The 13th International Symposium on Measurement and Quality Control-ISMQC
2nd-5th September 2025, Cluj-Napoca, Romania
Quality and Accuracy in the Age of Data Driven Manufacturing

ISMQC 2025 - Conference Program

Venue: Technical University of Cluj-Napoca HUB
Location: https://maps.app.goo.gl/sh9FEGf25WLinRk36
Virtual Tour & Details: https://utcluj.digital/tur-virtual-3d-hub-utcn

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DAY 1 - Tuesday, September 2, 2025

9:00 - 10:00 | Registration & Welcome Coffee

10:00 - 11:30 | Opening Ceremony followed by KEYNOTE SPEECHES (2 keynotes: ***Prof. Yasuhiro Takaya, Prof. Satoru Takahashi)***

11:30 - 11:45 | Coffee Break

11:45 - 13:30 | KEYNOTE SPEECHES (2 keynotes: ***Prof. Stelian Brad, Prof. Ryoshu Furutani***)

13:30 - 14:30 | Lunch Break

14:30 - 16:00 | PARALLEL SESSIONS

ROOM 301 - Session 1A, Chairs: Ryoshu Furutani and Stelian Brad

1. **Ryoshu Furutani**
   Estimation method of kinematic parameters considering posture of articulated arm type coordinate measuring machine by machine learning
2. **Adam Gąska, Wiktor Harmatys, Adam Wójtowicz, Piotr Gąska and Maciej Gruza**
   Virtual experiments for uncertainty evaluation of measurements performed using coordinate measuring machines
3. **Stefan Bodi, Claudiu-Ioan Rusan, Radu Comes, Zsolt Levente Buna and Raul-Silviu Rozsos**
   Digitization accuracy in focus: A comparative analysis of CMM and 3D structured-light scanning technologies
4. **Stelian Brad, Diana Ticudean, Bogdan Balog, Alexandru Cirlejan, Vasile-Dragoş Bartoş, Anca Stan and Ionuț Adrian Chiș**
   AI-augmented FMEA with anticipatory failure reasoning
5. **Stelian Brad, Diana Ticudean, Vasile-Dragos Bartos, Emilia Brad and Ionut-Adrian Chis**
   Evolutionary quality function deployment with integrated AI and system evolution planning for industry 5.0

ROOM 302 - Session 1B, Chairs: Ágota Drégelyi-Kiss and Justyna Trojanowska

1. **Áron Lóránd and Ágota Drégelyi-Kiss**
   Determination of surface roughness measurement uncertainty in additively manufactured components
2. **Razvan Mihai Craciun, Maxim Andrei-Vasile, Muresan Vlad, Eva Maria Walcher and Günther Poszvek**
   Evaluation of dimensional precision in FDM 3D-printed parts via computed tomography
3. **Patricia Gabriela Rakos and Ioana Maria Dan**
   Integrated study of surface roughness parameters and dimensional accuracy in FDM 3D-printed parts
4. **Jozef Husár, Justyna Trojanowska, Olha Kalman and Peter Lazorík**
   Comparison of advanced camera vision systems for defect inspection of 3D print parts
5. **Attila Marczis and Ágota Drégelyi-Kiss**
   Evaluation of volumetric calibration for dimensional accuracy in X-ray and neutron computed tomography

16:00 - 16:30| Coffee Break & Networking

16:30 - 18:00 | PARALLEL SESSIONS

ROOM 301 - Session 2A, Chairs: Chu-Shik Kang and Yasuhiro Takaya

1. **Kei Kondo, Yasuhiro Mizutani, Shoma Kataoka, Tsutomu Uenohara and Yasuhiro Takaya**
   Accuracy verification of 3D shape measurement by transport of intensity equation using single pixel imaging
2. **Ching-Chia Yen, Feng-Tse Chan and Liang-Chia Chen**
   Optical model-informed deep learning for enhanced surface profilometry in chromatic confocal microscopy
3. **Chu-Shik Kang, Jae Yong Lee, Sunghoon Eom, Jong-Ahn Kim and Jae Heun Woo**
   Uncertainty evaluation on linewidth measurement using an optical microscopic system calibrated by both a laser interferometer and a linewidth standard
4. **Cosmin Nacu, Günther Poszvek and Friedrich Bleicher**
   Microscopic fiducial markers for industrial metrology applications
5. **Mihai Ciupan, Claudiu-Ioan Rusan and Cornel Ciupan**
   Test bench for assessing the accuracy and synchronization of CNC axes

ROOM 302 - Session 2B, Chairs: Stefan Bodi and Radu Comes

1. **Radu Comes, Zsolt Levente Buna, Stefan Bodi and Grigore Marian Pop**
   Evaluating the viability of photogrammetry as an alternative to structured light scanning in woodworking sculpture digitization
2. **Alexandru Moldovan, David Chereches, György Attila Krasznai, Mircea Murar, Mircea Fulea, Grigore Pop and Bogdan Mocan**
   Low-cost hybrid vision system for automated dimensional metrology: Machine learning-driven smartphone integration in robotic quality control applications
3. **Claudiu-Ioan Rusan, Stefan Bodi, Mihai Ciupan and Claudiu Schonstein**
   Establishing theoretical precision machining of a reconfigurable aluminium profile CNC router via finite element analysis
4. **Adrian Popescu and Mircea Rusu**
   Variation of mechanical and tribological characteristics of polymer parts reinforced with different types of fibers
5. **Mircea Muntean and Vlad Bocanet**
   Development of a deviation-driven framework for selective mesh correction in additive manufacturing

