



**Innovation Center of
Faculty of Mechanical
Engineering**



**Faculty of Mechanical
Engineering, University
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**Center for Business
Trainings**



**„International Conference of Experimental and
Numerical Investigations and New Technologies“**

Sponsored by:

**MINISTRY OF EDUCATION, SCIENCE AND TECHNICAL DEVELOPMENT
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Programme and The Book of Abstracts

29 June – 02 July 2020

Zlatibor, Serbia

**„International Conference of Experimental and Numerical
Investigations and New Technologies“**

CNN TECH 2020

29 June – 02 July 2020

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Programme and The Book of Abstracts

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We particularly wish to thank our sponsor, **The Ministry of Education, Science and Technological development**, Government of the Republic of Serbia.

PREFACE

Dear Friends and Colleagues, Welcome to CNN Tech 2020 Conference and the fabulous mountain of Zlatibor!

With 70 papers (14 by international authors) and contributions by authors from 13 different countries, International Conference of Experimental and Numerical Investigations and New Technologies CNN Tech 2020 successfully sets the high level for the future conferences. Participation of a large number of domestic and international authors, as well as the diversity of topics, justifies our efforts to organize this conference and contribute to exchange of knowledge, research results and experience of industry experts, research institutions and faculties which all share a common interest in the field in experimental and numerical investigations.

This year CNN Tech 2020 focuses on the following topics:

- Mechanical Engineering,
- Materials Science,
- Chemical and Process Engineering,
- Experimental Techniques,
- Numerical Methods,
- New Technologies
- Clear sky
- Dental Materials and Structuresand
- Sustainable Design and New Technologies.

Apart from a plenty of interesting lectures, the participants will have a chance to lighten up and communicate in friendly and relaxed settings.

Organizing committee of CNN Tech 2020 would like to express gratitude to Ministry of Education, Science and Technological development for financial support of the Conference.

On behalf of the Innovation center of Faculty of Mechanical Engineering, Faculty of Mechanical Engineering and Center for Business Trainings, we wish this to be splendid CNN Tech conference filled with many memorable moments.

PROGRAMME AND ORGANIZING COMMITTEE

DEVELOPMENT OF CONCEPTUAL SOLUTION OF EXPERIMENTAL SETTING FOR CONTROLLED APPLICATION OF IMPACT FORCE ON THE HEAD MODEL USING DIC

Milos Milosevic¹, Isaak Trajkovic¹, Toni Ivanov², Mihajlo Popovic², Nenad Mitrovic², Aleksa Milovanovic¹ and Jelena Jovanovic Sakovic³

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Abstract

After noting that head and neck injuries are very common in martial arts sports, a growing need for developing helmet materials and models appeared. In addition to the problems that arise in terms of design, there are also problems in terms of developing the material from which the helmets are made. In terms of design, the helmet must interfere as little as possible with the mobility of the head and neck and visibility, while in terms of material development, it is necessary to ensure optimal mechanical properties of the material from which the helmet is made, which is simultaneously the biggest challenge for helmet manufacturers. In the process of developing models and materials of helmets, there was a need for research in which the development of experimental settings will credibly simulate the blows that are exchanged during a sports fight. The aim of this paper is to make an experimental setup to enable testing of helmets from different manufacturers as well as testing of newer generation helmets. This paper presents a conceptual solution of an experimental setup in which impacts are simulated in controlled conditions, taking into account that the impact image applied to the head model is controlled, so that it is possible to simulate different types of impacts while maintaining the same boundary conditions.

Keywords

DIC, Experimental techniques, helmet, injuries, deformation

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