International Committee for Weights and Measures (CIPM)

Session III of the 114th meeting
(14-15 October 2025)

Contents

MEMBERS OF THE INTERNATIONAL COMMITTEE FOR WEIGHTS AND MEASURES

as of 14 October 2025

President

W. Louw, South Africa.

Secretary

T. Usuda, Japan.

Members

V.G. Achanta, India.

V. Coleman, Australia.

D. del Campo Maldonado, Spain.

C. Denz, Germany.

N. Dimarcq, France.

H.A. Frøystein, Norway.

J.-T. Janssen, United Kingdom.

H. Laiz, Argentina.

G. Macdonald, Canada.

J. Olthoff, United States of America. *CIPM Vice-President*.

S.-R. Park, Republic of Korea.

J. Qu, China.

M.L. Rastello, Italy.

P. Richard, Switzerland. *CIPM Vice-President*.

G. Rietveld, the Netherlands.

G.P. Ripper, Brazil.

BIPM Director

M.J.T. Milton

1. Opening of the session, quorum and President's remarks

The International Committee for Weights and Measures (CIPM) held Session III of its 114th meeting on Tuesday 14 October to Wednesday 15 October 2025 as a hybrid meeting.

Participants:

V.G. Achanta, V. Coleman, D. del Campo Maldonado, C. Denz[1], N. Dimarcq, H.A. Frøystein, J.-T. Janssen, H. Laiz, W. Louw, G. Macdonald, M. Milton (Director of the BIPM), J. Olthoff, S.-R. Park, J. Qu, M.L. Rastello[2], P. Richard, G. Rietveld, G. Ripper and T. Usuda.

Also attending the meeting were:

C. Fellag Ariouet (Personal Assistant to the Director and Head of the Executive and Meetings Office), A. Koo (Director Designate of the BIPM), C. Planche (Web and Translation) and R. Sitton (Publications).

The following were in attendance for parts of the meeting:

R.J.C. Brown (President of the CCU), A. Cypionka (Director of the International Liaison and Communication Department), V. Gressier (Director of the Ionizing Radiation Department and Executive Secretary of the CCRI), R, Guliyeva (ILC Department and CCE representative), G. Panfilo (Executive Secretary of the CCL), A. Rohrer (Legal Adviser), D. Spelzini (Head of the Finance Office), M. Stock (Director of Physical Metrology Department and Executive Secretary of the CCU), P. Tavella (Director of the Time Department and Executive Secretary of the CCTF), R. Wielgosz (Director of the Chemistry Department and Executive Secretary of the JCTLM and CCQM), K. Yamazawa (Executive Secretary of the JCRB).

With eighteen members participating in the meeting, the quorum was satisfied according to Article 12 of the Regulations annexed to the Metre Convention.

The President welcomed the participants. He reminded the CIPM that the convocation for the 28th meeting of the CGPM (2026) will be sent in mid-January 2026.

The President noted that this was the final CIPM meeting for the BIPM Director, M. Milton, and the first for the Director Designate, A. Koo.

2. Tribute to Dr Barry D. Inglis

The Director led the tributes to Dr Inglis, the former CIPM President, who died on 4 July 2025, just short of his 85th birthday. Dr Inglis was a member of the CIPM from 2000 to 2019 and had been President for eight years from 2011 to 2019. He was the first Australian and only the second non-European President of the CIPM. He led the BIPM through two meetings of the CGPM and launched the governance review in 2012, which he saw through to completion. Dr Inglis made a major contribution to the successful adoption of the historic revision of the International System of Units (SI) in 2018.

[1] On-line 14 October
[2] On-line 14 and 15 October

Dr Inglis became the first CEO of NMI Australia in 2004 and was the country's first Chief Metrologist. He was the driving force behind the establishment of the NMIA in 2004 as a single effective authority for metrology in Australia. Dr Inglis was appointed an Officer of the Order of Australia in the 2021 Australia Day Honours List. This honour recognizes Australians who have demonstrated outstanding service or exceptional achievements. He made a significant contribution to science and engineering and was a giant in the field of metrology, measurement standards and research, and greatly contributed to professional organizations in Australia and the Asia Pacific region.

