



8th International Conference



INNOVATIVE IDEAS IN SCIENCE 2022

3-4th November 2022, Baia Mare, Romania

Selected papers by the IIS Scientific Committee

Organizer:

Technical University of Cluj Napoca, Romania

Faculty of Engineering, Department of Electrical Engineering, Electronics and Computers

Co-organizer:

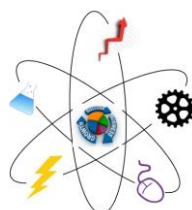
Independent University Banja Luka, Bosnia and Herzegovina

University of Applied Sciences Kempten, Germany

Sponsored by:



**Academic Organization for Research, Innovation
and Professional Development**



IIS CONFERENCE COORDINATOR

Cristian BARZ, Technical University of Cluj-Napoca, Romania

Vesna RODIC, Independent University Banja Luka, Bosnia and Herzegovina

IIS ORGANIZING COMMITTEE

Zoltan ERDEI, Technical University of Cluj-Napoca, Romania

Claudiu LUNG, Technical University of Cluj-Napoca, Romania

Mircea HORGOS, Technical University of Cluj-Napoca, Romania

Mirela ILIA, SC FDEE Electrica Distributie Transilvania Nord SA, Romania

Olivian CHIVER, Technical University of Cluj-Napoca, Romania

Ramona DEMARCSEK, Tehnical University of Cluj Napoca, Romania

Domide GHERASIM, Technical University of Cluj-Napoca, Romania

Radmila ČOKORILO, Independent University Banja Luka, Bosnia and Herzegovina

Kristina KUZMANOVIĆ, Independent University Banja Luka, Bosnia and Herzegovina

Goran KALINIĆ, Independent University Banja Luka, Bosnia and Herzegovina

Vladan MIHAJLOVIĆ, Independent University Banja Luka, Bosnia and Herzegovina

IIS SCIENTIFIC COMMITTEE COORDINATOR

Zoran KALINIĆ, Independent University Banja Luka, Bosnia and Herzegovina

Vasile TOPA, Technical University of Cluj-Napoca, Romania

Ludovic Dan LEMLE, "Politehnica" University of Timisoara, Romania

IIS SCIENTIFIC COMMITTEE

Petrică POP SITAR, Technical University of Cluj-Napoca, Romania

Gabor SZIEBIG, The Arctic University of Norway, Norway

Luigi VLĂDĂREANU, Romanian Academy - Institute of Solid Mechanics, Romania

Doina PISLA, Technical University of Cluj-Napoca, Romania

Blanusa BRANKO, University in Banja Luka, Bosnia and Herzegovina

Razzaghi MOHSEN, Mississippi State University, USA

Silviu Dan MANDRU, Technical University of Cluj-Napoca, Romania

Nicolae POP, Romanian Academy - Institute of Solid Mechanics, Romania

Radu Adrian TIRNOVAN, Technical University of Cluj-Napoca, Romania

Parimal ACHARJEE, National Institute of Technology Durgapur, India

Lesya SHKITSYA, Ivano-Frankivsk National Technical University of Oil and Gas, Ukraine

Dorin Dumitru LUCACHE, "Gheorghe Asachi" Technical University of Iasi, Romania

Predrag Miodrag ŽIVKOVIĆ, University of Niš, Serbia
Vasile NĂSUI, Technical University of Cluj-Napoca, Romania
Rolf JUNG, University of Applied Sciences Kempten, Germany
Marian POBORONIUC, "Gheorghe Asachi" Technical University of Iasi, Romania
Nicolae UNGUREANU, Technical University of Cluj-Napoca, Romania
Sorin DEACONU, "Politehnica" University of Timisoara, Romania
Mihai BĂNICĂ, Technical University of Cluj-Napoca, Romania
Mihai ALBU, "Gheorghe Asachi" Technical University of Iasi, Romania
Mirjana STOJANOVIC-TRIVANOVIC, Independence University Banja Luka, Bosnia and Herzegovina
Cristiana ISTRATE, "Gheorghe Asachi" Technical University of Iasi, Romania
Marius Calin BENEĂ, "Politehnica" University of Timișoara, Romania
Marius PISLARU, "Gheorghe Asachi" Technical University of Iasi, Romania
Cristian BARZ, Technical University of Cluj-Napoca, Romania
Tihomir Savo LATINOVIĆ, University in Banja Luka, Bosnia and Herzegovina
Miorita UNGUREANU, Technical University of Cluj-Napoca, Romania
Saša SALAPURA, University of Business Engineering and Management - Banja Luka, Bosnia and Herzegovina
Marijana Žiravac MLADNEOVIĆ, University of Business Engineering and Management - Banja Luka, Bosnia and Herzegovina
Nikola VOJVODIĆ, University of Business Engineering and Management - Banja Luka, Bosnia and Herzegovina
Anamaria DĂSCĂLESCU, Technical University of Cluj-Napoca, Romania
Przemysław SYREK, AGH University of Science and Technology, Krakow, Poland
Ružica ĐERVIDA, Independent University Banja Luka, Bosnia and Herzegovina
Ljubomir ZUBER, Independent University Banja Luka, Bosnia and Herzegovina
Srđan LJUBOJEVIĆ, Independent University Banja Luka, Bosnia and Herzegovina
Borka VUKAJLOVIĆ, Independent University Banja Luka, Bosnia and Herzegovina
Mladen BUBONJIĆ, Independent University Banja Luka, Bosnia and Herzegovina
Nikola VOJVODIĆ, Independent University Banja Luka, Bosnia and Herzegovina
Marius BENEĂ, Independent University Banja Luka, Bosnia and Herzegovina
Laura BENEĂ, Independent University Banja Luka, Bosnia and Herzegovina
Dragana PRERADOVIĆ, University of Banja Luka, Bosnia and Herzegovina
Dragana DIMITRIJEVIĆ, University of Niš, Serbia
Vesna RODIĆ, Independent University Banja Luka, Bosnia and Herzegovina
Mihaela POPA, "Politehnica" University of Timisoara, Romania