P1.1

Technologies to Support Friendly Aging

Prof. emer. Ratko Magjarević

University of Zagreb Faculty of Electrical Engineering and Computing, Department for Electronic Systems and Information Processing, Zagreb, Croatia

Abstract

It is common knowledge that the population around the world is getting older and it is aging faster than ever as shown in e.g. the recent WHO Study on global ageing and adult health (SAGE). Due to the prevalence of chronic diseases, the elderly population requires an extended range of healthcare services, placing a significant burden on the healthcare workforce. This situation gives rise to various economic, technical, and clinical challenges.

There is a growing anticipation regarding the potential of smart technologies, particularly the application of artificial intelligence, to enhance the health and well-being of the elderly. Researchers are addressing these challenges through two primary approaches: focusing on personalized care at the individual level to slow down the aging process and implementing effective health policies and public health interventions at the population level to mitigate the aging process and prevent escalating, often unsustainable, costs.

Our research is recently devoted to improving connectivity architecture and methods for IoT and wearable devices, development of an eco-system for management and self-management of diabetes and handling missing data in CGM records, segmentation and classification of human movements during exercising and rehabilitation and optimizing human fall detection circuits and algorithms. We have been working on development of reliable and trustworthy machine learning based algorithms for fall detection, and distinction between activities of daily living and falls.

Biographical Sketch

Ratko Magjarević is professor emeritus at the University of Zagreb. He received his Ph.D. in Electrical Engineering in 1994 from the University of Zagreb, Faculty of Electrical Engineering.

After his appointment in industry he joined the Electronic Measurement and Biomedical Engineering Group at the University of Zagreb Faculty of Electrical Engineering and Computing.

His scientific and professional interest is in fields of electronic and biomedical instrumentation and health informatics, in particular in cardiac potentials analysis and pacing, in research of new methods for drug delivery and in research of personalised intelligent mobile health systems.

R. Magjarevic is was serving as the President of the International Federation for Medical and Biological Engineering (IFMBE) for the term of office from 2022-2025. He is currently the President of the International Union for Physical and Engineering Sciences in Medicine (IUPESM).

P 1.2

Global Challenges in Aging and Independent Living

Prof. Kang-Ping Lin

President, International Federation for Medical and Biological Engineering (IFMBE) Distinguished Professor, Dept. of Electrical Engineering, Chung-Yuan Christian University, Taiwan

Abstract:

Global population aging is increasing care demands while healthcare and research workforces continue to shrink. In the era of AI, this presentation addresses independent living for older adults through four interconnected dimensions: physical and mobility support, cognitive and emotional connection, precision healthcare and medication safety, and rights protection with localized governance. Embodied AI, sensors, and smart environments can support mobility, prevent falls, and assist with daily activities. Low-latency, full-duplex voice AI can provide natural conversation, reminders, and companionship. Agentic AI can integrate electronic health records, genomic information, and daily monitoring data to support early risk detection and personalized care while protecting patient privacy under professional supervision.

However, AI cannot solve complex healthcare problems independently. Its value depends on users' ability to define problems, establish appropriate boundaries, and incorporate clinical expertise. Biomedical and clinical engineers must therefore integrate technology, medical knowledge, regulatory governance, and data security to develop trustworthy, human-centered care systems that support healthy aging while preserving dignity, autonomy, and quality of life.

Biographical Sketch

Professor Kang-Ping Lin is a Lifetime Distinguished Professor in the Department of Electrical Engineering and Director of the Technology Translation Center for Medical Devices at Chung Yuan Christian University (CYCU), Taiwan. He earned his Ph.D. in Biomedical Physics from the University of California, Los Angeles (UCLA). A globally recognized leader in biomedical engineering and clinical engineering, Professor Lin currently serves as President of the International Federation for Medical and Biological Engineering (IFMBE) for the 2025–2028 term. He is also Editor-in-Chief of the Journal of Medical and Biological Engineering (JMBE) and Co-Editor-in-Chief of Health and Technology.

His research focuses on AI-enabled medical devices, ECG signal processing, physiological signal analysis, and medical image processing. In recent years, his major achievements have included the development of AI-driven diagnostic models for chest X-ray standardization and pneumothorax detection, as well as a patented physiological signal measuring device and related medical device translation applications. In recognition of his significant contributions to engineering, education, and international professional development, he was awarded an Honorary Doctorate, Doctor Honoris Causa, by the Technical University of Cluj-Napoca, Romania, in 2024. He has also received several prestigious honors, including the ACCE Antonio Hernandez International Clinical Engineering Award.

P 1.3

Technological advances in the management of diabetes and its complications

Piotr Ladyzynski

Nalecz Institute of Biocybernetics and Biomedical Engineering,
Polish Academy of Sciences, Warsaw, Poland

Abstract

Diabetes is a major global healthcare challenge, with prevalence continuing to rise. Its long-term complications impair quality of life and increase premature mortality. The objective of the presentation is to provide an overview of emerging technologies for diabetes monitoring, treatment, and management of its long-term complications. This review draws on scientific literature, commercially available devices and systems, and the author's 25 years of experience in diabetes technology development. Two major approaches currently support diabetes management: the Digital Diabetes Ecosystem (DDE) and the Artificial Pancreas (AP). DDE integrates data from continuous glucose monitors, insulin pumps, wearables, and mobile applications, using sensors, telemedicine, and AI to support personalized self-management, and communication with healthcare professionals. The AP combines a glucose sensor, insulin pump, and control algorithm to automatically adjust insulin delivery to changing glucose levels. Most current AP systems require user intervention, particularly for meals, while biological, bio-artificial, biochemical, and genetic approaches remain largely preclinical. Although patients ultimately hope for a cure, most seek a life as close to normal as possible. Current DDE and AP technologies provide substantial support, but a fully automated and unobtrusive system remains a technological goal rather than a clinical reality.

Biographical Sketch

Piotr Ladyzynski received the M.Sc. degree with major specialization in "Biomedical Engineering" from the Warsaw University of Technology in 1990. He started his professional career at the Nalecz Institute of Biocybernetics and Biomedical Engineering, Polish Academy of Sciences (IBBE PAS) in 1991, where he received the Ph.D. (with distinctions) and D.Sc. degrees in technical sciences in 1997 and 2009, respectively. In 2000-2001, Dr. Ladyzynski worked at the Nara Institute of Science and Technology (Japan). In 2022 he was awarded the title of full professor. In 2025, he was elected a corresponding member of PAS. Since 2022 he has been the Director of IBBE PAS. His scientific interests are concentrated on artificial internal organs including artificial pancreas, technical support for monitoring and treatment of chronic diseases, telemedicine, ICT in medicine, and biomeasurements. He is an author of more than 190 scientific publications and 4 patents. He and his team received a few scientific awards including the Economic Award of the President of the Republic of Poland in R&D. Prof. Ladyzynski was the President of the European Society for Artificial Organs (ESAO) from 2019 to 2021. Since 2016 he has been the Chairman of the Innovation & Industry Committe and since 2022 a member of the Administrative Council of IFMBE. In 2017-2022 he was the Editor-in-Chief of the journal "Biocybernetics and Biomedical Engineering".

