



SNIMTB

National Society for Medical
Engineering and Biologic
Technology



**TECHNICAL
UNIVERSITY**

of Cluj-Napoca
Romania



UMF

University of Medicine
and Pharmacy,
Cluj-Napoca Romania



UBB

Faculty of Orthodox Theology
Cluj-Napoca Romania

International Conference

ADVANCEMENTS OF **MEDICINE** AND HEALTH CARE THROUGH
TECHNOLOGY

MEDITECH 2026 PROGRAMME

Hosted by

Romanian National Society for Medical Engineering and Biological
Technology

Technical University of Cluj-Napoca, Romania

“Iuliu Hațieganu” University of Medicine and Pharmacy, Cluj Napoca,
Romania

Faculty of Orthodox Theology, Babeș-Bolyai University,
Cluj-Napoca, Romania

Hybrid

Cluj-Napoca, Romania

8th – 10th OCTOBER 2026

www.snimtb.ro

Holistic Medicine

Technology, Spirituality, Modern practice

Conference Chair

Nicolae Marius Roman - *Romanian National Society for Medical Engineering and Biological Technology*

Honorary Chair

Radu Vasile Ciupa - *Romanian National Society for Medical Engineering and Biological Technology*

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Adrian Bojița
Mircea Gelu Buta
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Thursday, 8th OCTOBER 2026

Venue

*“Alexandru Domșa ” Hall,
Technical University of Cluj Napoca
Constantin Daicoviciu Street, no.15
Cluj Napoca, Romania*

9.00-9.30

Opening Ceremony

Prof. Ratko Magjarevic

President of the International Union for Physical and Engineering Sciences in Medicine (IUPESM)

Prof. Kang-Ping Lin

President of the International Federation for Medical and Biological Engineering (IFMBE)

Prof. Vasile Țopa

Rector of the Technical University of Cluj Napoca, Romania

Prof. Mihaela Băciuț

Vice-rector of the “Iuliu Hațieganu” University of Medicine and Pharmacy, Cluj Napoca, Romania

Prof. Ioan Chirilă

Faculty of Orthodox Theology, “Babeș-Bolyai” University, Cluj-Napoca, Romania; Romanian Academy Library, Cluj-Napoca Branch

Prof. Radu Vasile Ciupa

Honorary President of the National Society for Medical Engineering and Biological Technology, Romania

Prof. Nicolae-Marius Roman

President of the National Society for Medical Engineering and Biological Technology, Romania

9.30– 14.00	PLENARY SESSION 1 Chairmen <i>Prof. Nicolae Marius Roman</i> , National Society for Medical Engineering and Biological Technology, Romania <i>Prof. Adrian Samuilă</i> , National Society for Medical Engineering and Biological Technology, Romania
9.30-10.00 on site	P 1.1 <i>Technologies to Support Friendly Aging</i> Ratko Magjarević , President of the International Union for Physical and Engineering Sciences in Medicine (IUPESM), Department for Electronic Systems and Information Processing, University of Zagreb, Croatia
10.00-10.30 on site	P 1.2 <i>Global Challenges in Aging and Independent Living</i> Kang-Ping Lin , President at International Federation for Medical and Biological Engineering (IFMBE), Dept. of Electrical Engineering, Chung-Yuan Christian University, Taiwan
10.30-11.00 on site	P 1.3 <i>Technological advances in the management of diabetes and its complications</i> Piotr Ladyzynski , Nalecz Institute of Biocybernetics and Biomedical Engineering, Polish Academy of Sciences, Warsaw, Poland

11.00-11.30

Coffee break and registration

11.30-12.00 on site	P 1.4 <i>Past, Present and Future Virtual Instrumentation (Music and Forest Therapy) PPF-MFT</i> Doru Ursuțiu , “Transilvania” University of Braşov, Romania, Full Member Academy of Romanian Scientists AOSR, Romania
12.00-12.30 online	P 1.5 <i>On High Intensity Focused Ultrasound (HIFU) for biomedical/dentistry application</i>

		Boo Cheong Khoo , Department of Mechanical Engineering, National University of Singapore, Kent Ridge, Singapore
12.30-13.00 on site	P 1.6	<i>The Challenges of Future Education: Competency Assessment, Inclusion, and Artificial Intelligence</i> Alessandro Pepino, Ersilia Vallefucio , Department of Electrical Engineering and Information Technology University of Naples “Federico II”, Italy
13.00-13.30 online	P 1.7	<i>Robotic assistance in the management of endometriosis: is it worthwhile?</i> Horace Roman , Franco-European Multidisciplinary Institute of Endometriosis (IFEMEndo) Bordeaux (France), Cluj-Napoca (Roumania), Abu Dhabi (UAE), Malé (Maldives) Medical University of Aarhus (Denmark)
13.30-14.00 on site	Companies' Hour	

