IFPR ICPR-AEM 2018 CLUJ-NAPOCA ROMANIA

JULY 25th - 26th, 2018
CLUJ-NAPOCA, ROMANIA

5th QIEM 2018 CLUJ-NAPOCA, ROMANIA

TECHNICAL UNIVERSITY OF CLUJ-NAPOCA ROMANIA

"Viable solutions for today's industrial production integrating a breakthrough vision for a digital sustainable future"

ICPR-AEM & QIEM 2018 is a special joint scientific event organized for the third time in Cluj-Napoca by the International Foundation for Production Research (Regional Committee Africa, Europe and the Middle East) and the Technical University of Cluj-Napoca. This edition addresses the following topics and many more:

- Digitalization and virtualization from industry towards daily life
- Advanced manufacturing: technologies and solutions for production
- Robotics and AI from emerging reality to production assets
- Innovation as the main competitive engine in production engineering
- Product & production quality: flexible, customized and fast to market
- Cleaner, safer and sustainable solutions for products and processes

OVERVIEW PROGRAM

Time	July 25th, 2018	July 26th, 2018	July 27th, 2018
09.30-11.00	**Opening & Plenary** *Caravaggio*	**Parallel sessions** *Bernini & Botticelli*	**Social program** *Half-day trip to Alba Iulia Citadel* (register at Reception) **Smart Factory Hub** Interreg DTP Project *Learning demonstration workshop* (for project members)
11.00-11.30	Coffee break *Mezzanine*	Coffee break *Mezzanine*	
11.30-13.00	**Plenary session** *Caravaggio*	**Parallel sessions** *Bernini & Botticelli*	
13.00-14.30	Lunch *Firenze*	Lunch *Firenze*	
14.30-16.00	**Parallel sessions** *Bernini & Botticelli*	**Parallel sessions** *Bernini & Botticelli*	
16.00-16.30	Coffee break *Mezzanine*	Coffee break *Mezzanine*	
16.30-18.00	**Parallel sessions** *Bernini & Botticelli*	**Parallel sessions & Conference closing** *Bernini & Botticelli*	
19.30-22.00	Gala dinner *Venezia*		
Registration available July 25th, 8 AM to July 26th, 1 PM			

Wednesday, 25.07.2018
Official opening & Keynote Speakers
9^{30}-11^{00}

Welcoming addresses

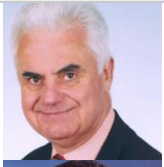
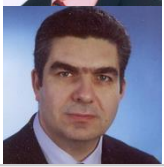
Prof. Vasile Ţopa, Rector of the Technical University of Cluj-Napoca

Prof. Dieter Spath, Fellow of the International Foundation for Production Research

Prof. Daniela Popescu, Chair of the ICPR-AEM & QIEM 2018 Conference

Speaker	Presentation title	*Room Caravaggio*
Prof. Cihan H. Dagli **Missouri University of Science and Technology, USA** **Fellow of INCOSE and IIE**	"Architecting Cyber Manufacturing Systems"	
Prof. Engelbert Westkämper **University Stuttgart, Germany** **Fellow of CIRP**	"Learning Manufacturing Systems"	
Prof. Anthony SF Chiu **De La Salle University, Manila, Philippines**	"Sustainable Consumption Pattern on Global Resource Use"	

Wednesday, 25.07.2018
Keynote Speakers
11^{30}-13^{30}

Speaker	Presentation title	*Room Caravaggio*
Prof. Dieter Spath **President of acatech, Germany** **Fellow of IFPR**	"Transformation@Work - How we will work tomorrow"	
Prof. Albert Weckenmann **Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany** **&** **Prof. Numan Durakbasa** **Vienna University of Technology, Austria**	"Testing for Industrie 4.0: Extended Specification, Advanced Measurement and Enriched Evaluation for Virtual Prediction of Functional Capability"	 
Prof. Oliver Riedel **Director Fraunhofer Institute for Industrial Engineering IAO, Germany**	"Cognitive Digital Twins towards Engineering and Manufacturing Excellence"	

