

Shock (Blast) Mitigation Using Heterogeneous "Soft" Condensed Matter

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"Soft" condensed matter (like porous, granular materials or foams) very often are considered for the reduction of the damage caused by impact or explosion. It is attributed to their ability to absorb significant energy. This is certainly the case for a quasistatic type of deformation at low velocity of impact where such materials are widely used for packing of fragile devices. At the same time a mitigation of blast phenomena must take into account shock wave properties of "soft" matter which exhibits highly nonlinear, highly heterogeneous and dissipative behavior which may result in enhanced effect of explosion on the "protected" objects. This presentation considers applications of heterogeneous "soft" condensed matter for blast mitigation using simplified approach, presents analysis of some anomalous effects and suggestions for future research in this exciting area.