P 1.4

Past, Present and Future Virtual Instrumentation (Music and Forest Therapy) PPF-MFT

Doru Ursuțiu

"Transilvania" University of Brașov, Full Member Academy of Romanian Scientists AOSR, Romania

Abstract

At "Transilvania" University of Brașov, we have managed for more than 25 years the "Center for Valorization and Transfer of Competences" (CVTC), a unit dedicated to strengthening the long-term collaboration between School – University – and Industry. Our activities focus on Research & Development supported by Virtual Instrumentation, strongly enabled by LabVIEW graphical programming. This presentation is structured to offer a coherent image of the evolution of Virtual Instrumentation — Past, Present, and Future — and to highlight several representative results applied in the Music and Forest Therapy teaching cycle. It will also outline key directions for future research in this field. All these developments are now significantly enhanced by the recent LabVIEW 2026 Q3 release, which introduces advanced Artificial Intelligence capabilities through NIGEL. NIGEL provides deep and rapid support for current and future implementations in Education, Research, and Development.

Biographical Sketch

Prof. Dr. Phys. Doru Ursuțiu (ursutiu@unitbv.ro) is the Manager of Center for Valorization and Transfer of Competence CVTC from „Transylvania" University of Brasov and coordinator of CVTC Creativity Laboratory. He completed his studies of Physics at the „Babes-Bolyai" University from Cluj-Napoca – Romania and is specialized in Open and Distance Learning (LOLA course - Heriot Watt University UK) and Noise in Electronic Systems (CV D.Ursutiu). The key qualifications of Prof. Ursutiu are Physics, Electronics (with a doctorate in Noise and Fluctuations in Electronic Systems and Devices), Graphical Programming, Remote and Virtual Instrumen-tation, Biomedical Engineering, Music Therapy. He is Full Member of Academy of Romanian Scientists AOSR and Honorary President of International Association of Online Engineering IAOE (IAOE Home page), member of Scientific Committee and reviewer for many international conferences and publications (REV, ICL, IMCL, EURODL, IJIM, IJ-SoTL, etc.). In 2013 at the IGIP conference was awarded with: "International Engineering Educator ING.PAED.IGIP" and at IGIP-ICL 2019 Conference in Bangkok with "Nicola Tesla Prize with the Golden Chain" for *International outstanding achievements in the field of Engineering Pedagogy*. It is a recognition of an activity in which Doru Ursutiu has been involved since 1999, and from which he has never deserted, being the person totally involved in supporting the nucleus of scientists and their international activities, dedicated people and their ideas of Remote Engineering, e-learning, M-learning, AI and other ideas that are sustained for many years around the increasingly larger collective formed over time. AOSR awards the Ioan Ursu Prize to Horia Alexandru Modran, Ioana Corina Bogdan, Cornel Samoilă, and Doru Ursuțiu for the book "Introduction to LabVIEW Graphical Programming with Applications in Electronics, Telecommunications, and Information Technologies" (AOSR Book Prize)

P 1.5

On High Intensity Focused Ultrasound (HIFU) for biomedical/dentistry application

Boo Cheong Khoo

Department of Mechanical Engineering,
National University of Singapore, Kent Ridge, Singapore 119260

Abstract

We study the physical phenomena and the application of HIFU using both simulation and experiment. The experiment was done with a bowl-shaped focused ultrasound system. High speed videos of the generation of cavitation bubbles at the focal point of the HIFU are captured. We observed interesting bubble cloud structures, bubble movements and stationary bubble oscillations. The system is then applied for dentistry applications. Firstly we use the HIFU to drive antibacterial nanoparticles into dentinal tubules for disinfection in root canal treatment. Initial results show delivery of these nanoparticle deep into the dentinal channels which are a few microns in size. Next we cultivate E. Faecalis biofilm, a common bacteria colony found in the mouth and teeth, on petri dish and in human tooth. Then we subject them for removal under strong HIFU for a period of time. We obtain positive results in the biofilm removal with the increasing HIFU sonification time. Separately, we simulate the interaction of a bubble with pulsed ultrasound and in an ultrasound field near bio-materials such as fat, muscle and bone. The simulation shows extreme growth and collapse of the bubble under certain conditions. It's provide a foundation for better understanding of HIFU and its uses in medical treatment.

Biographical Sketch

Prof. BC Khoo graduated from the University of Cambridge with a BA (Honours, 1st Class with Distinction). In 1984, he obtained his MEng from the NUS and followed by PhD from MIT in 1989. He joined NUS in 1989. From 1998 to 1999, he was seconded to the Institute of High Performance Computing (IHPC, Singapore) and served as the deputy Director and Director of Research. In 1999, BC returned to NUS and spent time at the SMA-I (Singapore MIT Alliance I) as the co-Chair of High Performance Computation for Engineered Systems Program till 2004. In the period 2005-2013, under the SMA-II, he was appointed as the co-Chair of Computational Engineering Program. In 2011-2012, BC was appointed the Director of Research, Temasek Laboratories, NUS. He was the Director of Temasek Laboratories (2012-2025), and Director of Temasek Defense Systems Institute (2023-2025), both Research Institutes at NUS. In research, BC ‘s interests are in: Fluid-structure interaction (FSI), Underwater shock and bubble dynamics, Compre-ssible/Incompressible multi-medium flow. He is the PI of numerous externally funded projects including those from the Defense agencies like ONR/ONR Global and MINDEF (Singapore) to simulate/study the dynamics of underwater explosion bubble(s), flow supercavitation, detonation physics and others. His work on water circulation and transport across the turbulent air-sea interface has received funding from the then BP International for predicting the effects of accidental chemical spills. Qatar NRF has funded study on internal sloshing coupled to external wave hydrodynamics of (large) LNG carrier. BC has published over 500 international journal papers, and over 500 papers at international conferences/symposiums. He has presented at over 150 plenary/keynote/invited talks at international conferences/symposiums/meetings. His H-index according to Web of Science stood at 68, Scopus at 72 and Google Scholar at 83.