PRODUCTION RESEARCH THEMATIC SESSIONS

Wednesday, 25.07.2018 14^{30} - 16^{00}hrs	**Chairs: Mathias Liewald, Marek Fertsch Bernini Room**
Clemens Ackermann and Max Hossfeld	FUTURE NETWORKED MANUFACTURING - A BREAKTHROUGH CONCEPT AND ITS IMPLEMENTATION
Jörg Niemann, Tim Schemann and Justus Erkens	SERVITIZATION - PATHWAY OF TRANSFORMATION FROM PRODUCT MANUFACTURER TOWARDS A SERVICE PROVIDER
Mehmet Gulsen	INCORPORATING BILL OF MATERIALS IN BOTTOM-UP DEMAND FORECASTING
Michał Adamczak, Roman Domański, Piotr Cyplik and Olga Szymańska	DELIVERING OF LOGISTICS PROCESSES SIMULATION SKILLS
Bogdan Mocan, Stelian Brad, Mircea Murar, Emilia Brad and Mircea Fulea	SAFETY MANAGEMENT WITHIN A ROBOTIC MANUFACTURING SYSTEM THROUGH LAYOUT DESIGN
Oliver Todorovic and Carmen Constantinescu	FOUNDATIONS FOR ECONOMIC EVALUATION OF EXOSKELETONS IN MANUFACTURING

Wednesday, 25.07.2018 16^{30} - 18^{00}hrs	**Chairs: Jörg Niemann, Stelian Brad Bernini Room**
Mathias Liewald, Gerd Reichardt, Christoph Woerz, Celalettin Karadogan and Benjamin Lindemann	VOLATILE MEDIA AS LUBRICANT SUBSTITUTES IN DEEP DRAWING AND TRACKING OF INDIVIDUAL WORKPIECES IN HOT FORGING PLANTS
Ismail Bogrekci, Hilmi Saygin Sucuoglu, Pinar Demircioglu and Ogulcan Turhanlar	STRUCTURAL ANALYSIS OF CORN SILO BY COMPUTING VERTICAL AND LATERAL FORCES
Cornel Ciupan, Dan-Sorin Comsa and Emilia Ciupan	SIMULATING THE THERMOFORMING PROCESS OF A BOX FOR UPHOLSTERED FURNITURE
Christian Dahmen and Carmen Constantinescu	METHODOLOGY FOR EVALUATION THE TIME-MANAGEMENT IMPACT OF EXOSKELETON-CENTRED WORKPLACES
Marek Fertsch	ARCHITECTURE OF THE INFORMATION SYSTEM IN THE CYBERNETIC-PHYSICAL PRODUCTION SYSTEM
Sorin-Dumitru Grozav and Vasile Ceclan	CALCULATION OF THE CONTACT SURFACE IN THE ORBITAL DEFORMATION OF THE CYLINDRICAL WORKPIECE

PRODUCTION RESEARCH THEMATIC SESSIONS

Thursday, 26.07.2018 9^{30} - 11^{00}hrs	**Chairs: Joni Kukkamaki, Alexandru Marin Bernini Room**
Ismail Bogrekci, Hilmi Saygin Sucuoglu, Pinar Demircioglu, Ogulcan Turhanlar and Asli Gultekin	STRUCTURAL AND DISCRETE ELEMENT ANALYSIS OF COAL MINE CONVEYOR SYSTEM
Joanna Dehmer, Sophia Bolte and Jörg Niemann	DIGITAL LEADERSHIP 4.0
Monika Kosacka-Olejnik and Karolina Werner - Lewandowska	HOW MATURE IS REVERSE LOGISTICS? - CONCEPT OF THE MATURITY MODEL
Constantin Bungau, Adriana Borza and Aurel Caus	COMPARATIVE STUDIES OF INDICATORS DEFINING ENTREPRENEURSHIP CULTURE IN ROMANIA
Manuel Dumitrascu, Claudiu Kifor and Lucian Lobont	KEY PERFORMANCE INDICATORS FOR SUPPLY CHAIN MANAGEMENT
Camelia Ioana Ucenic and Claudiu Ioan Ratiu	EVALUATION OF SUPPLY CHAIN COMPLEXITY AT MATERIAL FLOW LEVEL FOR A ROMANIAN COMPANY

Thursday, 26.07.2018 11^{30} - 13^{00}hrs	**Chairs: Daniela Popescu, Carmen Constantinescu Bernini Room**
Riccarda Behle	HOW MEANINGFUL IS AUTOMATION OF ASSEMBLY LINE SUPPLY
Adrian Pisla, Lorand Kacso-Vidrean, Raluca-Dorina Baidoc and Daniela-Corina Jucan	DUST DEPOSITION CALCULATION FOR PANNELS ROBOTIZED CLEANING AND MAINTETNACE
Radu-Constantin Vlad	A MIP MODEL FOR INTEGRATED PLANNING AND SCHEDULING OF WIRING SYSTEMS ASSEMBLY
Mihai Ciupan, Marcel Popa, Ioan Pavel Sosa, Glad Contiu and Emilia Ciupan	DEVELOPMENT AND TESTING OF MINERAL CASTING FOR USE IN STRUCTURAL ELEMENTS AND MOLD MAKING
Daniel Vasile Banyai, Ionel Radu Pop, Dan Opruta and Liviu Ioan Vaida	OPTIMAL FLOW CONTROL FOR INCREASED ELECTRICITY PRODUCTION IN HYDROPOWER PLANTS
Sanda Timoftei, Emilia Brad, Anca Stan-Sarb and Ovidiu Stan	OPEN-SOURCE SOFTWARE IN ROBOTICS