V. Coleman thanked the Director for the tribute and everyone who had sent messages of condolence, on behalf of Dr Inglis' family. The messages had been passed on to his family.

Dr Inglis' full obituray is given in an annex to this report.

3. Approval of the agenda and the report of Session II of the 114th meeting

C. Denz asked if a draft resolution on the future of digitalization will be discussed during the meeting. The President confirmed that it will be discussed during §8 on Plans for the 28th meeting of the CGPM (2026).

The President said that a BIPM staff representative has been invited to attend the meeting during §5 when the CIPM discusses Judgement 5005 (July 2025) of the Administrative Tribunal of the International Labour Organization.

The CIPM approved the agenda.

The Secretary recalled that the report of Session II of the 114th meeting had been circulated for comments after the meeting and the comments received had been approved and incorporated into the report. He recommended adoption of the report as a true record of the meeting. The CIPM agreed the following decision.

Decision CIPM/114-15
The CIPM accepted the minutes of Session II of the 114th meeting of the CIPM as a true record.

4. Director's report

The Director said that he has signed a contract with the IOPP to "flip" *Metrologia* to become a fully open-access journal from 1 January 2026. In addition, the BIPM is developing a web-based repository for the comparison reports that are currently published in the *Metrologia* Technical Supplement. Further details will be given in §14.

He reported that a BIPM staff member had fallen victim to a phishing attack in July 2025. The attack was dealt with within one hour and the issue was closed down. The BIPM has further improved its IT security following this incident. All email accounts now have multi-factor authentication and the frequency of authentication has been increased to the maximum possible. In addition, the frequency of phishing tests for staff has been increased to once every two months.

The Director informed the CIPM that a contractor at the Palais des Congrès in Versailles had lost the video recordings from the second day of the *Scientific Conference on the Future of Metrology* on 22 May 2025. Following a considerable amount of work by C. Fellag Ariouet a compensation payment has been received. An assurance has been received from the contractor that this will not happen at the 28th meeting of the CGPM. He added that it has been possible to recreate the missing video material.

The BIPM signed a renewed version of the long-standing Memorandum of Understanding (MoU) with the International Commission on Illumination (CIE) on 15 July 2025. The renewed MoU covers the CIE's involvement in the Consultative Committee for Photometry and Radiometry (CCPR) and the Forum on Metrology and Digitalization (FORUM-MD).

The BIPM hosted an external meeting of the board "*Séminaire de l'encadrement*" of *France Éducation international*, which is based in Sèvres. The meeting on 11 September 2025 provided an opportunity for the BIPM Director to meet their Director General.

The Director recalled that three recruitments have been made since the last session of the CIPM in June 2025. Dr Annette Koo was recruited as Director Designate and started on 21 September. The first task for the Director Designate was to travel to Tashkent (Uzbekistan) to observe the 49th meeting of the Joint Committee of the Regional Metrology Organizations and the BIPM (JCRB) on 23-24 September. C. Paredes has been recruited in the International Liaison and Communication Department to work on digital topics and J. Bernier has been recruited as an analytical chemistry technician in the Chemistry Department.

The Director concluded by saying that he had travelled to the 2025 Varenna Summer School on Metrology on 9-18 July 2025, organized by the Italian Physical Society, with support from the BIPM. He had also attended the International Advisory Board (IAB) Annual Meeting of NIM (China) in August 2025 and had chaired the 49th meeting of the JCRB in Tashkent (Uzbekistan) in September.

5. Finance

The Director gave the CIPM an update on the situation with the receipt of contributions and subscriptions, which were close to forecast. He noted that when he was appointed eleven years ago the situation was very different, with multi-million euro deficits and outstanding payments. Following a considerable amount of work, those issues have been addressed without any debts being written off.

He said that the *Notification 2026* is being prepared with the calculations of the repartition of the 2026 dotation based on the UN scale 2025-2027, which is the same as was used last year, and with the contributions being increased by 1.5 %.