14.00-15.30

Lunch

15.30 – 18.00		SESSION 1 Chairmen <i>Assoc. Prof. Rodica Holonec,</i> <i>Assoc. Prof. Angela Lungu,</i>
15.30 – 15.45 on site	1.1	<i>Current Trends in Near-Infrared Vein Visualization Devices</i> Nicholas Ivanov, Anca-Iulia Nicu and Nicolae Marius Roman
15.45 – 16.00 on site	1.2	<i>System Design and Experimental Implementation of a Therapeutic Ultrasound Device</i> Alexandru Popovici, Cristian Farcas, Ionut Ciocan, Dora Popovici and Edina Nevezi
16.00 – 16.15 online	1.3	<i>Modeling Visual and Cognitive Performance through the Analysis of Reaction Time, Eye Movements, and EEG Indicators</i> Alexandra-Maria Lazar, Barbu Cristian, Mihaela Ioana Baritz and Anca Elena Stanciu

16.15 – 16.30 on site	1.4	<i>Embedded Breath-Alcohol Sensing for Driver Safety: An Affordable Connected Interlock System</i> Paul Farago, Daniel Marchis and Mihaela Cirlugea
16.30 – 16.45 on site	1.5	<i>Design, Numerical Modeling, and Implementation of a Pulsed Electromagnetic Field (PEMF) Therapy Device</i> Claudia Constantinescu, Claudia Pacurar, Marian Gliga, Sergiu Andreica, Lavinia Opris, Calin Munteanu, Alina Udvar and Adina Giurgiuman
16.45 – 17.00 online	1.6	<i>Modelling of Locomotor Behaviour Under Visual Impairment Conditions Using LabVIEW</i> Mirela Gabriela Apostoaie, Barbu Braun, Mihaela-Ioana Baritz and Anca Tătaru (Ostafe)
17.00 – 17.15 online	1.7	<i>Human Gait Cycle Simulation Model Based on the Duffing Equation and the Umberger Metabolic Model</i> Anca Ioana Tătaru (Ostafe), Mihaela Ioana Baritz, Mirela Gabriela Apostoaie, Angela Repanovici, Cornel Druga and Gyorgy Bodi
17.15 – 17.30 on site	1.8	<i>Scientific and Technical Foundations of Thermomagnetic Therapy: A Proposal for Localized Combined Treatment</i> Lisandru Leonard, Nicholas Ivanov, Simona Vlad and Rodica Holonec
17.30 – 17.45 online	1.9	<i>Simulation and prediction of the effect of orthokeratology treatment to control the myopia progression</i> Gyorgy Bodi, Mihaela Ioana Baritz, Mirela Gabriela Apostoaie, Angela Repanovici, Alexandra Maria Lazăr and Anca Ioana Tătaru (Ostafe)
17.45 – 18.00 on site	1.10	<i>Numerical characterization of inductive coupling in a 134.2 kHz veterinary microchip–reader system under representative implantation conditions</i> Angela Lungu, Claudia Constantinescu, Andreea Nicoleta Paleu and Alexandra Muresan

18.00-18.15 Coffee break and registration

18.15 – 20.45		SESSION 2 Chairmen <i>Prof. Eugen Lupu</i> <i>Assoc. Prof. Claudia Constantinescu</i>
18.15 – 18.30 on site	2.1	<i>A Closed-Loop Testbed for Detecting and Mitigating MQTT-Based DoS Attacks in Tele-homecare Systems</i> Carla-Mihaela Bulzescu and Lăcrimioara Grama

