14th World Congress on Computational Mechanics (WCCM XIV)
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MODELLING OF FRACTURE AND FRAGMENTATION OF SOLIDS UNDER QUASISTATIC AND DYNAMIC LOADING: DETERMINISTIC AND PROBABILISTIC APPROACHES

TRACK NUMBER 100 - FRACTURE, DAMAGE AND FAILURE MECHANICS

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ABSTRACT

Heterogeneity of a material structure influencing on distribution of physical and mechanical material characteristics (PMC) is one of the factors determining the behaviour of fracture. This factor can be introduced into the equations of the deformable solid mechanics using probabilistic laws of the PMC distribution [1-3].

There are the problems related to the case when fragmentation is considered to be mainly a probabilistic process: for example, explosive destruction of axisymmetric shells, when the behaviour of explosive fragmentation is unknown. The effect of heterogeneity of a material structure is also shown in thin target penetration problems.

The mini-symposium will consider the problems as follows: transition from ductile to brittle fracture, probabilistic approach to describing the destruction of biocompatible materials for implants, explosive fragmentation of open and closed shells, penetration of a thick target, fragmentation of a target and a shell after penetration, normal and oblique impact on a thin target, and destruction of metal rings.

The submitted papers should cover the areas as follows:

- Transition from Ductile to Brittle Fracture

- Probabilistic Approach to Describing the Destruction of Biocompatible Materials for Implants

- Natural Heterogeneity of a Material Structure

- Distribution of Physical and Mechanical Material Characteristics
- Fracture and Fragmentation of Solids under Quasistatic and Dynamic Loading
- Explosive Destruction of the Open and Closed Shells
- Crushing of Metal Rings
- High-Velocity Impact of the Laminated - Spaced Targets
- Numerical Simulation of Fracture: Probabilistic Approach
- Numerical Simulation of Fracture: Deterministic Approach
- Numerical Simulation of Shock Wave and Explosive Fracture
- Fracture: 2D and 3D Statement, Deterministic and Probabilistic Approaches
- Protection of Space Vehicles from High-Velocity Debris
- Protection from High-Velocity Projectiles
- Protection of Elements against Explosive and Impact Loading

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