IMEKO NEWSLETTER

2026 NOVEMBER

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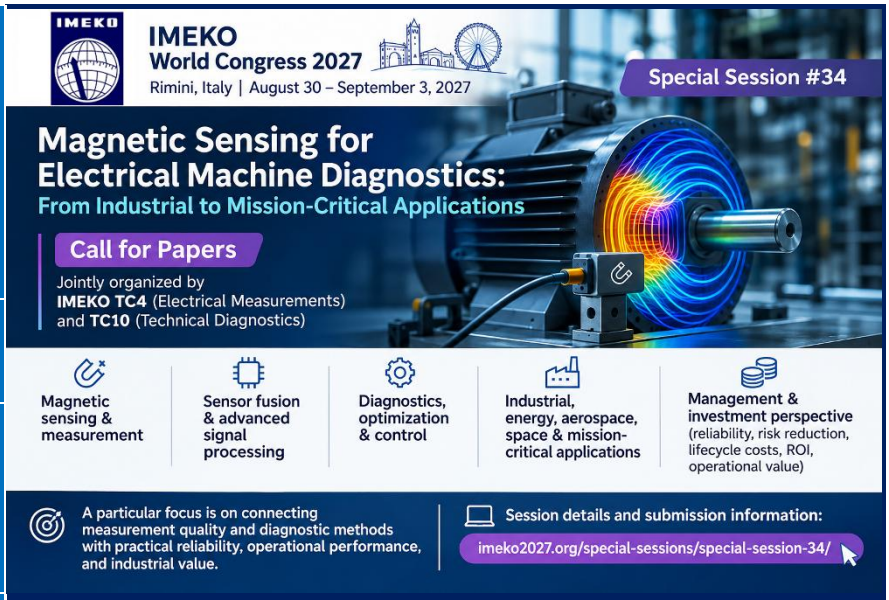
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DEAR FRIENDS, DEAR COLLEAGUES,

As the World Congress approaches, IMEKO is picking up the pace. The organizers are working tirelessly to give congress participants the best possible experience.

Forty-five Special Sessions have been announced and are awaiting papers, alongside the numerous more traditional Technical Committee sessions.

Since the September issue, two new initiatives have captured IMEKO's heart, alongside ongoing conferences around the world on a wide range of topics. About these and recent conferences, there are some impressive reports in this issue.

But first, meet Dr Dae - Im Kang, President of the University of Science and Technology (UST), Korea. He reflects on his 35-year path, from attending his first IMEKO conference via becoming IMEKO President, and to UST becoming IMEKO's most recent member organization in 2026 under his leadership.

The series "IMEKO Goes to Young Scientists" features Camila Leão Pereira, a Brazilian military engineer and PhD candidate studying for her third PhD in Rio de Janeiro, researching learning-based perception and navigation for autonomous mobile robots on complex terrain.

Dr Valentina Bello reports on the first live introduction of the Working Group for Young Scientists in Metrology (WYSM).

The recent International Open Access Week and Acta IMEKO, raising the question on rethinking scientific publishing is the next article.

Finally, Special Session 34 calls for papers.

FROM A YOUNG FORCE METROLOGIST TO IMEKO PRESIDENT - AND BACK TO THE NEXT GENERATION



When I attended my first IMEKO conference in 1990, I was a 32-year-old researcher from Korea presenting my work before many of the world's leading experts in force metrology. I could never have imagined that IMEKO would become such an important part of my professional life – or that, more than three decades later, I would return to the IMEKO community as President of a university dedicated to educating the next generation of scientists and engineers.

Looking back on my journey with IMEKO, one lesson stands out above all: international scientific activities are a long-term investment – in ourselves, our institutions, and our countries.

My First Encounter with IMEKO

I joined the Korea Research Institute of Standards and Science (KRISS) in 1982 and began my research career in force metrology.

One of my most important early assignments was to establish Korea's national force standard using a 500 kN deadweight force standard machine that had been donated to Korea under scientific and technological cooperation between Korea and the United States.

It was an enormous machine, weighing approximately 78 tons and standing 17 meters high. Improving its performance required us to develop and master many technologies, including precision calibration of large deadweights, correction for local gravitational acceleration, and highly accurate alignment techniques.

After completing the machine improvements, we compared its performance with the force standard in Japan.

In 1990, I attended the IMEKO TC3 Measurement of Force, Mass, Torque, and Gravity Conference in Szeged, Hungary, to present our research results. It was my first international scientific conference. I was both excited and very nervous.

Many of the world's leading experts in force metrology were there – from Germany, the United Kingdom, France, the United States, and other countries. Until then, I had known many of their names only from papers and technical reports. Suddenly, I was standing in front of them, presenting my own research.

I had practised my presentation many times, so fortunately it went well. Answering questions was more difficult. I was nervous and could not answer every question as clearly as I would have liked. Nevertheless, the senior scientists welcomed me warmly. Perhaps they were pleased to see a young researcher entering their field. That experience changed the direction of my professional life.

Growing with IMEKO

After that first conference, I continued to participate in IMEKO TC3 conferences and the IMEKO World Congress. More importantly, I maintained relationships with the senior experts I had met through IMEKO.

I learned from them not only scientific knowledge, but also experience and know-how that could not easily be learned from books or papers. My international network gradually expanded, and IMEKO became an important part of my development as a scientist.

At the IMEKO World Congress in Turin, Italy, in 1994, it was decided that Korea would host the IMEKO TC3 Conference in 1998, and I was given responsibility for organising it. Meanwhile, at the Asia Pacific Metrology Forum on Mechanical Quantities (APMF) 1996 in Shanghai, it was also decided that Korea would host APMF 98.

We therefore decided to combine the two events.

The IMEKO TC3/APMF 98 Joint Conference was held in Daejeon in 1998, with approximately 150 participants and 77 papers. The conference also became an important turning point for APMF, helping it expand beyond the Asia-Pacific region and strengthening its relationship with IMEKO TC3.

A Decision That Changed My Career

The preparation for the 1998 conference coincided with a difficult period in Korea. In 1997, Korea was hit by a severe financial crisis. Government-funded research institutes underwent major restructuring, and the retirement age of researchers was reduced. At that time, I received an attractive opportunity to leave KRISS and move to a university. I seriously considered it.

However, I had already accepted responsibility for organising IMEKO TC3/APMF 98. More importantly, I was concerned that if I left KRISS at that critical moment, the international network in mass and force metrology that we had built over many years might be weakened. After much consideration, I decided to remain at KRISS.

