

Abstract Submitted
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Material Mechanisms and Dynamic Loading NEIL BOURNE, AWE

— Matter respond to dynamic impulses with a variety of mechanisms. Each has its own kinetics and threshold for operation triggered by the impulse applied. When a crystalline material is exposed to extremes of pressure such mechanisms include martensitic phase transformation, dislocation nucleation and propagation, twinning and potentially melting. The length of the applied impulse thus determines the regimes of applicability of a physical model constructed from such data. A parameter is introduced to describe this quantity and is applied to examples drawn from a variety of crystalline responses showing the suite of available mechanisms and the range of observables that result.

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