The Director presented the BIPM's expenditure for 2025, noting that it was on budget as of 30 September. He said that it is possible to give a projection of the expected situation at the end of 2025. It is estimated that there will be an underspend on salaries for 2025 due to the departure of three staff members and the recruitment of two, both of who arrived late in the year. This will result in a forecast saving on salaries compared to the agreed budget. There was an overspend on the coordination and communication budget due to the cost of the 150th anniversary events and laboratory expenses were greater than expected due to inflation. Other income is forecast to be in excess of 100 000 euros more than expected due to improved

banking arrangements, particularly regarding the return on fixed interest investments on the BIPM's reserves.

The Director informed the CIPM that the budget will be impacted by the decision of Latvia, an Associate, to withdraw. Latvia is the first state in the European Union that has sought to withdraw from the BIPM and the situation has been discussed with EURAMET. Latvia is withdrawing as it no longer carries out any metrological activities. It operates an accredited laboratory that provides traceability, which it considers sufficient for its needs.

The Director informed the CIPM about Judgement 5005 of the Administrative Tribunal of the International Labour Organization (ILOAT). He started with the background to the judgement. The BIPM Rules and Regulations (RRI) specify that BIPM salaries and pensions are increased each year according to an estimate of the Consumer Price Index (CPI) published by an external consultancy (ISRP). The RRI in force in 2022 included Regulation 10.2.1, which stated that "*The CIPM may, if exceptional or unforeseen circumstances warranting so, phase in the adjustment of the point value, apply it in part, suspend or defer it if the BIPM cannot, without one of these measures, meet both its financial obligations and essential operating requirements*." This "affordability clause" has subsequently been amended by a decision of the CIPM on 20 March 2024, which entered force on 26 April 2024.

In September 2022, the ISRP published a value of 6.5 % for the CPI applicable for 2023 . At the time, many International Organizations in Paris and Europe, including the BIPM, chose to implement their "affordability" mechanisms to increase salaries and pensions by less than the full amount of 6.5 %. In this context, the CIPM made Decision CIPM/111-13 by correspondence on 11 December 2022. Decision CIPM/111-14 uses similar text to make an analogous decision for the pension increase for 2023. Subsequently, the CPI for France dropped from 6.5 % (2023) to 5.3 % (2024) and 2.5 % (2025). The Director noted that most experts had not expected this trend back in October 2022. The reduction in inflation enabled the BIPM to record surpluses in 2023 and 2024, which contributed towards the sums of 3 million euros that were transferred to the pension fund.

The Director recalled that a BIPM staff member had challenged the CIPM's decision not to increase salaries by the full 6.5 % and lodged a complaint with the BIPM Appeals Committee in 2023, which found in favour of the CIPM decisions. The staff member then appealed this decision to the ILOAT which found that the BIPM should compensate the appellant for the failure to augment the staff member's salary by the full amount for inflation in 2023. The full text of ILOAT Judgement 5005 is available on the internet.

The Director recalled that the tribunal only required the BIPM to implement the judgement for the appellant, which is considered to be unfair by many staff. He suggested that, considering the wider issues of staff morale and motivation, as well as possible legal costs, the CIPM should consider applying the correction to all staff salaries. The affordability of this extension would need to be taken into account, however the proposal to extend the judgement to all staff is a matter of principle.

The ongoing cost of making such a correction to all staff salaries could involve the CIPM deciding to increase the point for all staff by nominally 2 % from 1 December 2025. There will be an annual increase in staff cost to the BIPM of approximately 144 000 euros. The Director noted that the increase in the point on 1 January 2026 following the agreed value of CPI will be 0.9 %. If the CIPM decides to compensate all staff for the lost salary back to 1 January 2023, as has

been done for the appellant, there will be a one-off cost for the period between January 2023 and December 2025 of 355 000 euros.

The Director raised the issue of applying the same correction to pensions. He recalled that since 2017 and 2018, pensions have been abated by 3.1 % compared with salaries. If pensions are not corrected in the same way as salaries, this would become 5.1 %. He said that the one-off correction of pensions for the 2 % is a matter for the PFAB to consider. A calculation has been commissioned from the actuarial company Mercer so that the PFAB can consider its affordability.