P 1.6

The Challenges of Future Education: Competency Assessment, Inclusion, and Artificial Intelligence

Alessandro Pepino, Ersilia Vallefuoco

Department of Electrical Engineering and Information Technology,
University of Naples Federico II, Italy

Abstract

The rapid evolution of technology, the widespread use of social media and, more recently, the emergence of artificial intelligence are radically transforming the ways in which people study, learn, and work. Nevertheless, structural limitations continue to hinder—and, at times, undermine—educational processes in both university and professional settings. University education, particularly in the field of biomedical engineering, is not always sufficiently focused on the development and assessment of competencies, nor does it adequately address emerging learning styles. Moreover, it often fails to give sufficient consideration to the needs of working students, students living away from home, caregivers, and neurodivergent individuals. These groups constitute a significant and diverse segment of the student population and require more inclusive, accessible, and flexible educational models.Postgraduate education and continuing professional development for teachers also present several challenges: they do not always build on previously acquired competencies or ensure the development of the skills required to use emerging educational tools. Furthermore, teachers and other professionals often lack the digital competencies needed to use new technologies effectively, critically, and responsibly. This is the case despite considerable public investment in education and training, which does not always produce the expected outcomes. There is therefore an urgent need to develop new strategies and policies for designing and managing the education and professional development of teachers and other professionals. An approach centred on competencies, inclusion, and the responsible use of artificial intelligence can contribute to the development of more accessible, flexible, and effective education systems. From this perspective, blended-learning platforms, simulation technologies, and the carefully calibrated use of prompting techniques can support the development of more accessible and inclusive educational models.

Biographical Sketch

Assoc. Prof. Alessandro Pepino was born in Naples, Italy, in 1958. He graduated with honors in Electronic Engineering (biomedical) in 1982. In 1983 he started the Doctorate in Bioengineering. In May 1988 he became senior Technician at the Electronic Department of the University of Naples and since the 1998 he is associate professor at University of Naples. From the 2000 up to now he was responsible, in different public companies, for several projects concerning e-Health, innovation process and education management of personnel. In particular since the 2018 up to now he is responsible for start-up and personnel training concerning Blended Learning platform in big Public Health Care Companies in Campania Region. He was invited speaker at many scientific national and international conferences. He published more than 150 scientific articles concerning the research areas such as rehabilitation, assistive technologies, computer assisted surgery, FMRI, telemedicine, EHealth, BPM, DES Simulation in Health Care

P 1.7

Robotic assistance in the management of endometriosis: is it worthwhile?

Horace Roman

Franco-European Multidisciplinary Institute of Endometriosis (IFEMEndo)
Bordeaux (France), Cluj-Napoca (Roumania), Abu Dhabi (UAE), Malé (Maldives)
Medical University of Aarhus (Denmark)

Abstract

Robotic assistance has been available for abdominal and pelvic surgery for approximately 25 years. Despite its considerably higher cost compared with conventional laparoscopy, robotic surgery has progressively become a first-line approach in several specialties, including urology, thoracic surgery, general surgery, and gynecology, particularly since the 2010s. Robotic assistance provides several technical advantages that are especially valuable: **high-definition three-dimensional magnified visualization** ; increased precision during dissection of deep and hidden spaces ; articulated instruments allowing controlled dissection in areas that are difficult to access with straight laparoscopic instruments; improved stability and precision; improved ability to perform fine dissection and sutures around specific anatomic structures; greater surgical control in a patient in whom the disease extends into several anatomically complex compartments.

Endometriosis surgery is considered one of the most complex fields in gynecologic surgery. However, high-quality studies with a strong level of evidence are still lacking to demonstrate the overall superiority of robotic surgery over conventional laparoscopy. Clinical experience nevertheless suggests that certain endometriosis locations offer a clear technical advantage when excision is performed with robotic assistance rather than conventional laparoscopy using straight instruments. These include lesions involving the diaphragm, sacral plexus and sciatic nerve, rectum, ureters, and ileocecal region.

This presentation aims to demonstrate the validity of these statements.

Biographical Sketch

Horace Roman is PhD in epidemiology and surgeon at IFEMEndo (Franco-European Multidisciplinary Institute for Endometriosis) in Bordeaux, Abu Dhabi, Cluj-Napoca and Maldive.

His practice and clinical research exclusively focus on the management of patients with advanced endometriosis. He has published more than 250 scientific peer-reviewed articles, concerning the management of complex endometriosis.He has managed more than 2,000 patients with digestive tract endometriosis, and more than 250 with sacral plexus involvement.

He performed the ENDORE randomized trial comparing radical and conservative surgery for colorectal endometriosis and MESURE randomized trial comparing medical and surgical management for rectal endometriosis. His personal prospective database includes more than 5,000 patients managed for endometriosis and followed up at long terms.

P 2.1

From medical technology to clinical guidelines: esophageal high-resolution manometry and Chicago classification

Dan Lucian Dumitrașcu

Cluj County Clinical Emergency Hospital, 2nd Medical Clinic, Iuliu Haţieganu University of Medicine and Pharmacy Cluj-Napoca, Romania

Abstract

High-resolution manometry is a relatively new investigational tool in the hands of gastroenterologists specialized in motility studies and disorders of gut-brain interaction. The technique relies on the advances of biomedical engineering and represents a big step forward after the era of standard manometry based on water-perfused catheters or on solid transducers, as presented at our meetings 20 years ago. Thanks to the novel modality to detect, translate and analyze the pressional signals, new clinical implications were assessed. We present the progress of the Chicago consensus, now at the version 4.0, with emphasis on the practical significance in healthcare providers activities.

Biographical Sketch

Prof. Dr. Dan L. Dumitrașcu graduated from the medical school of the same city in 1982. Currently, he is Emeritus Professor of Medicine at the University of Medicine and Pharmacy, "Iuliu Haţieganu", Cluj-Napoca, Romania, and Head at the 2nd Medical Department. He is also Consultant of Gastroenterology and Internal Medicine at the County Emergency Hospital, where he also leads the laboratory for functional GI investigations.

He has been interested in gastroenterological motility and functional disorders for over 30 years, benefiting during this time from the advice of Douglas Drossman. He worked almost 2 years as Humboldt Research Fellow with Dr. Martin Wienbeck in Germany. Dr. Dumitrașcu founded the Romanian Society of Neurogastroenterology and organized several international Symposia in Neurogastroenterology. He also chairs the Section of Neurogastroenterology at the annual Romanian gastroenterology meetings. Prof. Dr. Dan L. Dumitrașcu is Past President of the Romanian Society of Gastroenterology and Hepatology, Past Vice-President of the Romanian Society of Internal Medicine, Past Chairman of the International Liaison Committee of the Rome Foundation, Full Member of the Academy of Medical Sciences, Past Deputy Secretary of the European Association of Psychosomatic Medicine and former vice president of the European Society of Clinical Investigation.

