



*The 22nd International Conference of
Nonconventional Technologies - ICNcT 2023
Bistrița, 16-18 November 2023*

PROGRAM

Nonconventional technologies - A continuously evolving paradigm

Thursday, November 16th, 2023

14:00-18:00	Arrival and accommodation - Hotel Bistrița
18:00-19:00	Meeting of participants and transport to Jelna Winery (bus leaves at 18:30 from Hotel Bistrița)
19:00-22:00	Welcome reception and dinner with wine tasting Jelna Winery (return bus leaves at 22:00 from the restaurant)

Friday, November 17th, 2023

08:00-09:00	Registration of participants, TUCN Extension Bistrița Piața Centrală nr. 29
09:00-09:30	Opening Ceremony of the 22nd ICNcT Moderators: Aurel-Mihail Țițu, Mihai Dragomir Amphitheater 1 st floor - Room PC103 <ul style="list-style-type: none"> • Dumitru Mnerie, President of the Romanian Association for Nonconventional Technologies • Virgil Ispas, Director of TUCN Extension Bistrița • Corina Bîrleanu, Dean of FIERPM, TUCN • Representatives of the Bistrița local authorities (City Hall, County Council, Chamber of Commerce, School Inspectorate) • Messages from the Conference supporting organizations (TUCN, LBUS, Romanian Academy of Scientists, A.R.T.A. Sibiu, Banca Transilvania, Evergent Investments)
09:30-10:30	Plenary session Chairs: Cristian Vasile Doicin, Aurel-Mihail Țițu Amphitheater 1 st floor - Room PC103 Stelian Brad, Keynote speaker, Technical University of Cluj-Napoca, Romania & Cluj IT Cluster <i>Breaking the Mold - Inventive Design and AI at the Forefront of Nonconventional Manufacturing Technologies</i>
10:30-11:15	Plenary session Chairs: Dumitru Mnerie, Mihai Dragomir Amphitheater 1 st floor - Room PC103 Balázs Barta, Keynote speaker, Founder and Managing director of am-LAB, Pannon Business Network, Hungary <i>am-LAB - project results and best practices in the field of digital manufacturing</i>
11:15-11:45	Coffee break PC002



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11:45-14:30	Visit to Leoni Romania company (only for registered particip.) (buses leave at 11:45 from Piața Centrală)
12:00-13:00	Students Entrepreneurial Society - Workshop Entrepreneurial mindset development Speaker: Balázs Barta Moderators: Diana Dragomir, Florina Runcan PC010 (for bachelor and master students only)
14:30-15:30	Lunch at Hotel Bistrița
16:00-17:00	Special session Chairs: Balázs Barta, Mihai Dragomir, Constantin Oprean Amphitheater 1 st floor - Room PC103 <ul style="list-style-type: none"> • Ahmet Çağdaş Seçkin, Pinar Demircioglu, Ismail Bogrekci and Goktug Ozer - Capacitive NDT of Impact/Press Induced Structural Degradation in Agricultural Machinery • Alina Bianca Pop and Aurel Mihail Țițu - Advancements in Electrical Discharge Machining: A Comprehensive Study of Evolution, Techniques, and Applications in Precision Engineering • Mironela Pîrnău, Claudiu Pîrnău, Iustin Priescu, Aurel Mihail Țițu, Liviu Daniel Ghiculescu and Marian Florentin Ghena - The impact of nanotechnologies in the virtual world
17:00-18:30	Parallel sessions - 1.1 and 2.1 (see next pages for details) PC103, PC010
19:00-22:00	Gala Dinner at Hotel Bistrița

Saturday, November 18th, 2023

09:00-11:00	ARTN General Assembly (for members only) Moderator: Dumitru Mnerie PC002
09:00-11:00	Parallel sessions - 1.2 and 2.2 (see next pages for details) PC103, PC010
11:00-11:30	Coffee break, PC002
11:30-13:00	Parallel session - 1.3 and 2.3 (see next pages for details) PC103, PC010
13:00-13:30	Closing ceremony Moderators: Aurel-Mihail Țițu, Mihai Dragomir PC103
13:30-15:00	Bistrița Medieval City walking tour (the tour guide will meet the participants in front of the main building)

