

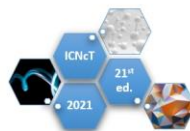
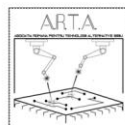
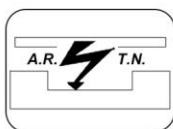
18 - 19 November 2021 ● ● ● Cluj - Napoca / Online

Quality and Innovation & Nonconventional Technologies in the post-pandemic world

Organized by the Technical University of Cluj-Napoca, Romania, Department of Design Engineering and Robotics, Romanian Association for Nonconventional Technologies and the Romanian Association for Alternative Technologies Sibiu (A.R.T.A. Sibiu) the joint conference aims to showcase the most recent developments in the areas of quality and innovation engineering and management and production engineering in order to stimulate the exchange of valuable opinions and contributions by academia and industry. This year, the **QIEM conference celebrates 10 years** from its first edition, while **ICNcT will be organized for the 21st time**.

The submitted papers address particularly the following topics:

- Digitalization of products, processes, and organizations;
- The role of smart systems in remote operations;
- Servitization and extended product business models;
- Data analytics for intelligent decision-making in uncertainty conditions;
- Product and production quality during and after the health crisis;
- Innovations for tackling pandemic related challenges;
- IoT as a basis for the connected world: benefits and risks;
- Quality and innovation for Industry 4.0;
- Micro and nanotechnologies and materials for emergency situations;
- Nonconventional and additive approaches for quick response manufacturing;
- Basic physical phenomena and processes of the nonconventional procedures;
- Experimental research for nonconventional processing technologies;
- Nonconventional technologies management and other nonconventional processes;
- Nonconventional forms of energy and low carbon systems;
- Education and entrepreneurship for a more resilient society.



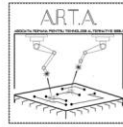
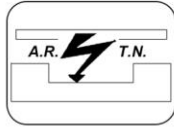
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OVERVIEW PROGRAM

Time	November 18 th , 2021	Time	November 19 th , 2021
10.00-10.15	Welcome addresses	09.00-10.30	Special session
10.15-11.45	Keynote presentations	10.30-10.45	Break for coffee
11.45-12.00	Break for coffee	10.45-12.30	Parallel sessions 4
12.00-13.30	Parallel sessions 1	12.30-12.45	Conference closing
13.30-14.30	Break for lunch		
14.30-16.00	Parallel sessions 2		
16.00-16.15	Break for coffee		
16.15-18.00	Parallel sessions 3		

All conference sessions use the Zoom video-communication system. Please test [the links in the top-right corner of each session](#) before the event and make sure you can connect, and that the sound and video streams are on. If you have any difficulties, please notify us before the conference at email mihai.dragomir@muri.utcluj.ro.





18 - 19 November 2021



Cluj - Napoca / Online

Thursday, 18.11.2021 Official opening & Keynote Speakers 10⁰⁰-11⁴⁵

Welcoming addresses

Prof. Daniela Popescu, Chair of the QIEM & ICnCT 2021 Conference

Prof. Călin Neamțu, Director Design Engineering and Robotics Department

Prof. Dumitru Mnerie, President Romanian Assoc. for Non-conventional Technologies

Prof. Mihai Țițu, ULBS, & Prof. Mihai Dragomir, TUCN, Organizing Committee Chairs

Omer Tetik, Banca Transilvania & Costel Ceocea, Evergent Investments

Speaker / Presentation

<https://uso2web.zoom.us/j/5366754748>

Prof. Numan Durakbasa

**Vienna University of
Technology, Austria**

*Advanced production and
measurement technologies for quality
based on integrated management
systems on the way to the factory of
the future*



Prof. Chin-Yin Huang

Tunghai University, Taiwan

*Knowledge-Driven
Manufacturing Systems*

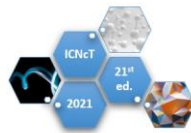
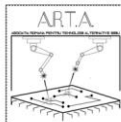
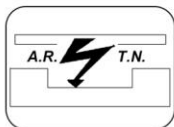


**Prof. Carmen
Constantinescu**

**Fraunhofer IAO,
Stuttgart, Germany**

*Human-centred Automation 5.0
(HCA5.0): status Quo and Quo Vadis.
Research Cooperation Fraunhofer IAO,
Germany - Technical University of
Cluj-Napoca, Romania*