Looking back, that decision taught me something that I have remembered throughout my career. International scientific activities are not simply additional work, and their value should not be judged only in terms of immediate personal benefit. They are a long-term investment. Sometimes we see the return on that investment only ten or twenty years later.

From TC3 Chair to IMEKO President

After the successful 1998 conference, my involvement in IMEKO continued to deepen. When Dr A. Sawla of PTB, then Chair of IMEKO TC3, prepared to step down, he recommended me as his successor.

I later took responsibility for TC3 and organised the IMEKO TC3 Conference held in Cairo, Egypt, in 2005.

That conference brought another unexpected turning point in my life. Professor Manfred Peters of PTB, then President of IMEKO, and Professor Tamas Kemeny, Secretary-General of IMEKO, attended the conference. During a tea break, they asked me whether I would consider becoming a future President of IMEKO.

I was very surprised. I was only 47 years old and was serving as a Director at KRISS. At that time in Korea, it was difficult to imagine someone who was not yet the President or vice president of a national institution becoming President of a major international scientific organization.

I thanked them for their confidence in me and told them that I first needed to return to Korea and discuss the matter with the President of KRISS. Fortunately, he strongly supported the idea.

At the IMEKO World Congress in Brazil in 2006, I became President-Elect of IMEKO, and at the closing ceremony of the 2009 World Congress in Lisbon, Portugal, I assumed the presidency. For the young researcher who had nervously presented his first international paper in Szeged in 1990, this was something I could never have imagined.

Bringing the IMEKO World Congress to Korea

One of the greatest honours of my IMEKO career was hosting the IMEKO World Congress 2012 in Busan, Korea.

In December 2011, shortly before the Congress, I had become President of KRISS. I therefore had the special privilege of welcoming the international measurement community to Korea both as President of IMEKO and as President of Korea's national metrology institute.

FROM A YOUNG FORCE METROLOGIST TO IMEKO PRESIDENT - AND BACK TO THE NEXT GENERATION



With members of the National Organizing Committee and IMEKO officers at the 20th IMEKO World Congress in Busan, Korea, 2012.

The Congress was very successful, and many participants described it as one of the most successful IMEKO World Congresses.

For me, however, its meaning went beyond the success of a single event. It represented more than two decades of growing together with the international metrology community—from a young researcher learning from senior scientists to someone entrusted with leading IMEKO.

The international relationships I developed through IMEKO and APMF also contributed to my later opportunity to serve as a member of the International Committee for Weights and Measures (CIPM).

These experiences convinced me that international networking is an essential part of becoming a world-class scientist.

Returning to IMEKO through UST

In 2025, I began another chapter of my career when I became President of the University of Science and Technology (UST).

UST is a unique graduate university established in 2003 by 30 Korean government-funded science and technology research institutes. Today, approximately 1,700 faculty members guide around 1,700 master's and doctoral students, about 30 percent of whom are international students.

After becoming President, I began exploring how UST could become part of the IMEKO community. Following discussions with the IMEKO leadership and Secretariat, UST was approved as an IMEKO Member Organization at the General Council in August 2026.

For me, this has a very special meaning. More than three decades ago, IMEKO gave a young Korean researcher an opportunity to enter the international scientific community. Now, through UST, I would like to provide similar opportunities to a new generation.

One of our goals is to encourage UST students and young researchers to participate actively in IMEKO conferences, Technical Committees, and international networks. I hope that UST can contribute to making IMEKO younger, more diverse, and even more international. I also hope that Korea and UST can once again contribute to the IMEKO community by hosting future IMEKO activities.

Passing the Opportunity to the Next Generation

Science today is very different from when I began my career. Competition is stronger, technologies are changing rapidly, and young researchers face increasing pressure to produce immediate results. But precisely for this reason, I believe long-term international relationships are more important than ever.

FROM A YOUNG FORCE METROLOGIST TO IMEKO PRESIDENT - AND BACK TO THE NEXT GENERATION

Technical knowledge is essential. Excellent research results are essential. But science cannot advance through individual effort alone. We need people who challenge us, teach us, introduce us to new ideas, and connect us with the wider international scientific community. Organizations such as IMEKO provide exactly such opportunities.

I therefore encourage young scientists not to ask only: "What immediate benefit will I receive from this activity?"

Sometimes the most valuable results of international cooperation appear ten or twenty years later. The colleague you meet at an IMEKO conference today may become your research partner, your mentor, or the person who opens an entirely new opportunity for you in the future.

That is exactly what happened to me. I entered IMEKO in 1990 as a 32-year-old researcher hoping simply to present a good paper and learn from senior scientists. IMEKO eventually became a community in which I learned, built lifelong friendships, served, and grew as both a scientist and a leader.

A Debt of Gratitude

As I look back on this journey, I would like to express my deepest gratitude to the senior measurement experts who welcomed me into the IMEKO community and generously shared their experience and wisdom with me. Among them, I am especially grateful to Dr A. Sawla of PTB, who encouraged my development in IMEKO TC3 and recommended me as his successor; the late Professor Manfred Peters, former President of IMEKO; the late Professor Tamas Kemeny, former Secretary-General of IMEKO. Professor Chicayoshi Maeda of Japan, with whom I have shared many years of friendship and international cooperation.

Their guidance, trust, and friendship helped shape my career as a researcher and international scientific leader. I also remember with gratitude many other senior colleagues in the global measurement community from whom I learned over the years. Whatever I was able to contribute to IMEKO was built, in no small part, on what I received from them. I believe the best way to honour that legacy is to pass the same spirit of generosity, cooperation, and mentorship to the next generation.

Now I have returned to that community through UST. My role may be different, but my belief remains the same: international scientific cooperation is ultimately about people, relationships, and the opportunities that one generation creates for the next.

The time and effort we invest today may open doors that we cannot yet imagine. And I hope that, through UST and IMEKO, I can now help open some of those doors for the next generation of young scientists.



Handing over the IMEKO flag and ceremonial gavel to President-Elect Prof. Pasquale Daponte at the closing ceremony of the 20th IMEKO World Congress in Busan, Korea, 2012.

Written by Dr Dae-Im Kang, President, University of Science and Technology (UST), Korea.