SESSIONS PROGRAM

SESSION 1.1

NONCONVENTIONAL MACHINING AND EQUIPMENT

Room PC103, 17:00-18:30, November 17th, 2023

Chairs:	Gabriela Mnerie, Institutul Național de Cercetare-Dezvoltare în Sudură și Încercări de Materiale- ISIM Timisoara Laurențiu Slătineanu, Gheorghe Asachi Technical University of Iași	
4266	Elisaveta Crăciun, Margareta Coteață, Ioan Surugiu and Laurențiu Slătineanu	SELECTING EQUIPMENT SOLUTION FOR THE CHARACTERIZATION OF THE FRICTION DRILLING PROCESS
4312	Titi Danciu and Liviu-Daniel Ghiculescu	ELECTROCHEMICAL MACHINING OF ADVANCED MATERIALS - A REVIEW
4775	Dumitru Mnerie, Remus Boboescu and Gabriela-Victoria Mnerie	OVERVIEW OF ANALYTICAL MODELING IN LASER CUTTING PROCESSES
5948	Viorel Bucur, Constantin Oprean and Aurel Mihail Țițu	COMPARATIVE ASPECTS OF ELECTRICAL EROSION PROCESSES
8044	Doru-Alexandru Luca and Mircea Dorin Vasilescu	ANALYZING THE ASPECTS RELATED TO THERMAL TRANSFER IN THE ADDITIVE MANUFACTURING PROCESS BY THERMOPLASTICS USING PLA AND RESPECTIVELY ABS FOR EXTRUSION
9796	Sandor Ravai Nagy, Kristof Szabo, Alina Bianca Pop, Ioan Pașca and Laszlo Sikolya	SURFACE QUALITY ANALYSIS IN LASER CUTTING OF METALLIC MATERIALS: AN EXPERIMENTAL STUDY
7708	Daniela Ciobanu, Gheorghe Nagiț, Oana Dodun, Adelina Hrituc, Elisaveta Crăciun and Laurențiu Slătineanu	THE INFLUENCE OF SOME WORKING CONDITIONS ON ROUGHNESS IN ELECTROCHEMICAL MACHINING OF SOME CARBON STEEL WORKPIECES

SESSION 2.1

DIGITAL AND SUSTAINABLE MANUFACTURING

Room PC010, 17:00-18:30, November 17th, 2023

Chairs:	Margareta Coteață, Gheorghe Asachi Technical University of Iași Mircea Dorin Vasilescu, Politehnica University Timișoara	
218	Vasile Gusan, Carmen Purcar, Mircea Bădescu and Aurel Mihail Țițu	ENHANCING QUALITY IN KNOWLEDGE- BASED ORGANIZATIONS THROUGH THE IMPLEMENTATION OF COLLABORATIVE ROBOTS INTO NONCONVENTIONAL TECHNOLOGIES IN AUTOMOTIVE
697	Marian Florentin Ghena and Liviu Daniel Ghiculescu	NONCONVENTIONAL POWER TOOLS: REAL-TIME THERMAL EXPANSION MONITORING FOR BRUSHLESS MOTORS
162	Eugenia Bulboacă, Marilena Gheorghe, Oana Roxana Chivu, Dan Nițoi and Anamaria Ioana Feier	MEvAR - AN INNOVATIVE METHODOLOGY OF MANAGEMENT OF PROFESSIONAL ASSESSMENTS
933	Eliza Ioana Apostol, Cristian Vasile Doicin, Nicolae Ionescu and Aurel Mihail Țițu	NONCONVENTIONAL TECHNOLOGIES IN THE MODERN WORLD OF AVIATION
1715	Dumitru Mnerie, Remus Boboescu and Gabriela-Victoria Mnerie	CONSIDERATIONS ON SOME OPPORTUNITIES FOR OPTIMIZING UNCONVENTIONAL TECHNOLOGIES USING SUPERMATHEMATICS
9312	Cornel-Cristian Enciu and Liviu-Daniel Ghiculescu	THE INFLUENCE OF DIFFERENT ISOLATING MATERIALS APPLIED TO ULTRASONIC HORNS SPECIFIC TO HYBRID ELECTROCHEMICAL MACHINING
9837	Lavinia Culda, Elena Stela Muncuț Wisznovszky and Attila Gerócs	SIMULATION OF FEEDING OF MACHINE TOOLS USING ROBOT ARMS

