

Structural integrity under extreme loads

Topic: Instrumentation for high strain rate measurements

TITLE: Desing of a Split-Hopkinson Pressure Bar (SHPB)

RESEARCH BACKGROUND:

A Split-Hopkinson Pressure Bar (SHPB) is an experimental tool for studying the behaviour of materials under high strain-rate loading. No standardization has been reached in the scientific community, and different customized versions of such apparatus are available. The current thesis aims to design a novel experimental setup at Politecnico di Milano.

RESEARCH ACTIVITIES:

1. Literature review on current state-of-the-art architectures for SHPB devices.
2. Mechanical design, sizing and cost estimation of feasible solutions.
3. Numerical assessment of the proposed solution against data from the literature.
4. Assembly of the apparatus (to be defined).
5. Experimental validation (to be defined).

METHODOLOGY: Analytical-Numerical-Experimental

DURATION: 9 months

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Possible collaboration:

JRC Ispra (European Commission)

