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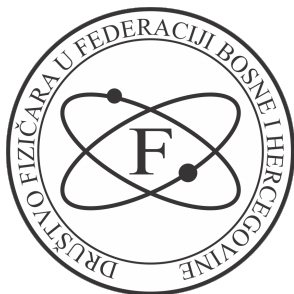
**INTERNATIONAL PHYSICS  
CONFERENCE IN  
BOSNIA AND HERZEGOVINA**

June 30 – July 1, 2022

Sarajevo

BiH

**Book of Abstracts**



**Title**

Book of Abstracts

INTERNATIONAL PHYSICS CONFERENCE  
IN BOSNIA AND HERZEGOVINA

Sarajevo

June 30 – July 1, 2022

<http://dfufbih.ba/phyconba2022/index.php/>

**Organised by**

Physical Society in Federation of Bosnia and Herzegovina  
with support of the Faculty of Science – University of Sarajevo

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## Table of Contents

Committees	4
Preface	5
Programme	6
Plenary Speakers	11
Invited Speakers	17
Oral Presentations	20
Poster Presentations	35

## **Committees**

### **Organizing committee**

1. Dr. Sc. Maja Đekić (Faculty of Science, University of Sarajevo), chairwoman,
2. Dr. Sc. Amra Salčinović Fetić (Faculty of Science, University of Sarajevo), member,
3. Senad Isaković, M. Sc., (Faculty of Science, University of Sarajevo), member,
4. Abdulah Jašarević, M. Sc., (Faculty of Science, University of Sarajevo), member,
5. Dr. Sc. Benjamin Fetić (Faculty of Science, University of Sarajevo), member

### **Scientific committee**

1. Academician prof. dr. Dejan Milošević (Faculty of Science, University of Sarajevo, Academy of Sciences and Arts of BiH), chairman,
2. Dr. Sc. Dino Habibović (Faculty of Science, University of Sarajevo), member,
3. Dr. Sc. Vanes Mešić (Faculty of Science, University of Sarajevo), member,
4. Dr. Sc. Maja Đekić (Faculty of Science, University of Sarajevo), member.

## Preface

The third International Physics Conference in Bosnia and Herzegovina (PHYCONBA2022) is to be held on June 30 and July 1, 2022, at the premises of the Faculty of Science, Sarajevo. The upcoming conference is a biennial scientific meeting organized by the Physical Society of the Federation of Bosnia and Herzegovina with support of the Faculty of Science, University of Sarajevo.

The first International Physics Conference in Bosnia and Herzegovina was held in Sarajevo, October 25-26, 2018, while in 2020 due to COVID pandemic, the second Conference was organized in somewhat difficult conditions and in a reduced form. Nevertheless, both events were very successful considering the number of participants as well as the outcomes, to great satisfaction of the Organizing Committee and academic community.

The Third International Physics Conference is to follow the main motivation and objectives of the Organizing Committee, which is to bring together physicists from Bosnia and Herzegovina, neighbouring countries and scientific Diaspora in order to exchange information, present their latest work and establish cooperation. The scope of the upcoming conference covers all areas of research in physics and related subjects. Besides academics affiliated with Universities and Institutes, a number of registered participants work either in different laboratories and companies or schools. In addition, a significant number of students will participate in poster sessions, which gives them opportunity to present the results of their final theses as well as to get acquainted with various possibilities for their future careers.

A two-day programme includes 3 plenary talks, 2 invited talks, 13 oral and 20 poster presentations, and hopefully a number of informal talks.

Looking forward to the upcoming Conference The Organizing Committee hopes that the participants will enjoy their stay in Sarajevo and that this meeting will foster exchange of ideas and establishment of new collaborations.

Maja Đekić

Chairperson of the Organising Committee

**Programme**  
**Thursday, 30 June, 2022**

- 8:30-9:00      **Registration**
- 9:00-9:10      **Opening Ceremony**
- 9:10-10:00     **Vanja Radolić, M. Poje Sovilj, D. Stanić, I. Miklavčić,**  
**RADON MEASUREMENTS IN THE REPUBLIC**  
**OF CROATIA**
- 10:00-10:15   **Dijana Dujak, M. Đekić, A. Salčinović Fetić, D. Čubela,**  
**TEMPORAL EVOLUTION OF ELECTRICAL**  
**RESISTANCE THROUGH THE METALLIC**  
**GRANULAR PACKINGS**
- 10:15-10:30   **Nedžadeta Mutapčić, S. Čohodarević,**  
**ESTABLISHING SYSTEM FOR Ag FIXED POINT**  
**CELL (AgFP, 961.78 °C) REALIZATION AT IMBIH**
- 10:30-10:45   **Senad Isaković, M. Đekić, M. Tkalčević, D. Borščak, I.**  
**Periša, S. Bernstorff, M. Mičetić,**  
**PROPERTIES OF Au+SiC AND Au+Si<sub>3</sub>N<sub>4</sub> THIN**  
**FILMS PREPARED BY MAGNETRON**  
**CODEPOSITION**
- 10:45-11:15   **Coffee break**
- 11:15-11:45   **Denis Stanić, V. Kojić, T. Čižmar, L. Bagladi, K. Juraić, A.**  
**Gajović,**  
**RESEARCH OF PEROVSKITE SOLAR CELLS**
- 11:45-12:00   **Fehima Ugarak, G. Ulliac, J. A. Iglesias Martínez, J.**  
**Moughames, V. Laude, M. Kadić, A. Mosset,**  
**CHARACTERIZATION OF ISOTROPIC 3D**  
**PRINTED MATERIALS WITH BRILLOUIN**  
**LIGHT SCATTERING TECHNIQUE**
- 12:00-12:15   **Jelena Vukalović, J. B. Maljković, K. Tökesi, B. Predojević,**  
**B. P. Marinković,**