He presented a revised table of the forecast against budget for 2025 with an additional column showing the effects of the 2 % increase in staff salaries retroactive for 2023 to 2025. There would be an additional sum of 300 000 on salaries as well as extra amounts for social allowances and social contributions, which are linked to salaries. If these additional costs are taken into account, the bottom line remains positive according to the best available projections.

The Director presented the 2026 budget for approval by the CIPM. He noted that it was closely based on budget agreed by the CGPM in 2022, but there were some changes that required approval from the CIPM. The 2026 budget takes account of the proposed 2 % increase in staff salaries. The coordination and communication budget has been raised by 46 000 euros to 800 000 euros to account for an expected increase in the cost of the 28th meeting of the CGPM. Laboratory operating expenses are expected to rise by 80 000 euros to 880 000 euros and site investments will increase by 50 000 euros to 350 000 euros to cover the cost of a new vehicle. Other income will decrease to 250 000 euros due to the loss of income from *Metrologia.* He added that the proposed 2026 budget remains balanced.

The Director summarized his presentation by requesting the CIPM to consider four decisions: a decision to extend the principle of judgement 5005 to all staff; the value of the point for staff for 2026; to mandate the PFAB to consider issues of affordability in making analogous changes for pensioners; and to agree the budget for 2026. He invited questions.

The Director was asked if any income is expected from *Metrologia* after it becomes an open access journal. He replied that a detailed legal discussion has taken place with the IOPP. Under the open access model, the IOPP will only commit to providing income to the BIPM when they have a better indication of the number of articles that will be published. If the number of articles exceeds the number that the model is based on, some revenue will be returned to the BIPM, but it will be relatively small compared to the current level.

The members of the CIPM had a comprehensive discussion on the proposed retrospective correction to staff salaries and the ongoing affordability of the correction. P. Richard, Chair of the CIPM Sub-Committee on Finance (FSC) added that it had discussed the issue in consultation with the Director, the Head of the BIPM Human Resources Office and the BIPM Legal Adviser. The FSC supports the proposal to adjust, retroactively, all active staff salaries and the ongoing correction. The discussions stressed that an extension of the correction to all staff is a matter of principle, rather than being a simple financial or legal issue. The President noted that the CIPM has adopted an improved affordability clause in the RRI, but he suggested that this should be re-examined in 2026 in consultation with staff representatives to avoid similar issues in the future.

Following a further discussion and consultation with the BIPM Legal Adviser, the following decisions were agreed.

Decision CIPM/114-16
Noting that the Administrative Tribunal of the International Labour Organization had ruled on Decision CIPM/111-13 (2022) in Judgement 5005 (July 2025), the CIPM decided that the BIPM shall pay staff members the sums corresponding to the additional remuneration that they would have received between January 2023 and December 2025 had their salaries been adjusted by 6.5 per cent on 1 January 2023.

Decision CIPM/114-17
In application of Regulation 10.2 of the Regulations, Rules and Instructions applicable to BIPM staff members, the CIPM decided that the value of the point applicable to salaries on 1 January 2026 would be revised by 0.9 per cent, which corresponds to the consumer price index calculated by the International Service for Remunerations and Pensions for certain categories of civil servants serving in international organizations based in France.

On an exceptional basis, the CIPM further decided to increase the value of the point applicable to salaries on 1 January 2026 by an additional 1.91 per cent so that it corresponds to the value it would have reached by that date if a 6.5 per cent increase had been applied on 1 January 2023.

Decision CIPM/114-18
In application of Article 4.4 of the Regulations of the Pension and Provident Fund, the CIPM decided to request that the Pension Fund Advisory Board (PFAB) formulate a recommendation on revising Decision CIPM/111-14 (2022). The CIPM requested that the PFAB submit an advisory opinion considering the advice of the actuary.

Decision CIPM/114-19
The CIPM decided that the budget for 2026 should follow the expenditure agreed by the CGPM at its 27th meeting (2022) with updated values for the staff cost and inflation as presented to the CIPM Sub-Committee on Finance and the CIPM by the BIPM Director.