PRODUCTION RESEARCH THEMATIC SESSIONS

Thursday, 26.07.2018 14^{30} - 16^{00}hrs	**Chairs: Dănuț Julean, Virgil Ispas Bernini Room**
Elena Simina Lakatos, Laura Bacali, Ligia Maria Nan, Alina Maria Danciu and Matthew Greenley	THE DEVELOPMENT OF THE PRODUCTION PROCESSES IN AN ACTIVE CIRCULAR ECONOMY SYSTEM, A VIEW OF RECIRCULATION
Claudiu Schonstein, Mihai Steopan and Razvan Curta	GEOMETRICAL AND KINEMATICAL CONTROL FUNCTIONS FOR A CARTESIAN ROBOT STRUCTURE
Dominik Kretschmar, Matthias Schmieder and Jörg Niemann	THE DEVELOPMENT OF A KNOWLEDGE MANAGEMENT CONCEPT TO COMPENSATE A HIGH EMPLOYEE FLUCTUATION
Sergiu Solcan, Calin Neamtu, Paul Bere, Rares Ghinea, Raul Rozsos and Attila Papp	USING COMPOSITE MATERIALS FOR INTERIOR DESIGN OF AN ELECTRICAL CAR
Monica Bogdan and Adriana Sava	SUPPLY CHAIN FINANCE, A SOLUTION TO IMPROVE BUSINESS EFFICIENCY
Ioana-Roxana Cicala	ORGANIZATIONAL PERFORMANCE MEASUREMENT MODEL FOR TECHNOLOGIZED FURNITURE MANUFACTURERS

Thursday, 26.07.2018 16^{30} - 18^{00}hrs	**Chairs: Dan Hurgoiu, Mircea Fulea Bernini Room**
Razvan Curta, Mihai Steopan and Claudiu Schonstein	AUTOMATING THE FEEDING OF A FUSEBOX FOR THE AUTO INDUSTRY
Carmen Constantinescu, Daniela Popescu, Oliver Todorovic, Ovidiu Virlan and Vlad Tinca	METHODOLOGY OF REALISING THE DIGITAL TWINS OF EXOSKELETON-CENTRED WORKPLACES
Adrian Sorin Faur, Marcel Sabin Popa, Glad Contiu, Bogdan Cornel Luca and Vlad Tomoiaga	RESEARCH REGARDING A REDUCED CONTACT BETWEEN THE FLANK SURFACE AND THE MATERIAL DURING TAPPING IN ORDER TO INCREASE MACHINING PRODUCTIVITY
Nicoleta-Ioana Pipas, Elena-Maria Pica, Elena-Simona Avram and Suciu Ramona	RESEARCHES ON THE CHARACTERISTICS OF ALUMINUM ALLOYS RECOVERED FROM END-OF-LIFE VEHICLES
Hannelore Ilesan and Dan Berinde	FACILITATED LEARNIG IN A HIGH-TECH MANUFACTURING ERA
Elena Simina Lakatos, Laura Bacali, Alina Oana Ciomos, Mihaela Gabriela Rosca and Cristina Mateiciuc	THE BEHAVIOUR OF NEW GENERATIONS CONSUMERS RELATED TO THE CIRCULAR ECONOMY
Ioana-Roxana Cicala, Mihai Dragomir and Stefan Bodi	A STRATEGIC APPROACH FOR THE IMPLEMENTATION ASSESSMENT OF ADVANCED MANUFACTURING TECHNOLOGIES