18.30 – 18.45 on site	2.2	<i>Explainable ECG Classification Using Deep Learning and Large Language Models</i> Luisa Elena Tanase, Cristina Bianca Pop and Viorica Rozina Chifu
18.45 – 19.00 on site	2.3	<i>Personalized Menu Application using Machine Learning Dish Recognition</i> Mihaela Cirlugea and Paul Farago
19.00 – 19.15 on site	2.4	<i>Electromagnetic Field Exposure from Wearable Device Antennas and Its Influence on the Human Wrist</i> Claudia Pacurar, Vasile Topa, Claudia Constantinescu, Marian Gliga, Lucian Petrascu, Lavinia Opris and Adina Giurgiuman
19.15 – 19.30 online	2.5	<i>Adversarial Vulnerability Assessment of AI-Based Fatigue Detection in Wearable Biomedical Monitoring Systems: A Simulation Study on the WESAD Dataset</i> Laura Cătălina Dospinescu, Laurențiu Dan Milici, Edi Marian Timofte and Marcel Pușcaș
19.30 – 19.45 on site	2.6	<i>Biometric Multimodal System for Real-Time Stress Monitoring in Exposure Therapy using Virtual Reality</i> Andreea Caprita, Mihai Munteanu and Melinda Mitranovici
19.45 – 20.00 on site	2.7	<i>Support for Clinical Trials and Medical Experiments: Digital Support Tools from Feasibility Analysis to Data Management and Analysis</i> Sebastian Student, Agata Małgorzata Wilk, Artur Wyciśłok and Krzysztof Fajarewicz
20.00 – 20.15 online	2.8	<i>Assisted methodology for testing and monitoring in visual screening and casuistics</i> Barbu Braun, Corneliu Drugă, Ionel Șerban, Alexandra Lazăr and Mirela Gabriela Apostoaie
20.15 – 20.30 online	2.9	<i>EMG-Referenced Validation of an Infrared PPG Bracelet Demonstrator for Muscle Contraction Monitoring</i> Ana Fenesan, Alexandru Ianosi-Andreeva-Dimitrova and Silviu Dan Mandru
20.30 – 20.45 online	2.10	<i>Determination of glucose levels and clotting times using electrical impedance of blood</i> Corneliu Druga, Ionel Serban, Angela Repanovici, Barbu Braun, Alexandra Lazar and Ileana Pantea

20.45 - Dinner
Hubertus

Friday, 9th OCTOBER 2024
Venue
“Alexandru Domșa” Hall,
Technical University of Cluj Napoca
Constantin Daicoviciu Street, no.15
Cluj Napoca, Romania

9.00 – 14.00	PLENARY SESSION 2 Chairmen <i>Prof. Dan Mandru</i> , Technical University of Cluj-Napoca, Romania <i>Assoc. Prof. Simona Vlad</i> , Technical University of Napoca, Romania
9.00-9.30 on site P 2.1	<i>From medical technology to clinical guidelines: esophageal high-resolution manometry and Chicago classification</i> Dan Lucian Dumitrașcu , Cluj County Clinical Emergency Hospital, 2 nd Medical Clinic, Iuliu Hațieganu University of Medicine and Pharmacy Cluj-Napoca, Romania
9.30-10.00 on site P 2.2	<i>Smart Electrochemical Biosensors for Fast Pathogen Identification</i> Cecilia Cristea , Group of Biosensors and Bioelectrochemistry, Analytical Chemistry Department, Faculty of Pharmacy, “Iuliu Hațieganu” University of Medicine and Pharmacy, Cluj-Napoca,” Cluj-Napoca, Romania
10.00-10.30 on site P 2.3	<i>Personalized Treatment Strategies in Maxillofacial Surgery: Integrating Digital Technologies and Artificial Intelligence</i> Cristian Dinu , University of Medicine and Pharmacy, Maxillofacial Surgery and Implantology Department, Cluj-Napoca, Romania

10.30-11.00 on site	P 2.4	<i>Novel Actual developments in Functional Electrical Stimulation (FES) and Medical Product Regulations (MDR) towards better availability for patients in need</i> Winfried Mayr, Center of Medical Physics and Bio-medical Engineering, Medical University of Vienna, Austria
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11.00-11.30

Coffee break and registration

11.30-12.00 on site	P 2.5	<i>Digital Planning In Functional Maxillofacial Reconstructive Surgery – A Jaw In A Day</i> Horațiu Rotar, Department of Oral and Maxillofacial Surgery, “Iuliu Hatieganu” University of Medicine Pharmacy, Medcover Hospital, Cluj-Napoca, Romania
12.00-12.30 online	P 2.6	<i>New Technologies Advancing Equal Access to Cancer Care - Africa’s Readiness for Artificial Intelligence in Radiotherapy</i> Magdalena Stoeva, Secretary General of the International Union for Physical and Engineering Sciences in Medicine (IUPESM) Department of Diagnostic Imaging, Medical University of Plovdiv, Bulgaria
12.30-13.00 on site	P 2.7	<i>The Role of Innovation in the Development of Medical Technology: Safety, Accuracy, and Efficiency</i> Laurențiu-Dan Milici, “Ștefan cel Mare “ Univeristy of Suceava, Romania
13.00-13.30 online	P 2.8	<i>Simulating current distribution in abdomen during transcutaneous spinal cord stimulation</i> Thordur Helgason, Science and Technology at Reykjavik University, Iceland. President of the Icelandic Society for Biomedical Engineering and Medical Physics (HTFI)