6. Governance

P. Richard, Chair of the CIPM Sub-Committee on Governance (SC-G), gave a summary of its activities from its creation after the 27th meeting of the CGPM through to the suspension of the By-Laws project following the 2024 consultation exercise. He noted that work on the *Rules of Procedure of the CGPM* (RoP of the CGPM) are ongoing.

He said that the RoP of the CGPM is an internal governance instrument; it is a non-binding document describing the organization and efficient running of the conference. He added that it is important to the Member States that the document is non-binding. The latest draft was submitted to Member States for consultation on 20 June 2025.

When the decision was taken to suspend work on the By-Laws, it was agreed that the *Compendium of main rules and practices applicable to the BIPM* (the Compendium) would become the main explanatory internal governance document summarizing CGPM decisions. The latest edition of the Compendium on the BIPM website is dated October 2018. He added that when the RoP of the CGPM are finalized, the Compendium will be updated and aligned with its content.

P. Richard recalled that since the last Session of the CIPM in June 2025 the SC-G has consulted with the representatives of Member States on the RoP of the CGPM, with the NMI Directors in copy. The BIPM Director and Legal Adviser were also consulted. The consultation took place between 23 June and 12 September and a consultation report was submitted to the CIPM on 8 October 2025. Those that responded to the consultation exercise acknowledged the hard work carried out by the SC-G and the CIPM as well as the high quality of the draft RoP of the CGPM. The consultation response rate was 20 %, with 13 of the 64 Member States replying. Of the 13 Member States that replied, 100 % were in favour of the RoP of the CGPM. He noted that no replies were received from eight countries that have a CIPM member.

P. Richard said that the results of the consultation could be grouped into four topics for action:

- Adjust the “treaty-level” language to make it even clearer that the Rules of Procedure are not legally binding. The formulation of some rules has to be simplified to improve clarity.
- Explain what is meant by quorum, decisions and voting and add more information in the Commentary to avoid misunderstandings.
- Clarify when remote participation is possible; maybe only in exceptional circumstances. Align the RoP with the Special Procedure for the 28th meeting of the CGPM (2026).
- Give more background on the Standing Commission, particularly its name and role, and how it differs from the Committee for CIPM Election (CEC). The Commentary has to be clarified. The entry into effect of this rule (immediately or later) has to be decided.

He said that the four topics will be discussed at the on-line meeting of Member State representatives on 22 October.

P. Richard expanded on the fourth topic of the Standing Commission and the CEC. He presented the recent history of the renewal of the CIPM. The 25th meeting of the CGPM (2014) approved Resolution 2 *On the election of the International Committee for Weights and Measures*. As a consequence, in 2014, all of the membership of the CIPM was renewed. This election was prepared by an *ad hoc* election committee elected at the 24th meeting of the CGPM. The 25th CGPM (2014) elected the first Committee for CIPM Election (CEC) to be active for the preparation of the 2018 election of the CIPM. In 2018 and 2022, all of the International Committee was renewed according to the Resolution 2 (2014). In 2026, the same procedure will apply because the RoP of the CGPM will enter into effect the day after the 28th General Conference (2026). According to the ILOAT Judgment 4580 (1 February 2023), the post-2014 CIPM election process is “indisputably irregular” or in other words incompatible with the Metre Convention. The draft RoP of the CGPM proposes a return to the pre-2014 election method and makes the procedure completely transparent.

He recalled that the CIPM has always actively managed its own election, with the support of the CEC since 2014. This is not good governance practice because of potential conflicts of interest. The CIPM analysed the applications and proposed a recommended list to the CEC. The CIPM President and Secretary are members of the present CEC. In the draft RoP of the CGPM, the CIPM is no longer responsible for managing its own election and the CIPM President and

Secretary are not members of the Standing Commission. If applicable, the Standing Commission is responsible for organizing a drawing by lot of incumbent CIPM members seeking re-election. The Standing Commission is responsible for collecting and evaluating all applications according to predefined criteria and for proposing a list of qualified candidates.