PHOTOMET-EDUMET 2026: PHOTONICS AND MEASUREMENT EDUCATION MEET IN KLAGENFURT



The IMEKO PhotoMet-EduMet 2026 Symposium took place from August 31 to September 2 2026 in Klagenfurt, Austria, bringing together the communities of TC1 – Education and Training in Measurement Sciences and TC2 – Photonics. Under the theme "Metrology in Transition: Education, Photonics, and the Impact of AI & Robotics", the event connected advances in measurement technologies with the educational challenges accompanying their development.

Hosted at the Lakeside Science & Technology Park, close to the University of Klagenfurt and Lake Wörthersee, the symposium offered an attractive setting for scientific discussion. The organizing team was led by General Chairs Hubert Zangl, Maik Rosenberger, Luigi Rovati, and Armando Albertazzi G. Jr., with Serkan Ergun, Richard Fütterer, and Lukas Petrich serving as Technical Programme Chairs. Their joint efforts brought together expertise from different institutions and research traditions.

The scientific scope covered optical sensing and imaging, industrial inspection, biomedical applications, measurement uncertainty, and the integration of artificial intelligence into measurement systems.

Alongside these photonics topics, the educational component addressed innovative teaching methods, remote and hybrid learning, and the use of AI in engineering education. Sensor technologies provided a further connection between the two communities, linking instrumentation, signal processing, and practical applications.

Bringing PhotoMet and EduMet together highlighted a shared challenge: technological progress must be accompanied by the knowledge and skills needed to use new tools critically and effectively. For measurement science, this means preparing researchers and engineers to understand not only how an instrument works, but also what its results mean, how reliable they are, and where its limitations lie. The joint format provided a valuable opportunity to consider these questions across disciplinary boundaries.



In the picture, from left to right: Alexander Hergt, Tetiyana Gordiyenko, Andrei Golomoz, Hendrik Mietzner, Lu Jin, Florian Klein, Narcis Dumea, Rico Nestler.

PHOTOMET-EDUMET 2026: PHOTONICS AND MEASUREMENT EDUCATION MEET IN KLAGENFURT

A particularly memorable highlight was the social dinner aboard a boat cruising on Lake Wörthersee. The beautiful scenery and relaxed atmosphere provided a wonderful setting for participants to get to know one another, exchange ideas, and continue conversations beyond the scientific sessions.



It was an enjoyable opportunity to strengthen existing connections and explore possibilities for future collaboration.

Following the 2025 edition in Modena, the Klagenfurt meeting continued developing PhotoMet as a flagship event for the TC2 community while strengthening its connections with measurement education. Accepted and presented contributions are scheduled for publication in the SPIE Digital Library, and selected papers may be invited for extended publication in Acta IMEKO.

We warmly thank the local organizers, speakers, authors, reviewers, sponsors, and all participants for their contributions.

Conferences such as PhotoMet-EduMet depend on this collective commitment to both the scientific programme and the relationships that continue beyond the meeting.



In the picture: Heinz Fleischhacker, Maik Rosenberger, Valentina Bello, Hubert Zangl, Luigi Rovati, Maciej Chomski.

We look forward to meeting again at the XXV IMEKO World Congress in Rimini, Italy, from August 30 to September 3 2027, and warmly encourage the photonics and measurement education communities to contribute their work and ideas.

Written by Prof. Luigi Rovati.

AN ABODE OF CLOUDS, A CONFLUENCE OF MINDS: ICME 2026 AT NIT MEGHALAYA, INDIA

A journey to the abode of clouds: IMEKO TC20's flagship annual conference, the International Conference on Measurement of Energy (ICME 2026), was hosted between 7-9 October by the National Institute of Technology (NIT) Meghalaya, India, in association with the Metrology Society of India. For many of us, the experience began well before the first scientific session. Our journey to Meghalaya, the 'abode of clouds', took us through Delhi and Guwahati, the gateway to India's enchanting Northeast, before winding towards Shillong through rolling hills and ever-changing landscapes. Roadside stalls piled high with sweet, juicy pineapples, seasonal citrus fruits, regional pickles, and preserves added colour and a distinctly local flavour to the journey.



Picture: Glimpses of the picturesque journey to NIT Meghalaya (top: center), India; (top: left to right) the Lokpriya Gopinath Bordoloi International Airport, Guwahati; Umiam Lake; Ward's Lake; Elephant Falls; (bottom: left to right) Laitlum Canyons; Wahrew River, Mawkdok Dympep Valley, and Mawsmai Cave.

Passing through Shillong, affectionately called the 'Scotland of the East', we were greeted by the serene expanse of Umiam Lake. A warm cup of lemon tea beside its tranquil blue waters, framed by lush green hills, was a simple but unforgettable welcome. Ward's Lake, tucked into the heart of the city, offered another moment of calm, with its manicured gardens, wooden bridges, and delicate pink blossoms. As we continued towards Sohra (Cherrapunji), Elephant Falls provided a refreshing pause amid dense foliage and cool mountain air. Winding roads opened onto steep cliffs, deep valleys, and layers of green hills, while clouds drifted gracefully across the horizon. The breathtaking Mawkdok Dympep and Laitlum canyons were particularly memorable, with hills that seemed to fade into infinity. Nestled in this remarkable setting, NIT Meghalaya welcomed delegates to ICME 2026. The transition from the landscape's beauty to an equally stimulating world of scientific ideas felt both natural and inspiring.

Measuring energy, shaping the future: ICME 2026 brought together researchers, academicians, metrologists, industry professionals, young scientists, and students from diverse disciplines. At a time when the global energy landscape is changing rapidly, the conference highlighted an essential fact: advances in renewable energy, smart grids, energy storage, and sustainable technologies depend upon measurements that are accurate, reliable, and traceable. Such measurements underpin performance, safety, interoperability, and public confidence in emerging energy systems. The conference was especially timely for India, where the 'Make in India' initiative and expanding technological ambitions have created new opportunities for measurement science.

AN ABODE OF CLOUDS, A CONFLUENCE OF MINDS: ICME 2026 AT NIT MEGHALAYA, INDIA

Through keynote lectures, invited talks, technical presentations, and discussions, ICME 2026 offered much more than a platform for presenting results. It created space for questions, constructive debate, and networking between laboratories, universities, and industry, paving the way for future research partnerships.