QUALITY AND INNOVATION RESEARCH THEMATIC SESSIONS

Wednesday, 25.07.2018 14^{30} - 16^{00}hrs	**Chairs: Robert Refflinghaus, Ismail Bogrekci Botticelli Room**
Joni Kukkamäki, Heikki Ruohomaa & Vesa Salminen	DEVELOPMENT OF ICT EDUCATION IN DIGITALIZING BUSINESS ENVIRONMENT
Frank Rennung, Daniel Paschek, Corina Monica Dufour and Anca Draghici	MANAGING COMPLEXITY IN LARGE-SCALE BUSINESS PROJECTS. EXPERIMENTAL RESEARCHES FOR VALIDATING THE PROPOSED MODEL
Meda Gheorghe, Daniela Ciobanu, Radu Saulescu and Codruta Jaliu	ECONOMIC ANALYSIS ALGORITHM FOR THE SELECTION OF A PV-WIND HYBRID SYSTEM
Ali Serdar Vanli, Anil Akdogan, Kai Kerber, Sahin Ozbekand and Numan Durakbasa	SMART DIE CASTING FOUNDRY ACCORDING TO INDUSTRIAL REVOLUTION 4.0
Daniela Popescu, Vasile Tompa, Dan Hurgoiu, Calin Neamtu, Ciprian Firea, Diana Dragomir and Zsolt Buna	USING IMAGINE PROCESSING TO AUTHENTICATE ARTWORKS
Grigore Marian Pop, Liviu Adrian Crișan, Mihai Tripa and Durakbasa Numan M.	ISO CHECKER, AN ANDROID APPLICATION FOR FIT CALCULATION ACCORDING TO THE LATEST ISO GPS STANDARDS

Wednesday, 25.07.2018 16^{30} - 18^{00}hrs	**Chairs: Pinar Demircioglu, Mihail Țîțu Botticelli Room**
Christian Esser and Robert Refflinghaus	OPTIMIZING THE EVALUATION OF EYE TRACKING DATA TO VALIDATE REQUIREMENTS IN VIRTUAL SPACE TO IMPROVE CUSTOMER SATISFACTION
Alexandru Marin, Narcisa Melania Tanase, Mihaela Guda and Laura Boanta	SMART SPECIALIZATION AND CLUSTER POLICIES FOR DEVELOPING INNOVATIVE CAPACITY AT REGIONAL AND NATIONAL LEVEL IN ROMANIA
Mikolaj Dramowicz and Piotr Cyplik	APPLICATION OF THE AGGREGATED DMAIC-PDCA METHOD FOR IMPROVING THE EFFICIENCY OF A PRODUCTION PROCESS AT A WORKSTATION - CASE STUDY
Monika Kosacka-Olejnik, Karolina Werner-Lewandowska, Aleksander Geisler and Filip Marciniak	WHICH OPTION OF SUSTIANABLE MOBILITY SHOULD BE CHOSEN? - AHP METHOD APPLICATION FOR SUSTAINABLE DECISION MAKING IN TRANSPORT
Cristina Feniser, Arik Sadeh, Javier Bilbao, Florin Lungu and Alina Solovastru	INNOVATIVE PERCEIVED CONDUCT OF INDUSTRIAL FIRMS
Mirabela Gaspar and Violeta Firescu	NEW SKILLS AND QUALIFICATIONS REQUIRED BY THE CURRENT APPROACHES IN THE SOFTWARE DEVELOPMENT INDUSTRY

QUALITY AND INNOVATION RESEARCH THEMATIC SESSIONS

Thursday, 26.07.2018 9^{30} - 11^{00}hrs	**Chairs: Wojciech Płowucha, Claudiu Kifor Botticelli Room**
Ismail Bogrekci, Pinar Demircioglu, Hilmi Saygin Sucuoglu, Asli Gultekin and Emrah Guven	COMPUTATIONAL FLUID DYNAMIC ANALYSES OF WIND TURBINES FOR SOKE REGION
Emanuela Pop, Mihai Steopan, Cornel Ciupan and Ioan Filip	DECREASING THE MASS OF A SOFA SIDE MADE OF COMPOSITE MATERIALS BASED ON VEGETABLE FIBERS
Campean Emilia, Dragomir Mihai, Beldean Marcel, Chiran Daniela and Ambros Ivan	ON-LINE SUPPORT FOR BIO-ECONOMY ACTORS THROUGH THE „MADE IN DANUBE" PROJECT
Emilia Brad, Anca Sarb, Razvan-Marius Popa and Sanda Timoftei	TECHNIQUES FOR ENSURING COST SAVINGS AND ENVIRONMENT PROTECTION IN BUILDINGS
Laura Andrada Bacali, Andreea Botos, Elena Simina Lakatos and Laura Bacali	THE IMPORTANCE OF SUSTAINABLE AMBIANCE IN ROMANIAN UNIVERSITY EDUCATIONAL SPACES
Frank Rennung, Daniel Paschek, Corina Monica Dufurand Anca Draghici	MANAGING COMPLEXITY IN LARGE-SCALE BUSINESS PROJECTS. A THEORETICAL MODEL