P. Richard said that in the event of vacancies on the CIPM between General Conferences, it proceeds to a provisional election as described in the Metre Convention. In such cases, since 2014, the CEC is consulted. The CEC has not consulted the Member States Representatives in the event of a CIPM provisional election. In the case of a future CIPM provisional election, the Standing Commission will also be consulted. The Standing Commission does not have to consult the Member States Representatives in case of a CIPM provisional election. Some of the Member States Representatives that were consulted on the draft RoP of the CGPM said that they did not support an extension of the responsibilities of the Standing Commission . For this reason, the proposed Standing Commission can be called the "Election Commission" as it will have no other roles. In the case of CEC vacancies between General Conferences, the present CEC proceeds to a provisional election. The draft RoP of the CGPM excludes the possibility of a provisional election of the Standing Commission members. This is why the number of members was increased from 9 to 11. If the decision is to allow a provisional election of the Standing Commission members, it is proposed that the same procedure is followed as for the CIPM with an internal election.

In order to avoid confusion between the roles of the CEC, the Standing Commission and the CIPM as well as to establish the Election Commission quickly, one Member State suggested that Rule 22 of the RoP of the CGPM be amended to read "*These Rules of Procedure shall enter into force on the day after the end of the General Conference, with the exception of Rule 5 which will enter into force immediately on adoption. The first Standing Commission could then be appointed at the 28th CGPM (2026) and nominations could be sought in advance in anticipation of the RoPs being adopted.*" As a consequence of this proposal, the 28th meeting of the CGPM (2026) would elect the Standing Commission instead of the CEC. The Standing Commission would manage the 2030 CIPM election according to the revised election procedure following the RoP of the CGPM. This proposed amendment would allow a continuation with nine members of the Standing Commission and with the provisional election of the Commission members.

P. Richard said that the draft RoP of the CGPM refers to a Standing Commission that differs fundamentally from the CEC for the following reasons: the CIPM election is organized according to the Metre Convention; it is fully independent of the CIPM; and there is no provisional election of Commission members. These elements are the main motivation to rename the CEC. He added that the participants at the on-line meeting of Member State representatives on 22 October will be asked if it would prefer to keep the proposed name of Standing Commission or if it would prefer an alternative name, for example "Election Commission". The latter has the advantage of clarifying its unique role for the CIPM election.

He concluded by presenting the next steps for the RoP of the CGPM. There will be an on-line exchange with Member State Representatives on 22 October 2025. The SC-G will prepare the final draft of the RoP of the CGPM and Commentary based on the Member States consultation report in November 2025. The CIPM will approve the final draft RoP and Commentary during December. The final Member State's consultation will be carried out over a six-week period in January-February 2026. Final approval of the Governance decisions for the CGPM will be made by the CIPM in March 2026. The potential decisions were presented.

The President thanked P. Richard and invited questions.

CIPM members from states that had previously raised concerns about the RoP of the CGPM commented that their governments have changed their positions and can "live with" the revised version and will support the RoP at the 28th meeting of the CGPM. The President added that there has been no reply from the Russian Federation, which had previously objected to the draft By-Laws.

The President expressed concern that under the proposals for the Standing/Election Commission the President and Secretary are not members. He suggested that they could be included as non-voting members as the current CEC had many questions during past elections that they were able to answer. Their exclusion would represent a loss of expertise for the Commission.

G. Macdonald asked for clarification regarding when remote participation at meetings of the CGPM is possible. The RoP states that it may only be possible in exceptional circumstances; it is unclear if this refers to global or individual circumstances. This also has consequences for whether or not on-line voting is allowed. It was suggested that this clause should be aligned with the *Special Procedure regulating the conduct of the 28th meeting of the CGPM*. G. Macdonald also raised a concern about the composition of the Standing/Election Commission to ensure that they are acting in an unbiased manner and on behalf of the best interests of the BIPM and CIPM and not their nation or NMI. P. Richard replied that the Standing/Election Commission has to represent all the members, and also to be independent and transparent. The Commission will establish its own rules of procedure.