An inaugural gathering of scientific minds: The inaugural session began with a traditional song followed by the ceremonial lighting of the lamp, symbolizing the pursuit of knowledge. The occasion brought together Dr Pranay Morajkar, Vice-Chairperson of IMEKO TC20; Dr S. K. Jaiswal, Vice-Chairperson of MSI India; Chief Guest Prof. Venu Gopal Achanta, President of MSI India; Guest of Honour Prof. Ravi Fernandes of PTB, Germany; Dr Pradeep Dutta of IISc Bengaluru; and Prof. Pinakeswar Mahanta, Director of NIT Meghalaya. Their opening remarks set an encouraging tone for the proceedings, which also included the release of the Book of Abstracts.

The keynote lectures by Prof. Venu Gopal Achanta, NPL-MSI India, and Dr Ing. Detlev Markus of PTB, Germany, reflected the breadth of contemporary metrology, measurement standards, explosion protection, and its growing relevance to energy technologies. Other keynote lectures by Prof. Shankar G. Aggarwal and Dr Shiv Kumar Jaiswal of NPL-India, Prof. Pinakeswar Mahanta, NITM India, Dr Oijai Ongrai, NIM Thailand, shared insights into metrology solutions for sustainable energy. Together, these contributions emphasized the need for internationally harmonized standards and reliable measurement systems to address new energy challenges.

Invited lectures by Dr Bharath G., SRM IST India, and Dr Manohara Gudiyor Veerabhadrappa, NPL Teddington, United Kingdom, enriched the programme with specialized research perspectives and contemporary measurement challenges.

The oral sessions formed the scientific heart of ICME 2026. For the first time, over 100 paper submissions were received, and the best 58 were accepted for presentation. They explored thermophysical properties of energy carriers; combustion diagnostics and monitoring; smart grids and energy-network measurement standards; renewable-energy metrology and diagnostics; measurement challenges in energy-harvesting systems; digitization and quantum technologies in energy metrology. The range of topics demonstrated the strength and diversity of current research, particularly within India's expanding energy-metrology community.

Questions from young researchers, observations from experienced metrologists, and exchanges across disciplinary boundaries gave the sessions an engaging and collaborative character.

Building an inclusive and connected measurement community: A special highlight was the WIMER (Women in Metrology, Engineering and Research) session, which brought global perspectives together with local initiatives. The discussions reflected the aspiration to strengthen WIMER's international presence through IMEKO. The session underscored the value of greater participation, visibility, and collaboration across the measurement-science community.

AN ABODE OF CLOUDS, A CONFLUENCE OF MINDS: ICME 2026 AT NIT MEGHALAYA, INDIA

Beyond the lecture halls, culture, and partnerships: The scientific discussions were complemented by a memorable gala dinner, where delegates, speakers, and young researchers could meet beyond the formal setting of lecture halls. Conversations moved easily from measurement challenges and research experiences to travel, culture, and everyday life. The relaxed atmosphere strengthened professional connections and created personal memories that often last long after a conference ends.

The excursion through Sohra offered another chance to experience Meghalaya's extraordinary beauty. The towering cascade of Nohkalikai Falls, the panoramic Seven Sisters Falls, and the fascinating limestone formations of Mawsmai Cave each revealed a different character of the landscape. Surrounded by mist, greenery, and the sound of flowing water, it was easy to understand why Meghalaya leaves such a lasting impression on its visitors.



Picture: Glimpses of ICME 2026 at NIT Meghalaya, India; (top: left to right) keynote address by Prof. Dr Venugopal Achanta, Prof. Dr Detlev Markus, and Prof. Pinakeshwar Mahanta; (middle: left to right) inaugural address by Dr Pranay P. Morajkar; faculty-student interactions at ICME 2026; (bottom: right to left) WIMER online-session; cultural programme and gala dinner.

On the evening of October 8, a cultural programme organized by SPIC MACAY celebrated the artistic heritage of the region and beyond. A graceful Sattriya dance performance by Smt. Anita Sharma, was followed by choral music from Highland Lores, a Western choir group. These performances added a moving cultural dimension to the conference, reminding us that the exchange of ideas becomes richer when accompanied by an appreciation of different traditions.

A memorable conclusion and the promise of future collaboration: The valedictory function led by Organizing Secretary Dr Shaikh Affijulla, Technical Programme Chair Dr Sanjoy Debbarma NITM, Prof. Pinakeswar Mahanta Director NITM, Guest of Honour Prof. Sudipta De, Adjunct Professor at NIT Meghalaya, and Chief Guest Dr Ing. Detlev Markus of PTB, Germany, brought the three days of scientific and cultural engagement to a fitting close. The announcement of the 10 Best Paper Awards, followed by a vote of thanks by the Organizing Secretary, concluded the proceedings.

As we departed from the hills of Meghalaya, what stayed with us was more than a collection of technical sessions or photographs of spectacular waterfalls. ICME 2026 had brought people together across countries, institutions, and generations, united by a shared commitment to better measurement and a more sustainable energy future. In the abode of clouds, new ideas have found a meeting place and, perhaps, the beginnings of collaborations that will reach far beyond the mountains.

Written by Dr Pranay P. Morajkar, Vice Chairperson, IMEKO TC20; Asst. Prof. of Chemistry, Goa University, Goa, India, and Ms Samantha Da Costa Goa Universtity student.

IMEKO GOES TO YOUNG SCIENTISTS: CAMILA LEAO PEREIRA



My interest in science and engineering began long before I knew what they were. As a child, I loved disassembling and assembling objects, performing small maintenance processes on simple devices, and eventually trying to repair them whenever possible. This is probably one of the reasons why puzzles are among my favorite pastimes. My family have always encouraged this hobby, and I was often given sets of screwdrivers, which quickly became some of my favorite tools. Also, during my scholar years as a young child, my favorite subject was mathematics. My brothers and I used to turn mathematical operations into games with our family. Therefore, these early experiences helped me shape my interests at school and my future career plans.

When the time came to choose a bachelor's degree, I knew I wanted to become an engineer, although I had not yet decided which field to pursue. While considering the options, mechanical engineering stood out because of its practical applications, its broad range of possibilities, and its connections with other areas, including electronics engineering.

Since I am originally from Belém, in the state of Pará in northern Brazil, I considered the opportunities offered by some of the country's leading engineering institutions, while also taking into account the aspects of studying far from my family. I eventually decided to apply to the Military Institute of Engineering (Instituto Militar de Engenharia - IME), one of Brazil's leading engineering universities, located in the city of Rio de Janeiro and part of the Brazilian Army's Department of Science and Technology. Hence, I successfully passed the entrance exam and began both my bachelor's degree in engineering and my military training in 2010.