He is past chairman of the National Societies Committee of the United European Gastroenterology. and now acting as director at large of the executive committee of World Gastroenterological Organization. He has published more than 20 books, over 500 papers in medical journals in the country and abroad and is a distinguished personality of the Romanian medical world, being recognized for his work in neurogastroenterology and psychosomatic

P 2.2

Smart Electrochemical Biosensors for Fast Pathogen Identification

Cecilia Cristea

Group of Biosensors and Bioelectrochemistry, Analytical Chemistry Department,
Faculty of Pharmacy, "Iuliu Haţieganu" University of Medicine and Pharmacy,Cluj-Napoca

Abstract

Rapid detection of pathogenic bacteria is vital for controlling severe infections, managing disease outbreaks, and mitigating the misuse of broad-spectrum antibiotics. While traditional culture-based assays remain reliable, their long turnaround times—often spanning several days—severely limit point-of-care utility. To overcome these constraints, decentralized, intelligent biosensing platforms integrate nanoscale electrochemical architectures with advanced machine learning algorithms. This hybrid approach enables the simultaneous multiplexed detection of diverse bacterial strains and specific virulence biomarkers within complex biological and food matrices.Implementing artificial intelligence directly resolves key limitations inherent to standard electrochemical biosensors, notably signal drift, overlapping voltammetric peaks, and background matrix noise. Within these multi-analyte systems, target pathogens are isolated using surface-modified aptasensors or by quantifying signature bacterial metabolites, including pyocyanin, aerobactin, and enterobactin. Machine learning models—specifically deep neural networks and random forest classifiers—serve as digital signal interpreters to process multidimensional data from square wave voltammetry or electrochemical impedance spectroscopy. By decoupling overlapping analytical signals, these classifiers achieve accurate identification and quantification of target pathogens without requiring extensive sample preparation.

Ultimately, combining smart electrochemical hardware with data-driven algorithms bridges the gap between old laboratory and fully automated, field-deployable digital health platforms.

Biographical Sketch

Prof. Dr. Cecilia Cristea earned her Diploma in Pharmacy from the "Iuliu Haţieganu" University of Medicine and Pharmacy Cluj-Napoca, following her graduation in Chemistry from Babeş-Bolyai University. In 2003, she was awarded a joint Ph.D. in Pharmaceutical Chemistry and Electrochemistry from Rennes 1 University (France) and Babeş-Bolyai University (Romania). Following postdoctoral fellowships and research stays across Canada, the USA, Italy, and Germany, she established a reputation as a leading international expert in bioelectrochemistry, specialized in modified electrodes, bioelectroanalysis, (bio)sensors development, aptamers selection and hyphenated techniques for biomedical, food and environmental applications.

Currently serving as Executive Director of the MedFUTURE Biomedical Research Institute at the "Iuliu Haţieganu" University of Medicine and Pharmacy, Prof. Cristea leads a multidisciplinary effort focused on translating state-of-the-art bioelectrochemistry into clinical and diagnostic tools. Her editorial leadership includes serving as Associate Editor for *Microchemical Journal* (Elsevier) and Guest/Section Editor for prominent journals such as *Bioelectrochemistry*, *Sensors*, *Biosensors*, *Current Opinion in Electrochemistry*, and *Frontiers in Bioengineering and Biotechnology.* Through her dual role as a research pioneer and Executive Director of MedFUTURE.

P 2.3

Personalized Treatment Strategies in Maxillofacial Surgery: Integrating Digital Technologies and Artificial Intelligence

Cristian Dinu, Sebastian Stoia, Tiberiu Tamaș, Rareș Mocan, Tudor Șerban, Mihaela Hedeșiu, Daria Pâsla, Cosmin Ifrim, Mihaela Băciuț

University of Medicine and Pharmacy Cluj-Napoca, Maxillofacial Surgery and Implantology Department, Discipline of Digital Technologies and IA in Dentistry and Maxillofacial Surgery

Abstract

The rapid evolution of digital technologies and artificial intelligence (AI) is transforming contemporary maxillofacial surgery, enabling a transition from standardized treatment protocols towards increasingly personalized therapeutic strategies. The integration of advanced imaging, virtual surgical planning, computer-assisted design and manufacturing, navigation, augmented and mixed reality, and AI-based decision-support systems provides new opportunities to improve diagnostic accuracy, treatment planning, surgical precision, and predictability. This presentation explores the role of digital technologies and AI throughout the maxillofacial surgical workflow, from patient-specific diagnosis and treatment simulation to intraoperative guidance and postoperative assessment. Particular emphasis is placed on the integration of three-dimensional imaging, virtual surgical planning, patient-specific anatomical models and implants, dynamic navigation, and emerging AI applications for image analysis, anatomical structure recognition, risk assessment, and clinical decision support. Rather than replacing clinical expertise, these technologies should be regarded as tools that enhance the surgeon's ability to interpret complex anatomy, anticipate surgical challenges, and tailor treatment to the individual patient. Selected clinical applications will illustrate how digital and AI-assisted workflows can contribute to greater precision, efficiency, safety, and reproducibility across different areas of maxillofacial surgery. The ultimate objective is a more patient-specific surgical approach in which clinical experience, digital technologies, and artificial intelligence converge to support more predictable and individualized treatment.

Biographical Sketch

Cristian Dinu DMD, MD, MSc, PhD**.** Professor, Consultant in Oral and Maxillofacial Surgery, Department of Maxillofacial Surgery and Implantology, Discipline of Digital Technologies and IA in Dentistry and Maxillofacial Surgery, University of Medicine and Pharmacy „Iuliu Hatieganu" Cluj-Napoca, Romania. Dean of the Faculty of Dental Medicine, University of Medicine and Pharmacy „Iuliu Hatieganu" Cluj-Napoca, Romania (2020-2024; 2024-2029). Master of Plastic Periodontal Surgery at University of Bologna (Director: Prof. Dr. Giovanni Zucchelli). Extensively lectures at several national (over 60 conferences) and international congresses of Oral and Maxillofacial Surgery and Oral Implantology (over 50 conferences). Research member and coordinator in more than 23 European and national scientific projects. Received several prizes in national and international scientific events. Author and co-author of more than 120 papers in national and international journals. Co-author of 12 specialty books. Specific focus on plastic and reconstructive surgery, reconstructive microsurgery, craniofacial trauma and malformations, salivary glands pathology, advanced oral implantology, and periodontology. Member of the European Association for Cranio-Maxillofacial Surgery, International Association of Oral and Maxillofacial Surgery, Arbeitsgruppe fur Ostheosynthesefragen AOCMF, International Team for Implantology, etc.