**JOINT THEORETICAL AND EXPERIMENTAL  
STUDY ON ELASTIC ELECTRON SCATTERING  
FROM A METHANE MOLECULE**

- 12:15-12:30 Isnar Tinjić, U. Spona,  
**RADON CONCENTRATION MEASUREMENTS  
IN AIR IN WORK ENVIRONMENT OF THE  
LIMESTONE MINE „VIJENAC“ AND THE  
SETTLEMENTS SURROUNDING THE MINE**
- 12:30-14:30 Lunch break
- 14:30-15:20 Dragan Huterer,  
**COSMOLOGICAL SURVEYS FOR DARK MATTER  
AND DARK ENERGY**
- 15:20-15:35 Emina Džaferović-Mašić, M. Popara Ustamujić,  
**PROTON LIFETIME ESTIMATION IN A  
SPECIFIC  $SU(5)$  MODEL**
- 15:35-15:50 Ajla Lejlić,  
**LEPTOQUARK PRODUCTION AT LHC**
- 15:50-16:05 Rifat Omerović, M. Hadžimehmedović, H. Osmanović, J. Stahov,  
**PARTIAL-WAVE ANALYSIS OF PION  
PHOTOPRODUCTION DATA**
- 16:05-16:20 Milica Dragaš, A. Čerkić,  
**ELECTRON-MOLECULE SCATTERING IN  
ULTRASHORT LASER FIELD**
- 16:20-17:20 Coffee break + Poster session

Friday, 1 July, 2022

- 9:00-9:50 Ivica Aviani,  
**INVESTIGATION AND MODELING OF  
ESHERICHIA COLI GROWTH AND**

**INACTIVATION IN THE PRESENCE OF SILVER NANOPARTICLES**

- 9:50-10:20** Bono Lučić, A. Kraljević, J. Batista,  
**NEW STRUCTURAL FEATURES THAT SIGNIFICANTLY IMPROVE PROTEIN FOLDING RATE MODELS**
- 10:20-10:35** Andrej Vidak, I. Movre Šapić, V. Mešić,  
**AUGMENTED REALITY IN TEACHING ABOUT PHYSICS: A SYSTEMATIC REVIEW**
- 10:35-10:50** Amer Ajanović, R. Tomi-Tricor, J. Hajnal, S. Malik,  
**MOTION-DEPENDENT PATIENT SAFETY ASSESSMENT FOR ULTRA HIGH-FIELD MR BRAIN IMAGING**
- 10:50-11:05** S. Odžak, Adnan Beganović, M. Jusufbegović, A. Pandžić,  
**DESIGN OF THREE-Dimensionally-PRINTED ANTHROPOMORPHIC PHANTOM FOR MAMMOGRAPHY**
- 11:05-11:15** Closing Ceremony
- 11:15-15:00** Excursion (Cable car tour – depending on the number of interested participants)



## JOINT THEORETICAL AND EXPERIMENTAL STUDY ON ELASTIC ELECTRON SCATTERING FROM A METHANE MOLECULE

***Jelena Vukalović<sup>1,2</sup>, Jelena B. Maljković<sup>2</sup>, Karoly Tökesi<sup>3</sup>, Branko  
Predojević<sup>4</sup> and Bratislav P. Marinković<sup>4</sup>***

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The methane molecule has a significant place in research in physics. Astrophysics, plasma physics, and more recently, environmental physics can be highlighted. Within that research, the study of electron interaction with the methane molecule has a prominent place from a theoretical and experimental point of view. We report on a combined experimental and theoretical study of elastic differential cross-section DCS ( $E, \theta$ ) from methane molecule in the intermediate energy range (50-300eV), with experimental results limited to an angle interval of 25 to 125 degrees. Theoretical results are acquired using two approximations: a simple sum of individual atomic cross-sections and the other with molecular effect taken into the account. The experimental setup based on a crossed beam technique comprising of an electron gun, a single capillary gas needle, and a detection system with a channeltron was used to measure differential cross sections. The absolute scale for the cross sections is obtained by the relative-flow method using argon gas as a reference. The dependence of DCS on the energy of incident electrons has been considered in detail. The results are analyzed and compared with available theoretical and experimental data.

International Physics Conference  
in Bosnia and Herzegovina  
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**PHYCONBA 2022**

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Faculty of Science, University of Sarajevo  
Zmaja od Bosne 35, Sarajevo

**Invited speakers**

**Prof. dr. Ivica Aviani**  
University of Split

**Prof. dr. Dragan Huterer**  
University of Michigan

**Prof. dr. Vanja Radolić**  
Josip Juraj Strossmayer University in Osijek



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FAKULTET



**Scientific committee**

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**Dr. sc. Dino Habibović, UNSA**  
**Prof. dr. Vanes Mešić, UNSA**  
**Doc. dr. Maja Đekić, UNSA**

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**Senad Isaković, UNSA**  
**Abdulah Jašarević, UNSA**  
**Doc. dr. Benjamin Fetić, UNSA**