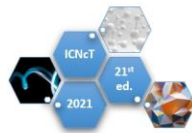
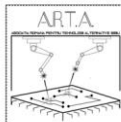
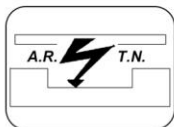
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Friday, 19.11.2021
Special session
09⁰⁰-10³⁰

Chairs: Mihai Dragomir, Emilia Câmpean		https://us02web.zoom.us/j/5366754748
Mehmet Gulsen and Burcu Barutçu	SMART WATER METERING SYSTEM FOR THE CITY OF ANKARA	
Heikki Ruohomaa, Vesa Salminen and Natalia Ivanova	EDUCATION SERVICES ON INDUSTRY 4.0 IN THE AGE OF 4TH INDUSTRIAL REVOLUTION	
Gheorghe Pop, Alina Bianca Pop, Constantin Oprean and Mihail Aurel Țițu	THE IMPORTANCE AND BENEFITS OF IMPLEMENTING THE TQM CONCEPT IN AN AEROSPACE INDUSTRY ORGANIZATION	
Viorel-Mihai Nani, Dumitru Mnerie and Alin Nani	STUDY ON WIRE ELECTRICAL DISCHARGE MACHINING (WEDM) PROCESS UNDER THE CONDITIONS OF ULTRASONIC ACTIVATION OF THE DIELECTRIC FLUID	



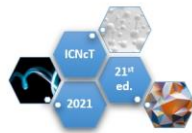
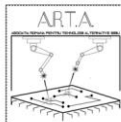
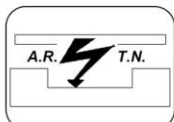
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Cluj - Napoca / Online

PARALLEL SESSIONS - QUALITY TRACK

Thursday, 18.11.2021 12⁰⁰ - 13³⁰ hrs	Chair: Sorin Popescu	shorturl.at/drBKR
Ramazan Aydin, Anil Akdogan, Ali Serdar Vanli and Numan M. Durakbasa	CASTABILITY OF STEERING KNUCKLE FROM ALUMINIUM ALLOYS BY LOW PRESSURE DIE CASTING REPLACING SAND CASTING OF CAST IRON	
Alina Bianca Pop, Gheorghe Ioan Pop, Constantin Oprean and Mihail Aurel Țițu	IMPLEMENTATION OF APQP AS A DEFECT PREVENTION MEASURE IN AN AERONAUTICAL INDUSTRY ORGANIZATION	
Muddassar Sarfraz, Muhammad Ibrahim Abdullah, Ammara Iftikhar, Larisa Ivascu and Mihai Ardelean	EMPLOYEES AS A SECOND AUDIENCE: THE EFFECT OF EXTERNAL COMMUNICATION ON INTERNAL BRAND MANAGEMENT ON THE COMMERCIAL BANKS	
Anca Drăghici, Carmen Sticlaru and Agneta Lovasz	A NEW APPROACH FOR TRAINING 3D PRINTING IN THE UNIVERSITY	
Diana Alina Blagu, Costan-Vlăduț Trifan, Denisa Adela Szabo and Mihai Dragomir	ANALYSIS OF CARBON FOOTPRINT FOR THE MILLING PROCESS	
Călin Vaida, Laurențiu Nae, Michel Deriaz, Adrian Pîslă, Eduard Oprea, Bogdan Gherman, Andreea Mircea, Leen Stulens and Doina Pîslă	USER NEEDS AND REQUIREMENTS ANALYSIS FOR A SENIORS DEDICATED AI DRIVEN KNOWLEDGE TRANSFER PLATFORM	
Thursday, 18.11.2021 14³⁰ - 16⁰⁰ hrs	Chair: Anca Drăghici	shorturl.at/drBKR
Alexandru Gabriel Andrei, Sebastian Cochinescu, Raluca Bălașa and Augustin Semenescu	A NEW PARADIGM FOR MONITORING THE QUALITY OF A PROCESS IN AVIATION INDUSTRY - DECENTRALIZED APPLICATIONS IN BLOCKCHAIN	
Vlad Ciprian Cupșan, Mihai Dragomir, Diana Dragomir and Aurel Mihail Țițu	CONTRIBUTIONS RELATED TO THE DEVELOPMENT AND IMPLEMENTATION OF ADVANCED SYSTEMS FOR STATISTICAL PROCESS CONTROL	
Ucenic Camelia Ioana and Rațiu Claudiu Ioan	AN ATTEMPT TOWARD SERVITIZATION FOR A ROMANIAN MANUFACTURER	
Mircea Fulea, Melinda Kis, Diana Blagu and Bogdan Mocan	ARTIFACT-BASED APPROACH TO IMPROVE INTERNAL PROCESS QUALITY USING INTERACTION DESIGN PRINCIPLES	
Constantin Olteanu, Diana Dragomir, Mihai Dragomir and Aurel Mihail Țițu	QUALITY MANAGEMENT APPLIED IN INFORMATION SYSTEMS	
Zsolt Levente Buna, Raul Silviu Rozsos, Radu Comes and Ștefan Bodi	ENHANCED LEARNING MATERIAL FOR MECHANICAL ENGINEERING STUDENTS	
Aurel Mihail Țițu, Radu Moisescu and Constantin Oprean	QUALITY AND DIGITALIZATION OF THE DATA BACKUP PROCESS MANAGEMENT IN ORGANIZATIONS HAVING AS OBJECT OF ACTIVITY THE PROTECTION OF INTELLECTUAL PROPERTY	