P 2.4

Actual developments in Functional Electrical Stimulation (FES) and Medical Product Regulations (MDR) towards better availability for patients in need.

Winfried Mayr
Center of Medical Physics and Biomedical Engineering,
Medical University of Vienna, Austria

Abstract
Though Functional Electrical Stimulation (FES) has been proven to be a powerful and effective tool for movement rehabilitation there is still a much too wide gap between obvious beneficial possibilities and practical application and availability for patients in clinical rehabilitation practice. Underlying reasons originate from various reasons, like necessary individualization of the set-ups, which requires detailed expertise, enough time to work with patients and availability of appropriate technical equipment. Financial restrictions in the healthcare system and regulatory boundaries (recent MDR), slow down innovation and counteract availability of best possible technology with shortage of qualified personnel and too time-consuming and expensive administrative burdens, have turned the intended goal of improved patient safety at least in part to the opposite.
But, regarding MDR there is a substantial revision in sight, that goes towards fostering innovation, reducing costs and administrative demands for small and medium enterprises and maintaining proven technology available for patient application. Also, contemporary innovations in electronics, IT and AI help to get instrumentation more flexible and affordable, but also help medical professionals in guidance along application and automated documentation, and free up time for direct patient interaction.
Important FES trends in application-near research and development have been extensively discussed in the recent annual meeting of the International Functional Electrical Stimulation Society IFESS: personalization, building on residual abilities and holistic health treatment.

Biographical Sketch

Prof. Winfried Mayr graduated in electrical and control engineering at the Vienna University of Technology, and received his PhD in Biomedical Engineering (FES implants) from the same university (1992). 2001 he got his venia docendi in Biomedical Engineering and Rehabilitation Technology and was appointed as assoc. Univ.-Prof. at the Medical University of Vienna. 2010 the Technical University of Cluj-Napoca awarded him with a Dr. h.c. degree. He retired in Sept. 2020.

Research and development work as engineer in the clinical environment of the university clinical center included experimental and applied research with implant based and non-invasive FES methods, with a strong still ongoing focus on rehabilitation after spinal cord injury.

Between 2009 and 2017 he chaired the Austrian Society for Biomedical Engineering (OeGBMT), and is current vice-president and IFMBE delegate of OeGBMT, and councilor in the EAMBES council, and board member of the International FES Society IFESS.

P 2.5

Digital Planning In Functional Maxillofacial Reconstructive Surgery – A Jaw In A Day

Horațiu Rotar

Department of Oral and Maxillofacial Surgery, "Iuliu Hatieganu" University of Medicine and Pharmacy, Cluj-Napoca, Romania
Medicover Hospital Cluj-Napoca, Romania

Abstract

The **"Jaw in a Day"** concept integrates three-dimensional virtual planning and patient-specific tools to customize autologous bone transplants. Dental implant placement is available within the same surgical procedure, integrating anatomical and functional rehabilitation of extensive jaw defects, with the potential for immediate prosthetic rehabilitation.

This presentation will outline the complete digital workflow, from imaging assessment and implant planning to the design of surgical guides and the transfer of the virtual plan to the operating room. Indications, patient selection, advantages, and limitations of the technique will be discussed and illustrated through clinical cases.

Biographical Sketch

Prof. Horatiu Rotar received his degree in Medical Dentistry in 1999 and in Medicine in 2003, both form "Iuliu Hatieganu" University of Medicine and Pharmacy, Cluj-Napoca. Romania. His PhD in Medical Sciences focused on the applications of 3D printing technologies and medical models in cranio-maxillofacial surgery (2008). Since then, he has been constantly involved in studying and designing personalized solutions for cranio-facial reconstructions. In 2006 he published for the first time the method of custom-made cranial plates fabrication by casting PMMA into silicone rubber molds. Over the years, some other personalized solutions had been conceptualized like Voronoi diagram design of custom-made cranioplasty plates made from titanium by selective laser melting of electron beam melting. In the last years, more efforts had been invested in studying the feasibility of point of care solutions for personalized medical products. He has received various distinctions for patented biomaterials and solutions for personalized cranio-facial implants. He is Fellow of International Federation of Head and Neck Oncological Societies and member of different professional societies like EACMFS, IAOO, EHNS, AO, EAO, ITI etc.

P 2.6

New Technologies Advancing Equal Access to Cancer Care - Africa's Readiness for Artificial Intelligence in Radiotherapy

Magdalena Stoeva

Department of Diagnostic Imaging, Medical University of Plovdiv, Bulgaria
Secretary General IOMP, Secretary General IUPESM

Abstract

Artificial Intelligence turns into a major factor driving the technological development, scientific progress and clinical outcomes in healthcare. Some of the most recent activities by the world's leading organizations focus on AI as a crucial enabler for societal advancement. The distribution of technological, human and financial resources when it comes to introduction of AI in healthcare is quite uneven, especially when the Global South is concerned.

To assess the readiness of Africa for integration of AI in healthcare, the field of radiotherapy has been analyzed as a pilot and several issues and challenges identified. Any successful integration of AI technology into healthcare, including radiotherapy, is related to the overall national/regional societal and economical landscape as well as some area specifics - education and training programs, healthcare facilities management, national and regional professional bodies, governments, and relevant stakeholders.

The entire team's contribution is acknowledged: Eric Naab Manson, Francis Hasford, Chris Trauernicht, Taofeeq Abdallah Ige, Stephen Inkoom, Samuel Inyang, Odette Samba, Nadia Khelassi-Toutaoui, Graeme Lazarus, Edem Kwabla Sosu, Mark Pokoo-Aikins.

Biographical Sketch

Dipl. Ing. Prof. Dr. Magdalena Stoeva is a member of the governing bodies of the International Organization for Medical Physics (IOMP) and the International Union for Physical and Engineering Sciences in Medicine (IUPESM).

She is Series Editor of the CRC Press (Taylor & Francis Group) Focus Series on Medical Physics and Biomedical Engineering and the Editor-in-Chief of the journal Health and Technology, jointly published by Springer Nature the IUPESM.

Her most recent interests are directed towards the professional development of the physical and engineering sciences in medicine, incl. educational strategies, gender and workplace balance, promoting and supporting science for early career professionals and the LMICs, e-learning, health equity, the technological advancements as a driving factor of contemporary healthcare.

