Coupled simulation of gasdynamic and elastoplastic phenomena in a material under the action of an intensive energy flux

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A complex computer model for thermomechanical phenomena and a method of end-to-end modeling of processes occurring in a solid material under the action of an of intense energy flux have been developed [1]. The dynamics of nonlinear wave processes leading to internal fractures and spalling phenomena in material samples are discussed using the example of calculating the effect on a polymer material. These results can be used in studies of intensive energy flux actions in engineering practice, verify models of volumetric fractures and spallations in brittle solids, and validate wide-range equations of state.

[1] Boykov D S, Olkhovskaya O G and Gasilov V A 2021 *Mathematical Models and Computer Simulations* **33** 82–102