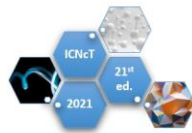
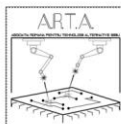
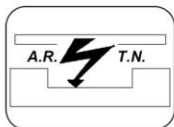


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Thursday, 18.11.2021 16¹⁵ - 18⁰⁰ hrs	Chair: Emilia Brad	shorturl.at/drBKR
Geanina-Maria David, Roxana-Maria Druța, Andreea-Loredana Bîrgovan, Laura Bacali and Florin Lungu	INDUSTRY 4.0 AND THE CIRCULAR ECONOMY: A SYSTEMATIC REVIEW OF THE LITERATURE	
Cătălin-Laurențiu Bulgariu, Mihai Ciupan and Aurel Mihail Țițu	QUALITY MANAGEMENT IN RAILWAY TRANSPORT - TRAFFIC CAPACITY VS. INFRASTRUCTURE CAPACITY	
Ioana Apostol, Diana Dragomir and Aurel Mihail Țițu	SPECIFIC ASPECTS OF QUALITY ASSURANCE AND MANAGEMENT IN THE AEROSPACE FIELD	
Adina Alexandra Bretan	CONCEPTUAL FRAMEWORK CONCERNING THE ROLE OF BIG DATA ANALYTICS IN INTELLIGENT DECISION-MAKING SUPPORT SYSTEMS DURING THE COVID-19 CRISIS	
Gheorghe Neamțu, Mihai Dragomir and Aurel Mihail Țițu	QUALITY AND QUALITY MANAGEMENT IN ECOLOGICAL AUTOMOTIVE TRANSPORT – OPPORTUNITIES AND PERSPECTIVES	
Roxana Santa and Sorin Popescu	SYSTEMATIC RISK MANAGEMENT MODEL IN SMART WORKING	
Constantin Olteanu, Costel Ceocea and Aurel Mihail Țițu	QUALITY MANAGEMENT APPLIED IN COMPUTER SYSTEMS IMPLEMENTED IN PUBLIC ORGANIZATIONS PROVIDING SERVICES TO CITIZENS	
Friday, 19.11.2021 10⁴⁵ - 12³⁰ hrs	Chair: Diana Dragomir	shorturl.at/drBKR
Dorin Vasile Deac-Șuteu, Aurel Mihail Țițu and Marius Ioan Toderici	CATALOG OF IT SERVICES - TOOLS TO IMPROVE QUALITY AND SAFETY IN IT SUPPORT COMPANY	
Vasile Gusan, Mihail Aurel Țițu and Constantin Oprean	INDUSTRIAL ROBOTS VERSUS COLABORATIVE ROBOTS - THE PLACE AND ROLE IN NONCONVENTIONAL TECHNOLOGIES	
Mircea Radu	E-COMMERCE TRENDS ANALYZED BY THE CONSUMER, COMMUNICATION AND ASSOCIATED RISKS	
Iuliana Moisescu, Lucian Ioan Târnu and Aurel Mihail Țițu	EFFICIENCY OF THE APPROVAL PROCESS AT THE LEVEL OF A MINISTRY, THROUGH THE USE OF THE IDEF 0 METHODOLOGY	
Cătălin Laurențiu Bulgariu, Mihai Ciupan and Mihail Aurel Țițu	RAILWAY TRANSPORT MANAGEMENT IN THE COVID 19 ERA AND THE ECONOMIC SOCIAL IMPACT OF THE PANDEMIC ON THE RAILWAY INDUSTRY	
Bungardi Bogdan, Izvercian Monica and Chendes Remus	LEAN MANAGEMENT AND CRITICAL PAT METHOD APPLIED IN DESIGN OF SOLAR ENERGY PROJECTS: A COMPARISON STUDY	
Gheorghe Neamțu, Lucian Ioan Târnu and Aurel Mihail Țițu	EUROPEAN POLICY ON THE QUALITY OF THE ENVIRONMENT IN THE CONTEXT OF THE SUSTAINABLE DEVELOPMENT OF THE ROAD TRANSPORT SYSTEM	