P 2.7

The Role of Innovation in the Development of Medical Technology: Safety, Accuracy, and Efficiency

Laurențiu-Dan Milici

Stefan cel Mare Univeristy of Suceava, Romania

Abstract

Technological innovation is reshaping modern medical electronic systems, driving major advances in safety, accuracy, and efficiency. Embedded architecture, IoMT connectivity, and artificial intelligence enable continuous monitoring, real-time analytics, and personalized interventions, transforming clinical workflows and diagnostic precision. Emerging technologies such as 5G, edge-cloud computing, federated learning, and digital twins expand processing capabilities while supporting secure, patient-centered care. Despite rapid progress, challenges persist, including interoperability gaps, cybersecurity risks, hardware limitations, strict regulatory requirements, and uneven digital skills among medical staff. Even so, innovation remains the key force guiding the evolution of next-generation medical devices and intelligent healthcare systems. Nevertheless, innovation remains the central driver of modernization in medical technology, laying the foundation for a future in which healthcare systems become safer, more precise, and more efficient.

Biographical Sketch

Prof.dr.eng. Laurențiu Dan Milici received his Diploma in "Electrical Engineering" from Gh. Asachi Technical University of Iasi in 1994, his work is focused on metrology, microsystems for monitoring and measurement, virtual instrumentation, creative education and human performance monitoring.

His master's degrees is in Informatics and Ph.D. in Instrumentation (2003). The works of the following years were mainly dedicated to education in engineering sciences, monitoring human performance and measurements in biomedicine and ecology, monitoring technological processes, sensors, and special actuators where he registered a series of 45 patents.

He is the coordinator of Innovation and Technological Transfer Laboratory of Stefan cel Mare University of Suceava and have the habilitation certificate and the quality of PhD supervisor in the field of Electrical Engineering.

P 2.8

Simulating current distribution in abdomen during transcutaneous spinal cord stimulation

Thordur Helgason

Associated Professor at of Science and Technology at Reykjavik University, Iceland. President of the Icelandic Society for Biomedical Engineering and Medical Physics (HTFI).

Abstract

Results show that transcutaneous spinal cord stimulation (tSCS) offers non-invasive relief for chronic pain, alleviates spasticity of the lower limbs and can improve walking in spinal cord injured people. It is believed that tSCS has inhibitory effects on motor output through posterior root afferent fibres. They in turn affect the neural network of the spine controlling the motor neurons that generates the motor output. Additionally, it can be detected that tSCS affects evoked potentials in the brain as well as changes brain connectivity maps in healthy subjects. The mechanisms of tSCS are not fully understood, and patient specific factors, such as Body geometry and tissue distribution modulates current distribution. In this talk a simulation of the current distribution during tSCS is described. We developed a novel Finite Element Model (FEM) of the human abdomen using CT scans. Three subjects (sex, male, female, male. Age: 26, 27, 64. BMI: 38.9, 24.1, 28.4) underwent a CT scan which imaged the trunk of the body, from the diaphragm to the bottom of the pelvis. The images were then used in Materialize Mimics Research 21.0 to create 3D images of individual organs, skin, fat, muscles, skeleton, and spinal cord. We used Ansys Maxwell R2021for simulations. Five different two-electrode configurations were tested in the prototype phase with a simplified model setup. The positive electrodes were placed over the (Thoracic) T10, T12, (Lumbar) L2 and L4 vertebrae sequentially, with the negative electrode over (Sacral) S2. Results show the current distribution and its changes in the spinal cord and nearby tissue. A marked decline in electrical current penetration depth was observed as the electrodes were placed closer together conforming known current distribution patterns.

Biographical Sketch

Professor Thordur Helgason is an Associate Professor for Biomedical Engineering at Reykjavík University (RU) and Landspitali – University Hospital (LSH). He served as Director of Department of Research and Development at LSH (2000-2010) and of Department of Physics and Medical Engineering at the same hospital (1990 - 2000). He is the president of The Icelandic Society of Biomedical Engineering and Medical Physics (2000 to date) He is a member of The Icelandic Neuroscience Society, The Icelandic Pain Society, The German Society for Biomedical Engineering, IEEE and several additional national and international societies concerning medical technology. He is a co-founder of Kiso ehf, Fire ehf and worked for several other start-up companies including Flaga ehf and Össur hf.

His research interests are all in the frame of neural engineering including electrical stimulation, medical image and signal processing, mathematical modelling of physiological phenomena, 3D printing and physiological fundaments of the nervous system. He has published numerous scientific articles and over hundred conference articles. Current work focuses on spinal cord stimulation for neural modulation and on prosthesis for finger movements.

P 2.9

Orthokeratology and myopia control, from theoretical simulation to recovery clinical prediction

Mihaela Ioana Baritz

Product design, Mechatronics and Environment Department University Transylvania from Brasov, Romania

Abstract

Myopia, as a refractive error manifesting primarily during the developmental stages of the human subject (children and young people), constitutes a form of visual dysfunction that must be identified, managed, and rehabilitated as quickly as possible to prevent early-stage cases from leading to a decline in visual function later on. Today, the International Myopia Institute (IMI) regards myopia management as a field encompassing risk factor identification, clinical assessment, intervention selection, and longitudinal monitoring. Various methods, instruments, and visual correction systems (such as corrective glasses, contact lenses, and—where feasible—surgical interventions) are widely recommended and utilized, yielding positive results and beneficial effects on the human visual system. However, recent general studies and clinical case reports indicate that orthokeratology—applied to control and manage myopia in children and young people—is gaining significant ground and emerging as a useful, effective intervention. Consequently, the theoretical development and analysis of case studies utilizing digital simulations and modeling play a crucial role in establishing a solid foundation for the orthokeratology procedure. This approach fosters an understanding of the various factors involved in myopia management, aiming to develop a mechanism for clinically predicting the control of myopia progression. These multifaceted aspects open up a modern frontier in non-invasive visual rehabilitation—offering highly promising results and performance—that can be explored in this era of digital impact on the field of optometry.

Biographical Sketch

Prof. Mihaela Ioana Baritz received her Diploma in "Mechanical engineering" from Politehnica University from Bucharest in 1978, her work is focused on Applied Optometry and also on Biomechanics and visual function rehabilitation at Transylvania University from Brasov. Her Ph.D in Mechanical engineering was on "The improvement of holographic systems for the study of special profiles" and also the habilitation thesis, in Mechanical engineering, Mechatronics and Robotics, presented in 2016 with the title "Conceptual and applied development of analyzes of human bio-behavior in occupational and environmental comfort". The research activity was dedicated mainly on applied optometry, biomechanics and analyzesof human behavior to establish occupational comfort. Her special current focus is on the activities to develop researches in experimental optometry and to work with professors from Transylvania University and future Ph.D students to build the most modern research directions (bio-mechatronics, visual psychology and biomechanics). She is member in different professional associations (AGIR, SORGING, ARoTMM, etc.) and worked on a series of research projects in the field of biomechanics, mechanical engineering or ERASMUS projects.