During the first two years of the undergraduate programme at IME, students study foundational engineering subjects before choosing their specialization. I found this structure particularly valuable because it allowed me to explore different fields before making a decision that would shape my professional career. Therefore, by studying subjects such as chemistry, mechanics, computer programming, among others, I gained a broader understanding of engineering and its many applications.

Consequently, that helped me decide to pursue a degree in Mechanical and Automotive Engineering by the beginning of the third year, and I was particularly drawn to subjects related to vehicle subsystems, control systems, and mechatronics. These interests also guided my first research experiences and the development of my undergraduate thesis.

At the end of my undergraduate studies in 2014, as a military engineer, I had to choose where to begin my professional career from among the available options of military organizations. After considering the opportunities and the nature of the work, I joined the Manufacturing Directorate, which operates under the Department of Science and Technology of the Brazilian Army. There, I became part of a team involved in the development of the Brazilian Army's new family of wheeled armored vehicles, especially the Guarani 6x6 Armored Personnel Carrier (APC). This experience allowed me to follow several stages of armored vehicle development, from defining technical and operational requirements to production and post-production activities.

It also let me get in touch with the militaries who operate these vehicles, helping me understand how engineering decisions affect their practical use and the challenges that arise when technical solutions are applied in real-world conditions.

Therefore, one of the most valuable aspects of this work was participating in the continuous improvement of the product, particularly through development tests of the vehicle's subsystems and the evaluation of proposed solutions to identified issues. In this regard, I took part in activities ranging from instrumentation and test execution to data processing. Through these experiences, I became familiar with measurement and control technologies, such as Inertial Measurement Unit (IMU), linear transducers, and Programmable Logic Controller (PLC).

More importantly, I discovered how experimental measurements can be used to understand the behavior of complex mechanical systems and support engineering decisions. In this aspect, working directly with military vehicles also increased my interest in semi-autonomous and autonomous systems, since heavy wheeled vehicles can face significant maneuverability challenges, particularly under demanding operating conditions. I began to recognize how control systems could help improve vehicle handling, stability, and safety.This motivated me to pursue a Master's degree in mechanical engineering, focusing on vehicle dynamics and control.

My research involved developing and evaluating a driver-assistance control system designed to help a 6x6 vehicle follow a desired trajectory.This work combined vehicle dynamics, mathematical modeling, and control theory, bringing together several areas that had attracted my interest.

During this period, I was also introduced to 'inverse problems', a subject that particularly interested me because of the possibility of estimating unknown model parameters from experimental data. Hence, I found this approach especially useful when developing computer simulations of real systems, since some parameters may be unknown or difficult to measure directly. As a result, I was able to apply a methodology to estimate some of the parameters of my computational vehicle to achieve the objectives of my research.

Because state and parameter estimation present numerous applications in a series of engineering problems, this also guided me to work on a second Master's degree in the field of system identification. My study focused on estimating the lateral dynamic behavior of a 6x6 heavy vehicle using experimental data collected during manoeuvers performed at different speeds.

Although these two research projects addressed different problems, both relied on the development of dynamic models that could more accurately represent the behavior of a real vehicle to support control system design. Therefore, this background provided a starting point for subsequent research. Having worked with vehicle dynamics and control, I wanted to explore autonomous platforms and investigate how they could operate in challenge environment. Thus, I am currently pursuing a PhD focused on autonomous mobile robots, particularly their navigation capabilities on uneven and unstructured terrains.

My interest in this field is closely related to its potential applications in both defense and civilian contexts.

Autonomous robots could support search-and-rescue operations, improve situational awareness, assist in hazardous environments, and perform tasks that would otherwise expose people to significant risks. Furthermore, another remarkable aspect of autonomous robotics is the integration of different areas, which must work together to enable a robot to perform a task successfully. Therefore, throughout the stages of perception, data interpretation, path planning, and action, many challenges arise in ensuring reliable real-time performance, especially in dynamic environments.

These challenges are particularly relevant to my doctoral research, since I intend to investigate perception methods that can contribute to more reliable navigation and path planning for autonomous robots operating on complex terrain. In this regard, the starting point of my work is to explore how learning-based approaches can help robots interpret their surroundings and better support navigation decisions.

I am currently in the second year of my PhD and, during the first year, I focused on completing the coursework requirements of the graduate programme in Mechanical Engineering at the Pontifical Catholic University of Rio de Janeiro (Pontifícia Universidade Católica do Rio de Janeiro, PUC-Rio). Therefore, courses such as 'Deep Learning' and 'Operational Systems of Intelligent Robots' have helped me broaden my knowledge and refine my research direction. I am now working to establish a methodology that will allow me to investigate navigation challenges systematically and define the steps needed to achieve my research objectives. Looking back, the interests I developed as a child, together with my subsequent experiences, have shaped my academic and professional journey. My work with military vehicles and experimental measurements led me to vehicle modelling, system identification, and control design, which ultimately encouraged me to explore autonomous robotics.

There is still much to learn, since autonomous robotics is a multidisciplinary field. However, as an engineer and researcher, I hope to continue expanding my knowledge and skills, while contributing to scientific research and to the development of autonomous platforms, from defining technical requirements to ensuring their reliable and successful deployment in real-world environments.



Camila Leao Prereira is currently pursuing her third PhD. IMEKO asked her about her dream.

My dream is to build a career that allows me to combine scientific research with practical engineering applications. Drawing on my experience with military vehicles and my current research in autonomous mobile robotics, I hope to contribute to the development of autonomous platforms and their subsystems. I would like to see the knowledge gained through research translated into practical solutions that can support both defence and civilian applications, helping to strengthen Brazil's technological and operational capabilities. Ultimately, I hope to contribute throughout this process, from defining technical requirements and developing solutions to evaluating their performance in real-world scenarios.

WOMEN IN METROLOGY, AND ENGINEERING RESEARCH - WIMER

WIMER, originally Women in Metrology and Energy Research, was established in 2022 at the Physikalisch - Technische Bundesanstalt (PTB) by the IMEKO Member Organization along with Technical Committee 20, which focuses on Measurement, Energy, and Related Quantities.