13.30-14.00 online	P 2.9	<i>Orthokeratology and myopia control, from theoretical simulation to recovery clinical prediction</i> Mihaela Ioana Baritz, Product design, Mechatronics and Environment Department, “Transylvania” University, Brasov, Romania
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14.00-15.30

Lunch

15.30 –18.00		SESSION 3 Chairmen <i>Prof. Mihai Munteanu</i>, Technical University of Cluj-Napoca, Romania <i>Assoc. Prof. Mihaela Cretu</i>, Technical University of Cluj-Napoca, Romania
15.30-15.45 on site	3.1	<i>Deep Learning for Brain Tumor Classification in MRI Images: CNN and VGG19 Transfer Learning Approaches</i> Adina-Bianca Dragomir, Paul-Andrei Pinteau and Eva-Henrieta Dulf
15.45-16.00 on site	3.2	<i>Integrating Molecular Docking and Systems Pharmacology to Identify Nebuloside A/B as Novel Triterpenoid Inhibitors of the CXCL12/CXCR4 Signaling Axis</i> Elif Dilara Gökmen, Gamzenur Kabak and Idris Arslan
16.00-16.15 on site	3.3	<i>Optimization of a vein visualization system through process automation using convolutional neural networks and the U-Net architecture applied to near-infrared images</i> Nicholas Ivanov, Anca-Iulia Nicu and Nicolae Marius Roman
16.15-16.30 online	3.4	<i>Brain Tumor Analysis using Integrated YOLO and Segment Anything Model Architectures</i> Maria Vasilache and Delia-Alexandrina Mitrea
16.30-16.45 on site	3.5	<i>Analysis, through image processing, of the lower limb joints trajectories during different human gait variants</i> Anca Ioana Tătaru (Ostafe), Mihaela Ioana Baritz, Mirela Gabriela Apostoaie, Barbu Cristian Braun, Angela Repanovici and Gyory Bodi
16.45-17.00	3.6	<i>Morphology Enhanced U-Net Architectures for Retinal Blood Vessels Segmentation</i>

on site		Marius Ioan George Gaură and Mihaela-Laura Gordan
17.00-17.15 on site	3.7	<i>Adaptive Preprocessing for Colorectal Polyp Segmentation in White-Light Endoscopy</i> Raul Cardoso, Mihaela Gordan and Georgiana Nagy
17.15-17.30 on site	3.8	<i>Investigations on Neural Correlates in Motor Imagery</i> Stefan-Alexandru Gigoï, Iulian-Costin Neaga, Dragoş-Daniel Țărlungă and Geogeta-Mihaela Neagu
17.30-17.45 on site	3.9	<i>A Human-in-the-Loop Framework for Paper ECG Digitization and Clinical Parameter Extraction Using LabVIEW</i> Rodica Holonec, Laura Grindei, Laszlo Rapolti and Claudia Constantinescu
17.45-18.00 on site	3.10	<i>Comparative Analysis of Surface Electromyographic Characteristics Across Five Lower-Limb Muscles in Healthy Subjects</i> Andreea Halas and Mihai Munteanu

18.00-18.15

Coffee break and registration

18.15 – 21.15		SESSION 4 Chairmen Assoc. Prof. Laura Grindei, Technical University of Cluj-Napoca, Romania Assoc. Prof. Anca Nicu, Technical University of Cluj-Napoca, Romania
18.15 – 18.30 online	4.1	<i>Fully Automated Brain Tumor Volume Estimation via Multiparametric MRI and Constrained Deep Convolutional Networks</i> Alireza Azadifar
18.30 – 18.45 on site	4.2	<i>Trajectory optimization for rehabilitation tasks of the upper-limb</i> Tassos Natsakis, Ioana Anamaria Ulici and Alexandru Codrean
18.45 – 19.00 on site	4.3	<i>Modular Vibromassage Device for Muscle Recovery</i> Corneliu Druga, Nicoleta Lungu, Ionel Serban, Angela Repanovici, Mirela Apostoaie and Anca Tataru
19.00 – 19.15 on site	4.4	<i>A Preliminary Study on a Twisted Strings - based Finger Exerciser</i> Ioan Popa and Silviu Dan Mandru
19.15 – 19.30 on site	4.5	<i>Parametric study of a dielectric elastomer actuator as steerable tip for minimally invasive therapy</i> Ionela Lenuța Pop and Silviu Dan Mandru