P 3.1

Integral Anthropology. Logotherapy and Bios-Continuum

Ioan Chirilă

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

Abstract

The study advocates for a renewed understanding of the human being, emphasizing his essential unity and moving beyond dualistic views that divide body from soul, biological from spiritual, or concrete life from its ultimate purpose. It asserts that genuine human treatment cannot be achieved through isolated interventions focused solely on physical or psychological; instead, an integrative approach grounded in logotherapy is necessary. In this view, the pursuit of meaning is not a minor aspect but a core aspect of existence and a vital therapeutic tool, especially when facing suffering, fragility, and life's inevitable crises. The concept of *Bios-continuum* reflects the belief that human life surpasses mere biological history and is not limited to measurable biological events. It points to a horizon of continuity, communion, and fulfillment where existence finds its origin, direction, and goal. This openness is rooted in the Logos, which, through incarnation, fully embraces the human condition and fosters transfiguration. Humanity's participation in the life of the Logos gives suffering meaning, restores personal unity, and empowers us to overcome limitations. The study highlights the convergence of integral anthropology, logotherapy insights, and theological views of life as a continuous reality aimed at fullness. This interdisciplinary synthesis fosters dialogue among theology, philosophy, psychology, and medicine, emphasizing the inherent dignity of the person and their relational spiritual development. Ultimately, healing is not only about relieving suffering but about reuniting the entire person with meaning, communion, and their transcendent calling.

Biographical Sketch

Rev. Prof. Ioan Chirilă graduated as valedictorian from the Faculty of Theology in Sibiu in 1988. He expanded his academic expertise through PhD studies in theology and modern history, along with research periods in Hungary, Greece, and especially Israel. His work in Israel enhanced his understanding of Hebrew, Judaism, biblical archaeology, and Jewish history and culture via research at Tel Aviv University, the École Biblique Française, and the Studium Biblicum Franciscanum in Jerusalem. As a university professor and PhD supervisor at Babeș-Bolyai University's Faculty of Orthodox Theology, Rev. Ioan Chirilă is known for fostering interdisciplinarity and encouraging dialogue between science and religion. His research interests include the Old Testament, biblical hermeneutics and exegesis, bioethics, history, archaeology, and interfaith dialogue. In 2007, he established the Center for Bioethics at Babeș-Bolyai University to support interdisciplinary research. He was dean of the Faculty of Orthodox Theology from 2004 to 2012 and president of the UBB Senate from 2012 to 2020. Since 2015, he has been director of the Romanian Academy Library in Cluj-Napoca, overseeing extensive scientific, cultural, and institutional initiatives.

P 3.2

Psycho-Affective Comfort and Accessing Transcendence in the Digital Age

Cristian Teofil Tia

Dean, Faculty of Orthodox Theology from Cluj-Napoca

Abstract

The digital age provides contemporary individuals with numerous tools for communication, information, and emotional self-regulation, promising to alleviate loneliness and enhance psycho-affective comfort. At the same time, continuous exposure to information flows, algorithmic validation, and the technological mediation of relationships can generate anxiety, inner fragmentation, and a diminished openness to silence, reflection, and authentic encounter. This paper examines the relationship between the need for psychological comfort and the human person's openness to Transcendence, emphasizing that spiritual experience cannot be reduced to a relaxation technique or a digital product. From a pastoral perspective, technology can facilitate access to religious content and community life, but it cannot replace personal encounter, ecclesial communion, or the experience of divine grace. The paper therefore proposes a form of digital discernment capable of placing technology at the service of personal integrity and the search for the ultimate meaning of existence.

Biographical Sketch

Archimandrite Professor Teofil Tia is a Romanian Orthodox theologian and Professor of Pastoral Theology at the Faculty of Orthodox Theology of Babeș-Bolyai University in Cluj-Napoca. Born in 1971 in Ocna Mureș, Romania, he studied at the Orthodox Theological Seminary in Cluj-Napoca and subsequently graduated from the "Andrei Șaguna" Faculty of Orthodox Theology of Lucian Blaga University in Sibiu.

Between 1996 and 1998, he continued his academic formation in Italy, pursuing postgraduate studies in Pastoral Theology at the Faculty of Theology of Northern Italy, under the supervision of Professor Luigi Sartori. In 2000, he obtained his PhD in Theology, specializing in Dogmatic Theology, under the supervision of the distinguished Romanian theologian Professor Ion Bria. Professor Tia has developed an extensive academic, pastoral, and research activity, with particular interests in Pastoral Theology, Pastoral Psychology, Pastoral Sociology, Pastoral Pedagogy, Pastoral Psychotherapy, and Pastoral Anthropology. His research has focused especially on the encounter between Orthodox theology and contemporary culture, as well as on the pastoral challenges raised by the transformations of modern society.

Alongside his research activity, he has been deeply involved in the theological and spiritual formation of undergraduate and doctoral students. He is a habilitated doctoral supervisor in Pastoral Theology and currently serves as Dean of the Faculty of Orthodox Theology of Babeș-Bolyai University, Cluj-Napoca (Details at:

https://scholar.google.com/citations?user=I30_cfIAAAAJ&hl=ro.)

P 3.3
Medicine, technology, spirituality

Mircea Gelu Buta

Babeş-Bolyai University of Cluj-Napoca, Romania; Technical University of Cluj-Napoca, Romania

Abstract

We live in an era of rapid transformation. Science is advancing at a pace that, just a few decades ago, existed only in the pages of science fiction. Today, medical technology, artificial intelligence, nanotechnology, and biotechnology provide us with tools of extraordinary precision for diagnosing, treating, and extending human life. Yet, as we delve deeper into the fabric of matter and data, we realize that the human being is more than a mere sum of biological equations or a complex algorithm. Suffering, healing, hope, and compassion transcend the boundaries of laboratory analysis. This is where the spiritual dimension comes into play—an anchor of meaning, consciousness, and humanity, without which the practice of medicine risks becoming cold and impersonal.
This congress was conceived precisely as a space for convergence and interdisciplinary dialogue, aiming to build a bridge between three fundamental pillars of our existence:
Medicine, as the art and science of healing the body;
Technology, as a catalyst for innovation and boundless possibilities; Spirituality, as a source of meaning, ethics, inner balance, and a profound understanding of the human being.