19:00 - 22:00 | Cocktail Dinner-Opus Society, location: https://maps.app.goo.gl/2V8ijLHWtBbARU827

DAY 2 - Wednesday, September 3, 2025

8:30 - 9:30 | Morning Coffee & Networking

9:30 – 12:00| PARALLEL SESSIONS

ROOM 301 - Session 3A, Chairs: Mihai Dragomir and Günther Poszvek

1. **Eva Maria Walcher, Günther Poszvek and Peter Stangl**
   3D surface analysis of milling surfaces: Statistical evaluation and application of the Abbot curve
2. **Zbigniew Humienny, Marcin Błaszczyk and Marek Jarzyna**
   Concepts, principles and rules in the ISO GPS system – relations, coherences and incoherences
3. **Campean Emilia, Moldovan Calin, Crisan Liviu Adrian and Adrian Constantin Popescu**
   Predictive modeling for human error reduction in HV cable manufacturing: An ergonomic and process optimization perspective
4. **Bogdan Balog, Stelian Brad, Vasile-Dragos Bartos, Emilia Brad and Diana Ticudean**
   Optimizing cable clip placement with a Poka-Yoke approach for high-precision automotive assembly
5. **Mihai Dragomir, Denisa Szabo, Diana Ilea and Diana Dragomir**
   QM practices in the manufacturing sector under the green transition

ROOM 302 - Session 3B, Chairs: Osman Bodur and Mihai Sorin Tripa

1. **Vasile-Dragos Bartos, Grigore Pop, Stelian Brad, Diana Ticudean and Bogdan Gheorghe Balog**
   Precision assessment and predictive compensation of ABB IRB 1600 robot using C-Track 780 Optical Tracking in smart manufacturing
2. **Vasile-Dragos Bartos, Stelian Brad, Vladut Costan Trifan, Cirlejan Alexandru and Bodi Ștefan**
   Comparative analysis of industrial and collaborative robot precision using optical metrology for smart manufacturing
3. **Tomáš Broum, Miroslav Malaga, Pavel Raška, Jakub Müller and Michael Froněk**
   Assessing collaborative robot reliability for color sorting under varying lighting conditions

4. **David Chereches, Alexandru Moldovan, Bogdan Mocan, Mircea Fulea and Mircea Murar**
   Robotic inspection systems in data-driven manufacturing: Architectures, applications, and regional implementation insights from Romanian industry
5. **Predrag Dramićanin, Goran Dramićanin and Vidosav Majstorović**
   Towards smart manufacturing metrology in industry
6. **Vidoje Kasalica and Slavenko Stojadinovic**
   Virtual measurement system based on CMM and digital twin model

12:00 - 12:30 | Coffee Break-- Poster Session

1. **Lidia Smyczyńska**
   The influence of the diameter measurement circle parameters on the results of the incomplete round profile test
2. **Adam Gąska, Wiktor Harmatys, Piotr Gąska, Maciej Gruza, Jerzy Sładek, Karol Stroński, Dawid Kucharski, Tomasz Kowaluk and Krzysztof Stępień**
   Simple uncertainty evaluation method for roughness parameters measurements based on use of Monte Carlo method

12:30 - 13:00 | Closing Ceremony

13:00 - 14:00 | Lunch Break

14:00 - 17:00 | Company Visits, **14:00 Pick-up from the HUB: https://maps.app.goo.gl/sh9FEGf25WLinRk36 by TUCN BUS**

19:30 - 23:00 | Gala Dinner, Restaurant: Maimuța Plângătoare, location: https://maps.app.goo.gl/cn7YgDGfSnTwPnTy7

DAY 3 - Thursday, September 4, 2025- ROOM A123, AULA CENTENAR, Faculty of Industrial Engineering Robotics and Production Management (FIIRMP)
location: https://maps.app.goo.gl/FA9EEavhvaagJspB6
9:00 | Pick-up from the HUB (https://maps.app.goo.gl/sh9FEGf25WLinRk36) by TUCN BUS to FIIRMP

9:30 | Morning Coffee & Networking

9:45 | IMEKO TC14 Meeting

12:00 - 15:00 | Visit Emerson Campus, **12:00 Pick-up from FIIRMP by TUCN BUS**

DAY 4 - Friday, September 5, 2025

IMEKO TC14 - Faculty Tour *(No paper presentations),* Technical University of Cluj-Napoca - Faculty of Industrial Engineering, Robotics and Production Management, Design Engineering Department

location: https://maps.app.goo.gl/FA9EEavhvaagJspB6