عنوان مقاله:

A new technique for determination of the constants of Zerilli-Armstrongmaterial model at high strain rates and elevated temperatures

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خلاصه مقاله:

Material models are widely used in finite element codes for analysis of material deformations particularly at high strain rates and elevated temperatures. The problems such as necking and bulging limit the conventional test techniques to measure the stress-strain curves only up to small strains. This is while, in some deformation processes, the strain can be greater than 1. In this work, steel shots of 6 mm in diameter are impacted on specimens at high impact velocities and at elevated temperatures using shot impact test. The geometry of the crater created by a shot impact on the specimen is used for determination of the constants of Zerilli-Armstrong material model. A combined experimental,numerical and optimization approach is used for determination of the constants. With this new technique, stress-strain curves are no longer needed to be obtained by experiment at high strain rates and elevated temperatures.

کلمات کلیدی:

Material constants, Zerilli-Armstrong model, Shot impact test, Genetic algorithm, Simulation

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