Over the years, through regular events, such as ICME conferences, lectures, and the IMEKO World Congress 2024 in Hamburg, Germany, WIMER has expanded and now seeks to broaden its scope, rebranding as Women in Metrology and Engineering Research, and will be hosted under the umbrella of IMEKO. WIMER aims to transition to IMEKO, a move the IMEKO Presidential Board has welcomed.

At the invitation of the National Institute of Technology Meghalaya, India, to the International Conference on Measurements of Energy, ICME 2026, on October 8, WIMER presented Global Perspectives and Local Initiatives by the following invitees.



Dr Florencia Almirón

She holds a PhD in chemistry and is Head of the Organic and Gas Metrology Areas at the Technical Laboratory of Uruguay, Uruguay's National Metrology Institute (LATU).

Her work focuses on chemical metrology, especially gas analysis, certified reference materials, and the development of measurement capabilities for greenhouse gases, air quality, and hydrogen. She actively participates in international metrology networks and capacity-building activities, particularly in gas metrology and developing metrological infrastructure to support the emerging hydrogen sector.

She is also a member of the Uruguayan Association of Women in Energy (AUME), a network that promotes women's participation and visibility in the energy sector.



Rugkanawan Wongpithayadisai a.k.a.Fah

She heads the Hardness Laboratory at the National Institute of Metrology (Thailand) and has extensive experience in mechanical metrology, hardness measurement, quality management, and international metrology activities.

She has held leadership roles in the APMP Technical Committee for Quality System (TCQS). She contributes to international activities through the Working Group on Hardness of the BIPM's Consultative Committee (CCM-WGH) and IMEKO Technical Committee 5, dedicated to Hardness Measurement.

She has also served as an external Quality Measurement System (QMS) auditor for the Bureau International des Poids et Mesures (BIPM), and as a reviewer and technical assessor in her field.

In 2025, she received the 'Recognition of Women Who Have Contributed to Society and the Nation: Outstanding Women in International Platforms/Networks' Award from Thailand's Ministry of Social Development and Human Security.

She also serves on the Working Group on Promoting the Role of Women in Science, Technology, Engineering, and Mathematics (STEM) Education and Careers under Thailand's Department of Women's Affairs and Family Development.



Winfred Kimuya

She holds an MSc in Sustainable Energy Transitions and is an Electrical Engineer and Senior Standards Officer at the Kenya Bureau of Standards (KEBS), with expertise in metrology, standardization, and sustainable energy systems. She actively advances quality infrastructure, measurement science, and standards development to support sustainable development and innovation.

Winfred is passionate about fostering cross-disciplinary and cross-regional collaboration, bringing an African perspective to global conversations on measurement, engineering, and research. Her work particularly focuses on strengthening standards and measurement systems to support emerging technologies, including electric mobility and sustainable energy solutions.

At this occasion at ICME 2026, a brief overview of IMEKO and its upcoming initiatives was followed by an introduction to WIMER and presentations by the invitees on their respective countries, which raised awareness of women's roles and perspectives in science and research, and highlighted their findings.

During the Q&A session, the presenters addressed WIMER's vision and opportunities to increase women's participation in metrology engineering and research.

The Vision:

To inspire women in metrology engineering and research and motivate them to go far in their careers.

To promote and support the involvement of women in metrology and engineering research, and foster collaboration among women in these fields.

To build a unique network of partners from industry, academia, and government, as well as students and graduates.

To provide workshops, seminars, and conferences to support and mentor the next generation of women.

To raise awareness and promote diversity and inclusion in these fields.

INTERNATIONAL OPEN ACCESS WEEK: RETHINKING SCIENTIFIC PUBLISHING



At first glance, science may appear primarily concerned with generating new knowledge to advance society and benefit humanity. However, achieving these goals also depends on how effectively this knowledge and understanding are communicated to the wider scientific community and the public at large.

For this reason, over the centuries, an articulated system of academic publishing has developed to give scientists the tools to share their findings. It is mainly based on scholarly journals, where scientists can publish their research (after a peer-review process) and read the latest advancements in their field of interest. Traditionally, the business model (unfortunately, money is what makes the world go round) was based on selling journal subscriptions to universities and libraries, so the publishing companies could cover the costs connected to the editorial process (peer review, final editing, publication costs), and thus keep the system running. More importantly, upon publication, copyright ownership was generally transferred to the publisher, thereby restricting the wider scientific community's ability to reuse and further disseminate the published material.

From the 1990s onwards, a significant portion of the process involved in producing scientific articles was shifted onto the authors. With the advent of new word-processing software, publishers began requiring print-ready manuscripts; consequently, scientists were no longer responsible solely for writing their papers, but also for handling the layout and incorporating corrections.

This created an untenable situation–particularly for publicly funded research–where society ended up financing not only the research itself and a substantial part of the publication process, but also the ever-increasing costs of subscribing to the academic journals in which the articles were published. The question of costs is closely linked to copyright. Why should a research funder grant publishers full copyright to a publication? Should the results of publicly funded research not belong to the public? It became clear that a simple right of first publication would suffice for publishing a scientific article, and that access to the content should be freely available. Therefore, in the early 2000s, a new model was proposed: 'Open Access'. In this case, scientific papers, data, and other scholarly outputs are made freely and immediately available online to everyone without financial, legal, or technical paywalls or subscription barriers. Moreover, users are free to reuse the material, as long as they cite the original author. This disruptive idea, first articulated by the Budapest Open Access Initiative (BOAI) in February 2002, has significantly reshaped the world of scientific publishing over the past two decades, and changed how scholarly research is disseminated and accessed.

To keep these issues in the spotlight, from 19 to October 25 2026, the scientific community celebrates the 'Open Access Week', an initiative promoted by SPARC (Scholarly Publishing and Academic Resources Coalition), a nonprofit organization that supports open systems for research and education. This global event provides an opportunity to raise awareness of the potential benefits of open access, share best practices, and promote its wider adoption in scholarly communication and research.

IMEKO knows very well the value of open-access policy, both for authors and for the whole community. For this reason, since 2011, IMEKO has been publishing Acta IMEKO, a diamond open-access journal managed and published directly by our Organization, thanks to the voluntary work of many dedicated scientists. Diamond open access means that all published papers are freely available online, with no fees charged to either readers or authors. The main goal of Acta IMEKO is to support the academic activities of IMEKO, providing wider dissemination of the scientific output from IMEKO events. Event organizers select high-quality papers presented at IMEKO conferences, workshops, or congresses, and invite authors to submit an extended version of their paper to this journal. Acta IMEKO also publishes scientific articles on measurement and instrumentation not related to an IMEKO event. The research area of 'measurement and instrumentation' is interpreted as any of the fields covered by the IMEKO Technical Committees.