SESSION 1.2

NONCONVENTIONAL MACHINING AND EQUIPMENT

Room PC103, 09:00-11:00, November 18th, 2023

Chairs:	Alina Bianca Pop, Technical University of Cluj-Napoca, North University Center Baia Mare Augustin Semenescu, National University of Science and Technology POLITEHNICA Bucharest	
4152	Manea Ciprian, Plămădială Ioan, Chiva Ionuț-Cosmin and Semenescu Augustin	3D DESIGN AND PRINTING OF MEDICAL PROSTHETICS - TECHNICAL AND ECONOMIC ASPECTS
5668	Viorel-Mihai Nani, Alin Nani, Dumitru Mnerie and Gabriela-Victoria Mnerie	REGARDING SOME FUNDAMENTAL ASPECTS OF DESIGN AND DEVELOPMENT OF BESSEL ULTRASONIC CONCENTRATORS USED IN NONCONVENTIONAL MACHINING
5958	Bogdan-Ionuț Cristea, Liviu Daniel Ghiculescu, Aurel Mihail Țițu and Constantin-Cristian Deopale	MODELING AND SIMULATION OF AN ULTRASONIC CONCENTRATOR USED IN A FEED SYSTEM FOR ULTRASONICALLY AIDED MICROEDM
6173	Gabriela-Alexandra Badicu, Sebastian Zaharia and Mihai-Alin Pop	DESIGN, ACOUSTIC PERFORMANCE AND ADDITIVE MANUFACTURING OF HELICOPTER ROTOR BLADES WITH UNCONVENTIONAL SHAPES
6477	Gabriela-Victoria Mnerie, Iuliana Duma, Emilia Dobrin and Horia Florin Dașcău	ASSESSMENT OF THE HARDNESS AT THE MICROSTRUCTURAL LEVEL IN WELDED CONNECTIONS FORMED USING 316L AND S235 MATERIALS
2619	Bogdan-Valentin Paunescu, Enikő Volceanov and Lucian Paunescu	EARLY-AGE CARBONATION OF CALCIUM SILICATE HYDRATE (C-S-H) AND ITS ABILITY FOR CO ₂ SEQUESTRATION IN CONCRETE
160	Ankidim Zinveli, Mihai Dragomir, Sorin Popescu and Tareq Salem	LITERATURE REVIEW CONCERNING SAFETY RISK ASSESSMENT IN COLLABORATIVE ENVIRONMENTS

SESSION 2.2

DIGITAL AND SUSTAINABLE MANUFACTURING

Room PC010, 09:00-11:00, November 18th, 2023

Chairs:	Constantin Oprean, Lucian Blaga University of Sibiu Virgil Ispas, Technical University of Cluj-Napoca, Bistrița Extension	
104	Gabriel Petrea, Roxana Puiu and Cristian Vasile Doicin	THE USE OF BLOCKCHAIN TECHNOLOGY IN HIGHER EDUCATION SYSTEM
3156	Dorin Vasile Deac Șuteu, Maria Popa, Mihai Dragomir and Aurel Mihail Țițu	USE OF IT TOOLS IN NONCONVENTIONAL TECHNOLOGY APPLICATIONS
2555	Constantin Alex Sumanariu and Cătălin Gheorghe Amza	DESIGN OPTIMIZATION METHODS FOR CONCEPTUAL DESIGN OF NUCLEAR MICROREACTOR
3401	Elena-Bianca Negomireanu, Mirela Manciu-Simijdean, Oana Iușan and Mihai Dragomir	CIRCULAR WASTE MANAGEMENT TO SUPPORT SUSTAINABILITY OF NONCONVENTIONAL MANUFACTURING COMPANIES
4826	Mădălina Maria Pană, Aurel-Mihail Țițu, Petrica Tertereanu, Andreea-Maria Moldoveanu and Adrian Bogorin- Predescu	CAN ARTIFICIAL INTELLIGENCE STILL BE CONSIDERED A NONCONVENTIONAL TECHNOLOGY IN 2023?
6610	Marian Florentin Ghena and Liviu Daniel Ghiculescu	A HYBRID APPROACH TO PROJECT MANAGEMENT IN THE POWER TOOLS INDUSTRY
5200	Tareq Salem, Mihai Dragomir, Ankidim Zinveli and Diana Alina Blagu	EMPLOYING DIGITAL TWINS IN ENGINEERING PROJECT MANAGEMENT WITH APPLICATIONS IN CONSTRUCTIONS

