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ELASTIC RESPONSE OF SIMPLE STRUCTURES TO PULSE
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The Griffith energy criterion, $dW = -dU$ (dW = crack propagation work, $-dU$ = released elastic energy), cannot be applied to essentially ductile fractures. In particular, it does not represent the condition of rapid ductile fracture propelled by the elastic energy of the specimen. The condition of such fractures is $d^2W/dx^2 = -d^2U/dx^2$, where x is the plastic extension accompanying the propagation of the crack.
(Author's abstract)

This paper deals with the elastic response of some simple structures subjected to a pulse loading. The structures considered are the mass on a spring, the simply supported beam, the cantilever, the circular membrane, and the clamped circular plate. The loading considered is that of a triangular pulse of pressure uniformly distributed over the area of the structural normal to the direction of motion. The pressure jumps to its peak value instantaneously and falls off linearly with increase in time, reaching