According to Scopus, Acta IMEKO is ranked Q2 in Instrumentation and Electrical and Electronic Engineering, and Q3 (49th percentile) in Mechanical Engineering. Moreover, it is indexed in all major scientific databases: Scopus, Web of Science, and DOAJ (Directory of Open Access Journals). For this reason, it provides strong visibility for published research and enables open exchange of ideas among scientists worldwide.

Ongoing editorial activities in Acta IMEKO

Acta IMEKO is published quarterly, and each Issue includes one or more 'Special Issues' (i.e. collections of papers related to a specific conference or topic), plus the 'General Track', i.e. papers freely submitted by authors.

In June, Acta IMEKO published:

- Thematic Issue 'Shaping the Future of Photonic Metrology', associated with PhotoMet 2025 (organized by IMEKO TC2) and edited by Maik Rosenberger (PTB, Germany)
- Special Issue on the '2025 IMEKO TC8, TC11 and TC24 Joint Conference', edited by Leonardo Iannucci (Politecnico di Torino, Italy), Marija Cundeva-Blajer (Ss. Cyril and Methodius University in Skopje, North Macedonia), and Thomas Wiedenhöfer (PTB, Germany)
- 5 papers belonging to the General Track, edited by the EiC, Prof. Francesco Lamonaca

In the September issue, the following contributions were included:

- Thematic Issue' Infrared thermo-graphy: challenges and new frontiers', edited by Antonio Cannuli and Roberto Montanini (University of Messina, Italy)
- Thematic Issue '2025 IMEKO TC26 International Conference on Metrology for Archaeology and Cultural Heritage', edited by Fabio Leccese (Università degli Studi "Roma Tre", Italy)
- Thematic Issue 'IMEKO TC15 Collegium 2026', edited by Daniel Kytýř (Institute of Theoretical and Applied Mechanics, Czechia), Emina Hadzalic (University of Rijeka, Croatia), and Zvonimir Tomičević (University of Zagreb, Croatia)
- 13 papers belonging to the General Track, edited by the EiC of Acta IMEKO, Prof. Francesco Lamonaca

The December issue is currently in preparation and will include additional papers from the Special Issues that appeared in September.

We would like to conclude this contribution with a short note, which is necessary to maintain transparency towards the Authors and Contributors of Acta IMEKO. As you might have noticed, in recent months, many delays and inconveniences have occurred in the processing of papers (notifications not sent, comments submitted by Reviewers not visible on the platform, and similar problems). This was due to IT issues related to the migration of the journal platform to a new server and host. Unfortunately, updating some packages introduced unexpected bugs, which the new company managing the server gradually resolved. We sincerely apologize to all Authors, Reviewers, and Section Editors whose work was disrupted, and we assure you that almost all issues have been resolved. We are doing our best to avoid any further disruption on the platform.

In the meantime, we invite you, as valued members of the IMEKO community, to help us continuously improve Acta IMEKO and make our editorial process more efficient.

To this end, please update your profile on the Acta IMEKO website, ensuring your email address is up to date and that the keywords listed in your Reviewing Interests Terms accurately reflect your areas of expertise and research interests.

We also encourage you to include the relevant IMEKO Technical Committees (TCs) (e.g. TC1, TC13, TC26) that best match your scientific background. Keeping this information accurate and complete will greatly help us identify and assign suitable reviewers, streamline the peer-review process, and reduce editorial delays. The complete list of IMEKO Technical Committees and their corresponding Index Terms is available at: https://imeko.org/technical-committees.

Your feedback is equally important to us. Should you encounter any difficulties or have concerns regarding the editorial or peer-review process, please do not hesitate to contact our Editorial Office. We are committed to maintaining a transparent, fair, and efficient publication process, and your feedback helps us continuously improve.

We also warmly encourage you to consider Acta IMEKO as a venue for your most significant research achievements, particularly original and substantially extended contributions from IMEKO conferences, workshops, and other scientific events. Sharing your best research through Acta IMEKO not only helps disseminate your findings to the international measurement community but also strengthens the scientific excellence and reputation of our journal.

Finally, we invite you to explore the research published in Acta IMEKO, share relevant articles with your colleagues, and cite them in your scientific publications whenever scientifically appropriate. By promoting high-quality research, encouraging meaningful scientific exchange, and actively contributing to our journal, we can further strengthen the visibility and impact of Acta IMEKO within the international scientific community.

Written by the Editorial Team of Acta IMEKO: Prof. Francesco Lamonaca, Dr Dirk Röske, and Dr Leonardo Iannucci.



RadonNET WORKSHOP WITH IMEKO TECHNICAL COMMITTEE 19 ENVIRONMENTAL MEASUREMENTS

Earlier this year, the RadonNET consortium, in cooperation with the European Radiation Dosimetry Group (EURADOS WG3), IMEKO TC19, dedicated to Environmental Measurements, and the Innovation Cluster for Environment and Climate (IC-U) of the Physikalisch-Technische Bundesanstalt (PTB), organized an online workshop on low-cost radon sensors and their calibration.

The RadonNET project is a European Partnership on Metrology project, focusing on radon sensor networks for large buildings and future cities. The project organizes several stakeholder workshops.

After introductory words from Annette Röttger, the EURAMET representative, the project coordinator Benoît Sabot from the French Alternative Energies and Atomic Energy Commission (CEA) and Stefan Röttger from PTB gave an introduction to the topic and partners, followed by a total of thirteen contributions giving insights into the RadonNET project, recent results, and related projects.

The workshop topics spanned a wide range, from radon sources, radon sensors, and their calibration to the establishment of measurement testbeds and applications of machine learning in data processing. The presentations were given by experts from seven European institutions. To prepare for the studies conducted during the project, the Central Laboratory for Radiological Protection (CLOR) reviewed the state of the art of calibration processes and services in Europe. Katarzyna Woloszczuk's initial presentation from CLOR introduced all participants to the topic. In the following talks, Benoît Sabot, Krasimir Mitev, Ivelina Dimitrova (both from the University of Sofia) and Stefan Röttger spoke about different aspects of the characterization, performance, and calibration of commercially available or self-built radon sensors. Steven Bell and Andrew Rebeiro-Hargrave introduced the testbed established at the University of Helsinki, where several types of radon sensors will be installed to collect long-term data.