SESSION 1.3

NONCONVENTIONAL MACHINING AND EQUIPMENT

Room PC103, 11:30-13:00, November 18th, 2023

Chair:	Gabriel Sever Racz, Lucian Blaga University of Sibiu Viorel Bucur, Lucian Blaga University of Sibiu	
7361	Lucian Păunescu, Enikő Volceanov and Bogdan-Valentin Păunescu	NEW WOOD FOAM-HEAT INSULATING MATERIAL OBTAINED THROUGH OAK WOOD-DELIGNIFICATION PROCESS
5388	Lucian Păunescu, Sorin-Mircea Axinte and Alexandru Fiti	CELLULAR GRAVEL PRODUCED FROM RESIDUAL ALUMINO-SILICATE MATERIALS (FLY ASH, METAKAOLIN, SLAG, AND ALKALINE EARTH ALUMINO- SILICATE GLASS) BY NONCONVENTIONAL TECHNIQUES
8527	Lucian Păunescu, Sorin-Mircea Axinte and Bogdan-Valentin Păunescu	STEEL SLAG-BASED CELLULAR CERAMIC WITH HIGH-STRENGTH AND EXTREMELY FINE POROSITY AS A BUILDING MATERIAL MADE BY NONCONVENTIONAL HEATING TECHNIQUE
2832	Lucian Păunescu, Sorin-Mircea Axinte and Bogdan-Valentin Păunescu	NONCONVENTIONAL METHOD OF COLD PREPARING THE CELLULAR GLASS
910	Lucian Păunescu, Sorin-Mircea Axinte and Alexandru Fiti	CELLULAR GLASS FROM POST- CONSUMER DRINKING GLASS NON- CONVENTIONALLY PREPARED WITH SILICON NITRIDE AND MANGANESE DIOXIDE AS PORE-FORMING AGENTS
2417	Lucian Păunescu, Sorin-Mircea Axinte and Bogdan-Valentin Păunescu	ALUMINO-SILICATE WASTES USED FOR MAKING CELLULAR GRAVEL BY NON- CONVENTIONAL DIRECT MICROWAVE HEATING METHOD
6449	Lucian Păunescu, Sorin-Mircea Axinte and Bogdan-Valentin Păunescu	NONCONVENTIONAL TECHNIQUE FOR PREPARING COMPRESSION-PROOF CELLULAR GLASS
9217	Lucian Păunescu, Sorin-Mircea Axinte and Alexandru Fiti	EXPANDING RESIDUAL CLEAR FLAT GLASS WITH COAL POWDER IN OXIDANT ATMOSPHERE OF THE OVEN USING WATER GLASS SOLUTION

SESSION 2.3

DIGITAL AND SUSTAINABLE MANUFACTURING

Room PC010, 11:30-13:00, November 18th, 2023

Chair:	Cătălin Gheorghe Amza, National University of Science and Technology POLITEHNICA Bucharest Nicolae Ionescu, National University of Science and Technology POLITEHNICA Bucharest	
5385	Tertoreanu Petrică, Țițu Aurel Mihail and Oprean Constantin	CONTRIBUTIONS TO THE IMPROVEMENT OF THE QUALITY OF THE NONCONVENTIONAL PROCESSES WITHIN THE NATIONAL INFORMATION SYSTEM OF SIGNALING IN THE CONTEXT OF ROMANIA'S ACCESSION TO THE SCHENGEN AREA
7455	Ștefania Chiribău-Vitlinger, Vlad Vizitiu, Alexandra Mihăilă and Diana Dragomir	FAILURE RISK ANALYSIS IN THE CASE OF AN AEROSPACE MANUFACTURING COMPANY USING COMPOSITE MATERIALS
1212	Dorin Vasile Deac Șuteu, Constantin Oprean and Aurel Mihail Țițu	CONTRIBUTIONS TO THE DESIGN OF SERVICE INDICATORS TO SUPPORT DIGITISATION MANAGEMENT THE ACTIVITY OF SERVICE PROVIDERS OF INTEREST LOCAL AND AREA
2577	Andrei Dună, Diana Țucu, Stefan Dună and Dănuț Tokar	WALK, SMILE, GENERATE AND CONSUME CLEAN ENERGY IN OUR CITY
5354	Alexandra Mihăilă, Florina Runcan, Vlad Vizitiu and Diana Dragomir	PERSONNEL DEVELOPMENT THROUGH IMPROVEMENT PROJECTS IN THE FIELD OF NONCONVENTIONAL TECHNOLOGIES
7013	Constantin Olteanu, Aurel Mihail Țițu, Iuliana Moiescu and Nicoleta-Mădălina Niță	STUDIES AND RESEARCH REGARDING THE SERVICES OFFERED BY THE SIBIU COUNTY DIRECTORATE OF PERSONAL REGISTRATION OFFERED TO ORGANIZATIONS WITH OBJECTS OF ACTIVITY IN NONCONVENTIONAL TECHNOLOGIES
1323	Ankidim Zinveli and Mihai Dragomir	A CASE STUDY IN IMPROVING THE SAFETY OF COLLABORATIVE TASKS IN THE AUTOMOTIVE INDUSTRY