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STRUCTURAL IMPACT

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ABSTRACT

Structural impact is concerned to the behavior of mechanical structures subjected to large dynamic, impact or blast loadings, which induce inelastic structural deformations. In these cases, the material behavior is influenced by high strain rates so leading to erroneous predictions of the structural response if the strain rate influence is not taken into account. This presentation is of interest for safety calculations, hazard assessments and energy absorbing systems employed in industrial, military, civil and scientific areas. The seminar outlines basic aspects of the experimental and numerical analysis of mechanical structures subjected to dynamic loads, such as strain rate influence on the stress strain curve, constitutive models for strain rate sensitivity of materials and experimental evaluation of their parameters. The required equipment for measuring, recording and analyzing test data at high loading rates is also explored.

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