimodular media

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It is well known that the speed of elastic waves depends on the elasticity modulus, therefore in bimodular media the compressive and tensile waves run with different velocities. Due to this phenomenon, the parts of a one period sin excitation can either move away from each other or interact with each other depending on which part, compression or tension, was the first.
The case when the parts of the wave are moving away is trivial because each part can be analysed separately. On the other hand, the case when the compressive wave overtakes the tensile one interacting with it leads to a nonlinear solution characterised by the formation of a shock front which is accompanied by energy dissipation and wave front distortion.
In this study, we analyse a possible mechanism of energy dissipation during wave propagation in bimodular media in the absence of damping. A theoretical method of the evaluation of shock wave speed and energy dissipation is developed and compared with a numerical Godunov-type finite difference method.