Structural integrity under extreme loads

Topic: High-fidelity models of blast loading

TITLE: Counter-intuitive behaviour of blast-loaded plates

RESEARCH BACKGROUND:

Blast waves are strongly nonlinear loading conditions that may lead to counter intuitive results. For instance, under certain conditions, blast-loaded plates may get permanently deformed in the direction opposite to the loading. This counter-intuitive behaviour (CIB) still needs to be investigated to identify the governing parameters.

RESEARCH ACTIVITIES:

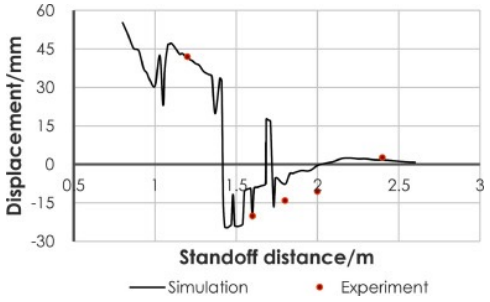
1. Literature review on blast-loaded plates and CIB.
2. Numerical simulation of metal plates under blast loading.
3. Numerical simulation of composite plates under blast loading.
4. Sensitivity analysis to identify the governing parameters of CIB

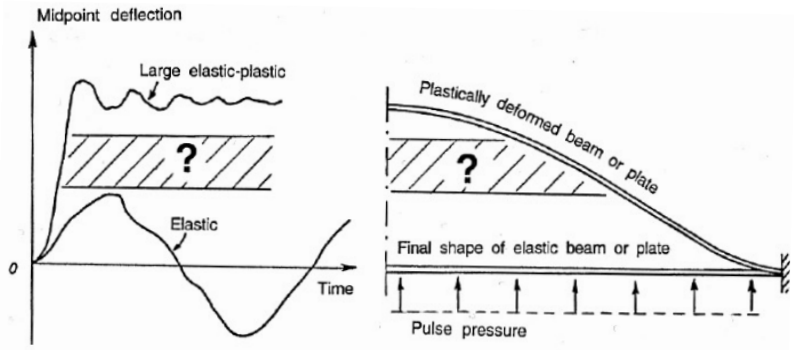
METHODOLOGY: Analytical-Numerical

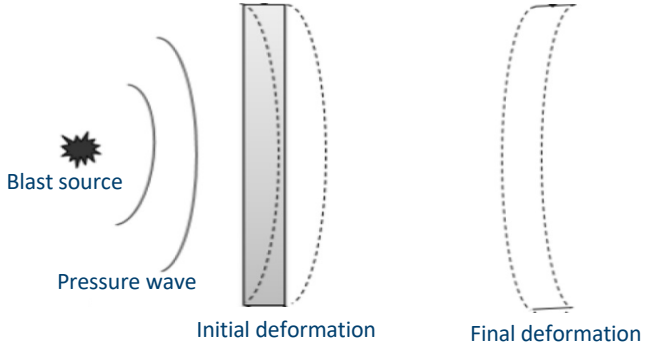
DURATION: 6 months

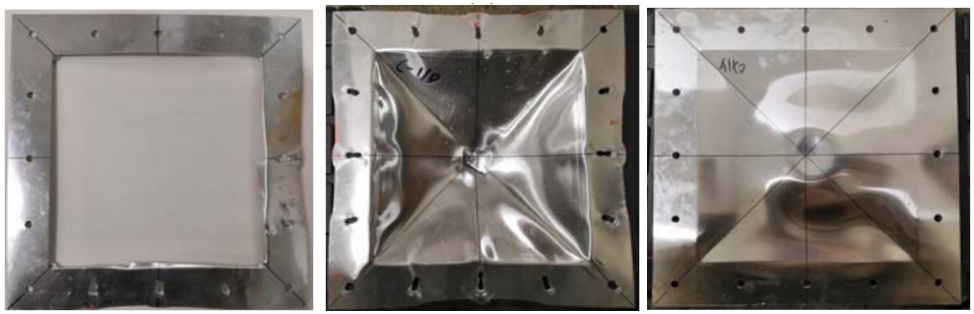
CONTACTS:

andrea.manes@polimi.it
marco.giglio@polimi.it









Shear failure at boundaries | Large plastic deformation | Counter intuitive behaviour