19.30 – 19.45 online	4.6	<i>Touchless Hand-Gesture Control of a Robotic Arm Applied in Assistive Healthcare</i> Cristian Barz, Salajan Roberto and Danci Daniel
19.45 – 20.00 on site	4.7	<i>Narrative Analysis on Existing Barriers for Recovery Technologies on Neurological and Oncological Care</i> David Mihai Lupu, Mădălina Onciul, Ilie Dănuț Popa, Alina-Beatrice Oltean, Silvia Daniela Pohrib and Adrian Pîsla
20.00– 20.15 on site	4.8	<i>Experimental EMC Assessment of an Upper-Limb Medical Rehabilitation Robot Prototype</i> Sergiu Andreica, Marian Gliga, Calin Munteanu, Roxana Both, Calin Vaida and Doina Pîsla
20.15– 20.30 on site	4.9	<i>A Physics-Informed Hybrid Framework for Mecha-nistic and Data-Driven Tumor Growth Prediction</i> Eva Dulf, Abigel Kiss and Agnes Tanko
20.30– 20.45 online	4.10	<i>Analysis of the Effect of Temperature on Total Dissolved Solids (TDS) in Water</i> Ionel Șerban, Andrei Ionuț Șercăianu, Corneliu Nicolae Drugă and Barbu Braun
20.45– 21.00 online	4.11	<i>Application of Nature-Inspired Algorithms in Cardiac Arrhythmia Recognition</i> Teodora-Maria-Anca Tarța, Dan Doru Micu and Alina Sorina Danciu
21.00– 21.15 on site	4.12	<i>A Neural Network-Based Framework for Predictive Control of COVID-19 Transmission</i> Cristina-Maria Stancioi, Vlad Muresan and Simona Vlad

Saturday, 10th OCTOBER 2024
Venue
Conference Hall
Faculty of Orthodox Theology, UBB
Bishop Nicolae Ivan Street,
Cluj-Napoca, Romania

10.00-13.30	PLENARY SESSION 3 Chairmen <i>Prof. Univ. Dr. Mircea Gelu Buta</i> <i>Arhim. Prof. univ. dr. hab. Teofil Tia</i>
10.00-10.30	Opening special session Arhim. Prof. univ. dr. hab. Teofil Tia , Faculty of Orthodox Theology, “Babeş-Bolyai” University, Cluj-Napoca, Romania
10.30-11.00 P 3.1 online	<i>Integral Anthropology. Logotherapy and Bios-Continuum</i> Ioan Chirilă , Faculty of Orthodox Theology, “Babeş-Bolyai” University, Cluj-Napoca, Romania
11.00-11.30 on site P 3.2	<i>Psycho-Affective Comfort and Accessing Transcendence in the Digital Age</i> Cristian Teofil Tia , Faculty of Orthodox Theology, “Babeş-Bolyai” University, Cluj-Napoca, Romania
11.30-12.00 on site P 3.3	<i>Medicine, technology, spirituality</i> Mircea Gelu Buta , Faculty of Orthodox Theology, “Babeş-Bolyai” University, Cluj-Napoca, Romania
12.00-12.30	<i>Coffee break</i>

12.30-13.00 on site	P 3.4	<i>The Augmented Human. Theological Reflections on Transhumanism</i> Ștefan Iloaie , Faculty of Orthodox Theology, “Babeș-Bolyai” University, Cluj-Napoca, Romania
13.00-13.30 on site	P 3.5	<i>The Metaphysics of the Divine</i> Mircea Leabu , Genomics Research and Development Institute @ Carol Davila University of Medicine and Pharmacy; Research Center for Applied Ethics, University of Bucharest, Bucharest, Romania

13.30-14.00

Lunch

14.00 – 15.00		SESSION 5 Chairman Ass. Prof. Gabriel Noje
14.00-14.15 on site	5.1	<i>The End of the Body...? From the Transhumanist Project of Overcoming the Biological Body to the Spiritual Realism of a Theology of Bodily Transfiguration</i> Gabriel Noje
14.15-14.30 online	5.2	<i>Technology and the crisis of meaning: the courage to face discouragement – healing the sense of unfulfillment</i> Andrei Daniel Misaroș
14.30-14.45 online	5.3	<i>The Contextual Reading of Scripture and the Integrative Health Paradigm: Contributions to the Dialogue Between Theology and Medicine</i> Raul-Flaviu Butaș
14.45-15.00 on site	5.4	<i>Suffering, Hope, and Healing in the Work of George Coșbuc: Perspectives on the Dialogue between Spirituality and Health</i> Iuliu-Ovidiu Morariu
15.00 Closing Ceremony		