THE BEHAVIOR OF TRUSS STRUCTURES UNDER IMPACT LOADING

I. Anteby, O. Sadot, B. Ostraich, E. Dolev, O. Zeevi, A. Shclisner & G. Ben-Dor

Protective Technologies Research and Development Center,
Ben-Gurion University of the Negev,
P.O.B. 653, Beer-Sheva 84105, Israel

This paper presents numerical and experimental investigation of the behavior of truss structures under dynamic load. The plastic deformation of these structures requires energy, and hence, they can be used as energy absorption layers.

The main goal of the research is to build a reliable numerical code which will enable better design and optimization of these structures as energy absorbing layers. The numerical code was built using LS-Dyna. The model includes the truss structure and the impactor that applies the dynamic load on it.

The pendulum laboratory at the Protective Technologies Research and Development Center of the Ben Gurion University of the Negev, was used to conduct several experiments, in order to calibrate and validate the numerical model.

The calibrated numerical code can be used to design multi-layer truss structures, to get better energy absorption.