Project partners from the National Physical Laboratory (NPL), such as Daniel Binks, use these data and explained how machine learning algorithms can be applied to radon sensor data processing. Given the importance of this work for energy efficiency and health standards in modern buildings, we are conducting dissemination activities to make our project objectives visible to a broad audience. Petr Covar from the Czech Metrology Institute (CMI) presented the activities on social media (LinkedIn, X) and the project website (https://radon-network.eu).

In addition, two other projects were showcased, which apply radon measurements in areas not immediately associated with it. Íñigo de Loyola Chacartegui Rojo from CEA presented the development of the DORN instrument for radon measurements on the Moon during the Chinese Chang'e 6 mission. Later, Katharina Münster from PTB presented the NuClim project, in which radon measurements are used to distinguish air masses, and thereby determine greenhouse gas background levels.

The workshop was well received, with over 200 registrations and, on average, more than 100 attendees during the workshop.

Recordings of the workshop sessions can be found here:

Session I:
https://doi.org/10.5281/zenodo.20266383

Session II:
https://doi.org/10.5281/zenodo.20267985

Session III:
https://doi.org/10.5281/zenodo.20268547

Session IV:
https://doi.org/10.5281/zenodo.20269181

Text by: Rieke Schäfer, Katharina Münster, and Stefan Röttger

WORKING GROUP OF YOUNG SCIENTISTS IN METROLOGY: INTRODUCTION AT THE TC1 AND TC2 JOINT CONFERENCE IN KLAGENFURT, AUSTRIA

Dr Valentina Bello planned with Prof. Luigi Rovati and Dr Maik Rosenberg a special session at the joint conference of TC1 and TC2 to formally introduce the Working Group of Young Scientists, WYSM, which she leads. The IMEKO PhotoMet – EduMet 2026 Symposium took place from August 31 to September 2, 2026, in Klagenfurt, Austria, bringing together the communities of TC1 – Education and Training in Measurement Sciences and TC2 – Photonics.

1. *It is very nice to see you again, Dr Bello! The IMEKO General Council approved the idea of WYSM, and just about in wo days after that, you had the first introduction organized at this conference. How did the introduction of WYSM go at the conference in Klagenfurt?*

The official launch of WYSM at the joint IMEKO TC1, TC2 Symposium in Klagenfurt went very well! Presenting the Working Group directly to the community provided the perfect opportunity to share our mission and core goals. The response from the audience was encouraging: senior members welcomed the initiative as a crucial step for the future and continuity of IMEKO, while early-career participants showed genuine interest, sharing suggestions and highlighting the specific activities they would be most interested in joining.

2. *What were the highlights of the event from the WYSM point of view? You shared with us that you actually won an award at this conference. How do you feel about that?*

From the WYSM perspective, the main highlight was the strong sense of community throughout the symposium. Beyond the presentation sessions, casual networking moments (such as the wonderful social dinner on a boat cruising Lake Wörthersee and the city tour) created natural opportunities to discuss the needs and ideas of young researchers.

On a personal level, winning the Best Paper Award was an honour and a complete surprise! Receiving this recognition at the very same conference where I officially launched WYSM was deeply meaningful. Remarkably, the other two award winners of the conference were also early-career researchers. I think this strongly reinforces the message that young scientists are not only building networks for the future, but are already actively contributing high-impact research to the field.

3. *Would you share your impressions, and also thoughts on taking the initiative further? What else do you think we need to get more visibility?*

My main takeaway from Klagenfurt is that the momentum is definitely there, and our task now is to translate this enthusiasm into structured, long-term activities. To take the initiative further and boost WYSM visibility across the broader IMEKO community, we are focusing on a few key priorities:

- establishing the WYSM leading board: forming a dedicated working group board is our immediate next step to structure our team, boost organization, and streamline the coordination of future initiatives
- dedicated early-career sessions and workshops: integrating roundtables, soft-skills workshops (e.g., academic writing, grant proposal drafting, or career development), and dedicated poster sessions at future IMEKO events. A concrete step in this direction is already happening with our dedicated WYSM Special Session (nr. 04) at the upcoming IMEKO World Congress 2027.
- Junior Membership promotion: actively promoting the new Junior Membership category to lower barriers to entry for students and young researchers wishing to join IMEKO activities and technical committees.

Written by Dr Valentina Bello, Chairperson of WYSM.

CALL FOR PAPERS - IMEKO WORLD CONGRESS 2027 SPECIAL SESSION #34

Magnetic Sensing for Electrical Machine Diagnostics: From Industrial to Mission-Critical Applications

Rimini, Italy, August 30 – September 3, 2027

We are pleased to announce Special Session #34 at the IMEKO World Congress 2027, bringing together experts from IMEKO TC4 (Electrical Measurements) and TC10 (Technical Diagnostics).

The session aims to bridge advanced magnetic sensing technologies with intelligent diagnostics, condition monitoring, and predictive maintenance of electrical machines. We especially encourage contributions that combine innovative measurement methods with artificial intelligence, machine learning, advanced signal processing, and data-driven diagnostic approaches.

Topics of interest include:

- Magnetic-field and stray-flux sensing for electrical machine diagnostics
- Hall-effect sensors, magnetometers, calibration, measurement uncertainty, and sensor performance evaluation
- AI, machine learning, and data-driven fault detection and prognosis
- Sensor fusion, advanced signal processing, and intelligent condition monitoring
- Magnetic measurement technologies for diagnostics, optimization, and control
- Industrial, energy, aerospace, space, and mission-critical applications
- Management and industrial decision-making: investment strategies, reliability, risk reduction, lifecycle costs, return on investment, and operational value of sensing and diagnostic solutions

A particular focus is on connecting measurement quality and advanced diagnostic methods with practical reliability, operational performance, and industrial value.

Contributions sharing real-world experience in selecting, implementing, and scaling measurement solutions are also encouraged.

Researchers, measurement specialists, industry professionals, and technology decision-makers are warmly invited to contribute.

Session organizers:

Dragana Popovic Renella – SENIS Group, Switzerland

Zsolt János Viharos – Hungarian Academy of Sciences, Hungary

Jakub Svatoš – Czech Technical University, Czech Republic

Further information and submission details: https://imeko2027.org/special-sessions/special-session-34/

We look forward to welcoming your contributions in Rimini!

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