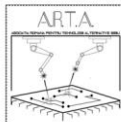
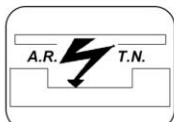
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PARALLEL SESSIONS - INNOVATION TRACK

Thursday, 18.11.2021 12⁰⁰ - 13³⁰ hrs	Chair: Stelian Brad	shorturl.at/auzMU
Emre Keklik, Engin Gunes, Mahir Yasar, Selahattin Mert Aydin and Anil Akdogan	MODULAR SMART ELECTRONIC SWINGHANDLE WITH REMOTE CONTROL BASED INTERNET OF THINGS (IOT)	
Anca Drăghici, Raluca Văduva, Sebastian Capotescu and Gabriela Banaduc	INNOVATIONS FOR TACKLING POST-PANDEMIC RELATED CHALLENGES. A COLLABORATIVE RESEARCH TO DISCOVER NEW SOLUTIONS FOR HYBRID WORK IN THE CONTEXT OF 15-MINUTE CITIES	
Laura-Florentina Boanță, Alexandru Marin, Mihaela Guda, Narcisa-Melania Tănase and Miron Zapciu	DECISION-MAKING ALGORITHM FOR OPTIMIZATION OF RESEARCH RESULTS COMMERCIALIZATION PROCESS IN UNIVERSITY "POLITEHNICA" FROM BUCHAREST	
Christian Vocke, Carmen Constantinescu, Bastian Pokorni, Daniela Popescu and Johannes Wimmer	FOSTERING INNOVATION – TOWARDS A HYBRID BUSINESS AND WORKING WORLD	
Salih Vardin, Pinar Demircioglu and Ismail Bogrekci	DEVELOPMENT AND IMPLEMENTATION OF AN UNMANNED GROUND VEHICLE FOR OFF-ROAD APPLICATIONS	
Popescu Daniela, Bodi Ștefan, Neamtu Călin, Cătălin Grec, Milan Marian Jac and Răzvan Curta	PHOTOGRAMMETRY ACCURACY EVALUATION THROUGH 3D SCANNING AND MEASUREMENT OF A CUSTOM-DESIGNED GAUGE	
Thursday, 18.11.2021 14³⁰ - 16⁰⁰ hrs	Chair: Alexandru Marin	shorturl.at/auzMU
Stelian Brad and Damaris Naomi Dolha	DESIGN-CENTRIC OBSTACLE AVOIDANCE ALGORITHM FOR AN AUTONOMOUS MOBILE ROBOT AND ITS TESTING USING VIRTUAL PROTOTYPING TECHNOLOGIES	
Sergiu Alec and George Drăghici	THE PERSONALIZED PRODUCTS DESIGN USING KNOWLEDGE-BASED ENGINEERING	
Ancuța-Elena Paven and Gabriela Banaduc	THE IMPACT OF DIGITALIZATION ON EDUCATIONAL AND ADMINISTRATIVE SYSTEMS	
Radu Comes and Dragoș Andrei Andreșan	VIRTUAL REALITY TRAINING SYSTEM FOR INJECTION MOULDING OPERATORS	
Ștefan Bodi, Vladimir Gorceag, Zsolt Levente Buna, Raul-Silviu Rozsos and Vasile-Vlăduț Astalos	COMPETITIVE DESIGN AND PROTOTYPING OF A MEDICAL DEVICE USED FOR REDUCING THE SPREAD OF COVID-19	
Bogdan Mocan, Mircea Fulea, Mircea Murar, Sergiu Marian and Ioan Aurel Cherecheș	ROBOTIC CELL CUSTOMIZATION USING AUGMENTED REALITY	