Biographical Sketch

Mircea Gelu Buta is professor at "Babes-Bolyai" University of Cluj-Napoca, where he teaches Christian Bioethics, and an associate professor at the Technical University of Cluj-Napoca. He is Primary Physician in Pediatrics and Manager of The Emergency County Hospital Bistrița (2005-2017).

He is the organizer of "International Seminar of Medicine and Theology" in Bistrița, now on its twenty-five edition. He is author of 79 specialty and belletrist books and he published over 300 articles in various magazines in the country and abroad. He activates as a member in numerous medical and cultural associations.

He obtained many Honors and Awards like: Honorary Citizen of the Municipality of Bistrita (2022), The Order "Saints Constantine and Helen" of Romanian Patriarchate (2016); Silver Medal of “Babes-Bolyai" University of Cluj-Napoca (2016); The Order "Holy Martyrs of Năsăud" (2015); Honorary citizen of the village Bistrita Bargaului (2013); Transylvania Cross (2005); The Order and Medal "Sanitary Merit" in the rank of Officer (2004); Patriarchal Cross (1999).

P 3.4

The Augmented Human. Theological Reflections on Transhumanism

Ștefan Iloaie

Professor at the Faculty of Orthodox Theology, Babeș-Bolyai University of Cluj-Napoca; Director of the "Isidor Todoran" Doctoral School of the Faculty

Abstract

The contemporary age is characterized by extraordinary technological developments. Theseachanges bring with them a series of challenges to which both society and the Church are called to respond. More specifically, these challenges concern research in the fields of artificial intelligence and biotechnology, which increasingly focuses on enhancing certain characteristics of the human body. Within this context, the intellectual movement known as transhumanism has emerged. It seeks to modify human nature and even to create a new human species, improved or augmented through technological means. Initially a marginal philosophy, transhumanism has now become relatively widespread, particularly in environments that exert a significant influence on the contemporary world, such as technology companies and, especially, technical universities. Transhumanist authors are increasingly promoted by the media, and their works enjoy a growing readership. Many proponents of this philosophy are atheists, agnostics, or openly anti-religious. They advocate a materialistic anthropology and deny the existence of the soul. Their ultimate goal is the overcoming of death through technology. In this sense, transhumanism displays certain characteristics that resemble those of religion. The faith of its adherents is directed towards the hope that, at some point, technological means will be developed that will make it possible to overcome disease, ageing, and even death. Some transhumanist thinkers—as this paper will show—regard the human species as merely an intermediate stage whose purpose is to bring about Artificial General Intelligence and, ultimately, a Superintelligence capable of conquering the entire cosmos. The hope is that such a Superintelligence will provide solutions to humanity's fundamental problems and thereby open the way towards a perfect world. From a Christian perspective, however, human augmentation can be understood as a form of idolatry, insofar as human beings place their hope and faith in technology as the means of resolving the greatest human problem: death. Transhumanism thus represents the human desire to bring the Kingdom of God to earth while replacing God with one or more forms of Superintelligence.

Biographical Sketch

Priest, Doctor of Theology, habilitated Professor at the Faculty of Orthodox Theology, Babeș-Bolyai University of Cluj-Napoca. He teaches the courses Christian Moral Theology and Bioethics. He is Director of the Faculty's "Isidor Todoran" Doctoral School and Director of the Bioethics Center of Babeș-Bolyai University. He is a member of the UNESCO Chair in Bioethics – International Forum of Teachers; the Association of Bioethicists in Central Europe (BCE) / Verein zur Förderung des internationalen wissenschaftlichen Dialogs im Bereich der Bioethik, Vienna; the Romanian Society of Bioethics, among others. Among his published volumes are: Personal and Communal Moral Responsibility. A Theological Perspective; The Culture of Life. Moral Aspects in Bioethics; Christian Moral Theology and Postmodern Ethics. A Necessary Encounter. (https://ot.ubbcluj.ro/cadre/stefan-iloaie/)

P 3.5

The Metaphysics of the Divine

Mircea Leabu

Genomics Research and Development Institute @ Carol Davila University of Medicine and Pharmacy; Research Center for Applied Ethics, University of Bucharest, Bucharest, Romania

Abstract

The idea for a metaphysical approach to the Divine was suggested to me by the following quote from Ilie Pârvu: "This science [metaphysics]—possible only via the critical path, not the dogmatic one—is conceived, however, as having an object distinct from that of traditional metaphysics (the transcendent): namely, reason itself—specifically, the complete and precise determination of the scope and validity of its application within empirical knowledge." A cascade of questions ensued: How to get rid of dogmas in religion? How do we free the Divine from a dogmatic approach? These questions stimulate metaphysical thought, giving rise to others: How can we move beyond dogmatic metaphysics in our approach to the Divine? How can we approach the Divine through an open metaphysics? While these questions lead us to the boundary between philosophy and theology, such an approach cannot ignore the knowledge of the world and of life that humanity has gained through the advancement of science. This lecture does not seek to answer these questions—that would be an act of vanity—but merely to invite us to reflect upon them. The Divine is the foundation of all existence (both non-living and living entities). God resides within us, and it is within ourselves that we must seek Him; that is where He gathers and from where He surges forth. Our destiny as curious and playful beings prompted God to administer a paternal punishment: expulsion from Paradise and consignment to a life of wandering—a pilgrimage toward rediscovering the Divine. As a member of the human species, I can only wish for Man's success.

Biographical Sketch

Dr. Mircea Leabu is graduated in Pure Chemistry as head of the class at national level, in 1976, at Faculty of Chemistry and Chemical Engineering of Gheorghe Asachi Technical University of Iași. He started his research activity in 1980, at the Institute of Cellular Biology and Pathology, in Bucharest, studying the chemistry of lumenal surface of endothelial cells, mainly in terms of glycoconjugates. In 1991, Dr. Leabu moved at the Carol Davila University of Medicine and Pharmacy continuing his researches on cardiovascular system, by modeling ischemia-reperfusion on myocardium, finalizing his doctoral thesis in medical biochemistry, and being also committed in cell biology and histology teaching activity for undergraduate students. Between 2000 and 2005 he traveled to University of Western Ontario, London, Ontario, Canada as a postdoctoral fellow to study cell shape controlling and motility by integrins, as a result of growth factors' signals. Returned home, Dr. Leabu continued his didactic activity at Carola Davila University of Medicine and Pharmacy, and initiated his activity at Victor Babeș National Institute of Pathology, leading a Cell Biology Lab. From 2008, he enlarged his interest to bioethics and professional ethics, publishing more than 20 papers in this field. In 2009, Dr. Leabu was awarded with Professor Bologna title for his outstanding teaching activity. (Details at:

https://scholar.google.com/citations?user=0tEfM0cAAAAJ&hl=en