Thursday, 26.07.2018 11^{30} - 13^{00}hrs	**Chairs: Sorin Popescu, Liviu Crișan Botticelli Room**
Anamaria Huzu, Claudiu Vasile Kifor, Roxana Florenta Savescu and Gianina Lup	LEAN, SIX SIGMA IN HEALTHCARE: A LITERATURE REVIEW
Emilia Maria Campean, Mihai Dragomir, Marcel Beldean and Vladut Gabriel	DEVELOPING INNOVATION AND TECHNOLOGY TRANSFER E-TOOL IN THE FIELD OF BIO-ECONOMY
Mircea Fulea, Stelian Brad, Bogdan Mocan and Mircea Murar	FRAMEWORK FOR BUILDING A SERVICE VISION STATEMENT
Marius Constantin Dan and Cristina Daniela Prica	IMPLICATION OF TQM, LSS, IATF 16949 APPROACH WITHIN AUTOMOTIVE INDUSTRIES
Marius-Lucian Gal and Claudiu-Vasile Kifor	OFFSHORING FOR COMPANIES SPECIALISED IN SOFTWARE FOR AUTOMOTIVE
Adriana Sava, Monica Bogdan and Kinga Kocsi	ONLINE DISCLOSURE OF NON-FINANCIAL INFORMATION IN ROMANIAN LARGE COMPANIES

QUALITY AND INNOVATION RESEARCH THEMATIC SESSIONS

Thursday, 26.07.2018 14^{30} - 16^{00}hrs	**Chairs: Adrian Pîslă, Bogdan Mocan Botticelli Room**
Paweł Rosner	MANAGEMENT OF TECHNICAL DOCUMENTATION IN THE CONTEXT OF GPS STANDARDS CHANGES
Paul Alexandru Farcas and Carmen Maria Muresan	THE IMPORTANCE OF THE ARCHETYPAL FEATURES ON MILLENNIALS IN THE CONTEXT OF BRAND DIFFERENTIATION - A QUALITATIVE APPROACH
Florian Teleaba and Sorin Popescu	A BEHAVIORAL ECONOMICS PERSPECTIVE OVER LEAN VERSUS 10X IMPROVEMENT IN NEW PRODUCT DEVELOPMENT - BRIEF REVIEW OF EXISTING RESEARCH
Diana Rusu and Sorin Popescu	DECISION-MAKING FOR ENHANCING BUILDING SUSTAINABILITY THROUGH LIFE CYCLE - A REVIEW
Carmen Maria Muresan	TRADITONAL COMMERCE VERSUS E-COMMERCE: A COMPARATIVE ANALYSIS
Andreea Botos, Laura Andrada Bacali, Ligia Maria Nan and Laura Bacali	THE INFLUENCE OF THE ENVIRONMENTAL LEVEL ON THE PROFESSIONAL RESULTS OF THE ROMANIAN STUDENTS

Thursday, 26.07.2018 16^{30} - 18^{00}hrs	**Chairs: Mihai Tripa, Emilia Brad Botticelli Room**
Stefan Titu, Alina Bianca Pop, Constantin Oprean and Mihail Aurel Titu	CONTRIBUTIONS TO IMPROVE THE QUALITY OF A SPECIAL MILITARY TRANSPORT SYSTEM BETWEEN TWO EUROPEAN UNION MEMBER STATES
Dorian Unguras and Mircea Radu	EDUCATIONAL SERVICES USING CLOUD COMPUTING TECHNOLOGIES A LITERATURE SURVEY
Mirabela Gaspar and Sorin Popescu	ITEGRATION OF THE GDPR REQUIREMENTS INTO THE REQUIREMENTS OF THE SR EN ISO/IEC 27001:2018 STANDARD, INTEGRATION SECURITY MANAGEMENT SYSTEM IN A SOFTWARE DEVELOPMENT COMPANY
Raluca-Dorina Baidoc, Lorand Kacso-Vidrean, Daniela Corina Jucan and Adrian Pisla	FACTORS IN THE LIFE CYCLE OF AIRPORT ACTIVITIES
Mircea Radu, Sorin Popescu and Dorian Unguras	CONSUMER PROTECTION IN ELECTRONIC COMMERCE A CONCEPTUAL FRAMEWORK BASED ON LITERATURE REVIEW
Stefan Titu, Alina Bianca Pop, Costel Ceocea and Mihail Aurel Titu	RESEARCH ON ENSURING THE ROAD TRAFFIC SAFETY ON ROAD SECTIONS CROSSING SIBIU COUNTY ACCORDING TO EUROPEAN UNION STANDARDS
Claudiu Muresan, Anton Popa and Radu Comes	AUGMENTED REALITY IN UNIVERSITY CAMPUS INTERACTIVE ORIENTATION

NOTES

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www.icpr-aem.com
contact@icpr-aem.com
+40-264-415710