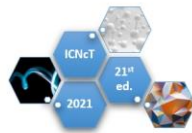
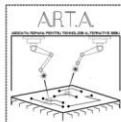
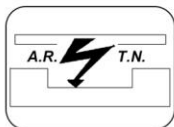


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Thursday, 18.11.2021 16¹⁵ - 18⁰⁰ hrs	Chair: Călin Neamțu	shorturl.at/auzMU
Claudiu Schonstein, Răzvan Curta and Corina Adriana Dobocan	CONSIDERATIONS REGARDING THE IMPLEMENTATION OF SERIAL ROBOTS IN WORKING PROCSESSES	
Roxana-Maria Druța, Geanina-Maria David, Radu-Adrian Munteanu, Andreea-Loredana Bîrgovan and Sorin-Dan Clinci	WEEE INDUSTRY IN THE CONTEXT OF THE CIRCULAR ECONOMY	
Alexandru Lazarov and Augustin Semenescu	KNOWLEDGE TRANSFER IN ROMANIAN UNIVERSITY QUADRUPLE HELIX ECOSYSTEMS	
Dobocan Corina Adriana, Chiriac Constantin, Schonstein Claudiu and Rozsos Raul Silviu	AN APPROACH OF DESIGNING A MOBILE FRIDGE-FREEZER	
Andrei Mitru, Mircea Mitru, Cora Cotescu and Augustin Semenescu	CONTRIBUTIONS TO ROBOTIC GAS TUNGSTEN ARC WELDING OF A HEAT EXCHANGER ASSEMBLY USED AS A PART OF AN ELECTRICALLY DRIVEN CENTRIFUGAL AIR COMPRESSOR CCAE 15-300	
Michael Necula, Emilia Câmpean and Liviu Morar	DEFINING THE CHARACTERISTICS NEEDED FOR THE ROBOTS DESIGN USED FOR THE SUPPLY OF CNC MACHINES	
Andrei Mitru, Mircea Mitru and Augustin Semenescu	RESEARCH ON THE TECHNOLOGY OF MANUFACTURING A HEAT EXCHANGER ASSEMBLY USED AS A PART OF AN ELECTRICALLY DRIVEN CENTRIFUGAL AIR COMPRESSOR CCAE 15-300	
Friday, 19.11.2021 10⁴⁵ - 12³⁰ hrs	Chair: Corina Bîrleanu	shorturl.at/auzMU
Morariu Adrian-Marcel, Glăvan Dan Ovidiu, Muncuț Elena Stela, Radu Ioan and Komjaty Andrei	COMPARATIVE STUDY BETWEEN PROGRAMMING IN A DESIGN PROGRAM AND A CNC PROGRAM	
Nicoleta Mirea, Cornelia-Victoria Anghel-Drugarin and Anca Drăghici	A STUDY OF USING GOOGLE CLASSROOM PLATFORM IN THE CASE OF A RURAL PRE-UNIVERSITY SMALL EDUCATION UNIT	
Constantin-Cristian Deopale, Liviu Daniel Ghiculescu and Bogdan-Ionuț Cristea	INDUSTRY 4.0 IN ROMANIA - A PRACTICAL ANALYSIS OF THE COUNTRY POTENTIAL FROM ECONOMIC AND HUMAN RESOURCES PERSPECTIVE TO SUPPORT A SUSTAINABLE DEVELOPMENT OF CEMENT SMART FACTORIES	
Dominik Kretschmar	SYSTEMATIC REVIEW OF PRODUCT SERVICE SYSTEM LITERATURE	
Andrei Căprariu, Nadim Al Hajjar, Călin Vaida, Florin Graur, Adrian Pîslă, Emil Mois, Paul Tucan, Corina Radu, Iosif Bîrlescu and Doina Pîsla	A FUNCTIONAL DESIGN ANALYSIS FOR A ROBOTIC GUIDED INSTRUMENT USED IN RADIOFREQUENCY ABLATION	
Lavinia Culda	PORTABLE DEVICES IN THE FIGHT OF SARS-COV2	
Andrea Szilagyi, Andreea-Loredana Bîrgovan, Elena-Simina Lakatos, Laura Bacali, Roxana-Maria Druța and Daiana Șeitoar	THE USE OF INDUSTRY 4.0 TECHNOLOGIES IN CIRCULAR ECONOMY FOR CONSUMER BEHAVIOR	



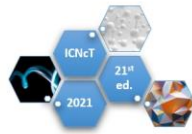
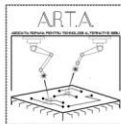
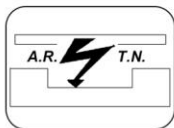
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PARALLEL SESSIONS - NONCONVENTIONAL TECH. TRACK

Thursday, 18.11.2021 12⁰⁰ - 13³⁰ hrs	Chairs: Constantin Oprean and Dumitru Mnerie	shorturl.at/ewRV4
Margareta Coteață, Nicolae Pop, Ionel-Iulian Hurja, Laurențiu Slătineanu, Adelina Hrituc and Irina Besliu-Băncescu	PREMISES OF IDENTIFYING EQUIPMENT FOR CUTTING BY ELECTROCHEMICAL MACHINING	
Liviu Daniel Ghiculescu, Claudiu Pîrnău, Cornel Enciu and Gabriela Marina Ene	SEARCH FOR KEYWORDS IN A HYBRID TECHNOLOGIES FIELD, BASED ON ULTRASONICALLY AIDED EDM-ECM USING THE ONLINE ENVIRONMENT	
Cristian Pisarciuc	EVALUATING THE POSSIBILITY OF REPLACING SOME COMPONENTS WITH PARTS MADE BY USING ADDITIVE TECHNOLOGY	
Viktor Rubashevskiy and Sergiy Shukaev	EFFECT OF CONSTRUCTIVE PARAMETERS ON TENSILE STRENGTH OF 3D-PRINTED PLA-GRAPHITE COMPOSITE	
Bruno Rădulescu, Andrei-Marius Mihalache, Mara Rădulescu, Laurențiu Slătineanu, Adelina Hrituc, Oana Dodun, Gheorghe Nagiț and Margareta Coteață	SELECTION OF A METHOD FOR MACHINING AN ARCHIMEDEAN SPIRAL GROOVE	
Štefánia Olejárová	MONITORING THE TECHNICAL CONDITION OF THE BALL BEARING BY METHODS OF VIBRATION AND THERMAL IMAGING DIAGNOSTICS	
Thursday, 18.11.2021 14³⁰ - 16⁰⁰ hrs	Chairs: Liviu Daniel Ghiculescu and Aurel Mihail Țițu	shorturl.at/ewRV4
Mihai Ciupan, Emilia Campean and Mihail Aurel Țițu	SOFTWARE FOR GENERATING A SPUR GEAR'S INVOLUTE PROFILE AND ALTERNATIVE MANUFACTURING METHOD	
Muncuț Elena Stela and Pîrvu Florin	PNEUMATIC ACTUATION OF LASER BEARING ENGRAVING STATION	
Aurel Tulcan, Felicia Veronica Banciu, Liliana Tulcan and Ion Grozav	THEORETICAL MODEL FOR CALCULATE THE ELASTIC AND CONTACT DEFORMATIONS OF THE POSITIONING ELEMENTS OF A 3-2-1 FIXTURE SYSTEM	
Eduard Paul Schelegia, Traian Fleșer and Dumitru Mnerie	DATA MANAGEMENT SYSTEM FOR MONITORING THE WORKING ENVIRONMENT OF NONCONVENTIONAL EQUIPMENT	
Emilia Ciupan, Ioan Cionca, Mihai Ciupan and Emilia Câmpean	THE OPTIMIZATION OF COSTS FOR THE THERMOFORMED FRAMES FROM NATURAL FIBER COMPOSITES	
Vasile Ermolai, Alexandru Sover and Gheorghe Nagiț	STRENGTH CHARACTERIZATION OF DISSIMILAR MATERIAL SAMPLES PRODUCED VIA FUSED FILAMENT FABRICATION	

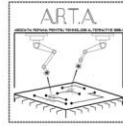
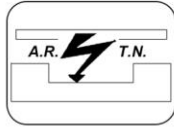


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Thursday, 18.11.2021 16¹⁵ - 18⁰⁰ hrs	Chairs: Margareta Coteață and Cristian Pisarciuc	shorturl.at/ewRV4
Bogdan-Ionuț Cristea, Liviu Daniel Ghiculescu and Cristian Deopale	MODELING AND SIMULATION OF DEFORMATIONS IN THE FEED SYSTEM FOR ULTRASONICALLY AIDED MICRO-EDM	
Voicu-Ioan Safta, Gabriela Victoria Mnerie and Dumitru Mnerie	STUDY ON THE EFFICIENCY OF SPOT WELDING TECHNOLOGIES FOR STAINLESS STEEL THIN SHEETS USING CONCENTRATED ENERGIES	
Gabriela Marina Pârvu, Cornel Enciu and Liviu Daniel Ghiculescu	A REVIEW ON ELECTROCHEMICAL MACHINING AND MICRO-MACHINING	
Cornel-Cristian Enciu, Gabriela-Marina Pârvu and Daniel-Liviu Ghiculescu	HYBRID MICRO-MACHINING PROCESSES WITH ULTRASONIC ASSISTANCE: A REVIEW	
Ralph Vereș, Bianca-Cristina Feier, Sandu Ilea and Caius Stănășel	EMERGING USE OF NONCONVENTIONAL TECHNOLOGIES DURING THE GLOBAL PANDEMIC	
Botiș Mihaela	CONSIDERATIONS ABOUT COPPER ETCHING BY PHOTOCHEMICAL MACHINING	
Flaviu Corb, Ralph Vereș, Caius Stănășel and Dorin Robert Luca	CAD-CAM SYSTEMS USED FOR DESIGNING AND MANUFACTURING OF AN ELECTRODE USED FOR THREADING BY MEANS OF ELECTRICAL ERROSION	
Friday, 19.11.2021 10⁴⁵ - 12³⁰ hrs	Chairs: Elena Simina Lakatos and Alina Bianca Pop	shorturl.at/ewRV4
Cornel-Cristian Enciu, Gabriela-Marina Pârvu and Daniel-Liviu Ghiculescu	SPECIFIC EQUIPMENT AND IMPROVED PARAMETERS IN ULTRASONICALLY HYBRID ASSISTED PROCESSES	
Claudiu Mureșan, Cornel Ciupan, Emanuela Pop and Mihai Ciupan	OPTIMIZATION OF THE GEOMETRIC PARAMETERS OF THERMOFORMED PARTS	
Ana Cristina Iuga and Liviu Daniel Ghiculescu	MODELING AND SIMULATION OF ION IMPLANTATION AND ELECTRICAL DISCHARGE DEPOSITION	
Andreea-Loredana Bîrgovan, Andrea Szilagy, Elena-Simina Lakatos, Laura Bacali, Lucian-Ionel Cioca, Geanina-Maria David and Doru Maier	EVALUATION GRID OF CIRCULAR ECONOMY INDICATORS FOR CIRCULAR BUSINESS MODELS: A REVIEW BASED ON BUSINESS VALUE	
Claudiu Ioan Rațiu and Camelia Ioana Ucenic	EXPERIMENTAL DETERMINATION OF ENERGY CONSUMED FOR CLEANING THE SELF-MAINTENANCE FILTERS	
Monica Iorga, Adrian Ioana, Bianca Cezarina Ene, Dumitru Deonisie, Florin Ștefan Petcu and Massimo Pollifroni	ASPECTS ON THE ANALYSIS AND QUANTIFICATION OF THE QUALITY OF PRODUCTS, WORKS AND SERVICES	
Florin Ștefan Petcu, Adrian Ioana, Claudiu Nicolicescu, Monica Iorga, Bianca Cezarina Ene and Deonisie Dumitru	ASPECTS REGARDING THE ANALYSIS AND QUANTIFICATIONS OF THE QUALITY OF PRODUCTS, WORKS AND SERVICES (II)	
Răzvan Curta, Mihai Dragomir, Călin Neamțu, Marian Jac & Rareș Ghinea	NEW CONCEPT AND DESIGN OF A SMART HOSPITAL BED	
Note: this parallel session is common for the three conference tracks		



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Technical University of Cluj-Napoca

Romanian Association for Nonconventional Technologies

Romanian Association for Alternative Technologies Sibiu

qiem-nct.utcluj.ro

qiemnct2021@easychair.org

+40-264-401761

+40-269-430110

PARTNERS