The Director recalled that a previous hierarchy of decisions and documents presented by the CIPM had indicated that the code of conduct of the CIPM should be approved by the CGPM. He asked if this is still the case. P. Richard said that the intention is for the CGPM to take note that this document exists.

The Director commented that Resolution 2 of the 25th CGPM (2014) will need to be revoked in view of the proposed changes to the CIPM election procedure in the RoP, and this will require a separate Resolution. P. Richard replied that this will depend on when Rule 5 of the RoP of the CGPM enters into force. The Director added that if it is not revoked in 2026, a similar situation will arise in at the 29th meeting of the CGPM in 2030. He suggested that the revocation could be included in another relevant resolution, rather than drafting a separate one. P. Richard thanked the Director and took note of the comment.

7. Strategic Plan for the BIPM Work Programme (2026) and Long-Term Financial Plan

A. Koo, the Director Designate, said she had found the organization to be open and warm since she started and she thanked the Director for being open, welcoming and gracious in supporting her.

She recalled the three objectives of the BIPM as agreed by the CGPM in 2018: the first is to be the representative of the world-wide measurement community; the second is the scientific and technical role of the BIPM; and the third is coordination role within the metrology community to ensure that all measurements are internationally accepted and comparable. These were shortened to the BIPM as the Advocate, Scientific Centre, and Coordinator roles, respectively.

The Strategic Plan for the BIPM Work Programme (2026) was developed by the BIPM and has been reviewed by the CIPM. This review was followed by a consultation exercise with the Member State NMIs in August-September 2025. Nineteen submissions were received from NMIs in five of the six Regional Metrology Organizations (RMOs) and from one unaligned NMI. This feedback was used to update and improve the Strategic Plan, the final version of which was available as a working document at the meeting.

The Director Designate said that the highlights for the BIPM's external-facing advocacy role in the Strategic Plan are to continue to interact with international organizations (IOs) and other entities across the sectors of interest that are a priority to the BIPM's stakeholders, for example telecommunications, environment, health and food. In particular, the BIPM will aim for greater engagement with space agencies, the *in vitro* diagnostics sector, and the trade and food supply sectors. The BIPM will continue to support cross-sectoral activities such as those in digital and quantum. The BIPM has an opportunity to partner with United Nations Educational, Scientific and Cultural Organization (UNESCO) to promote metrology and education as a result of its growing relationship in 2025. In addition, the BIPM has an objective to widen its communications activities. Within this framework, it is developing impact studies across different sectors, regions and economic fields, that NMIs can use to demonstrate the critical nature of measurement in bringing benefits to their economies. It is hoped that the NMIs will assist in providing the BIPM with success stories for use in these impact studies. Finally, in the advocacy role, the BIPM will support the drive towards universal participation.

Highlights with regard to the BIPM as a scientific centre include ongoing support for its technical areas. In the area of mass metrology, the BIPM will continue with improvements to the Kibble balance. Among these improvements will be the development of a digital twin to support the uncertainty analysis of the instrument. Work will also support the future dissemination of the kilogram, particularly as the community becomes ready to proceed to Phase 3, which is necessary for the reliable transition to independent NMI realizations of the unit of mass. In voltage, the first comparisons of Josephson at AC have been conducted and there is an intention to increase the range of frequencies available. In impedance, the BIPM is working on the application of graphene in the quantum Hall resistance standard. In time metrology, work will continue in the next period to improve reliability and access to Coordinated Universal Time (UTC). This will be underpinned by ensuring a good understanding of traceability and the efficiency of data incorporated into producing UTC. Continuous UTC and lunar time will also be a major focus of the department's work in the next period. As the time and frequency community works towards the new definition of the second, there is an opportunity for the BIPM to support one of the critical steps on the roadmap; establishing the ability to compare optical clocks. The NMI community has suggested that the BIPM should consider accepting a donated transportable optical clock. This would allow the BIPM to take a leading role in supporting a study of how that comparison will be conducted. In ionizing radiation, the BIPM will seek alternatives to the Co-60 source as the world-wide reference for radiotherapy dosimetry standards. In the radionuclide area, work will continue to increase access to short half-life isotope comparisons in the regions. In chemistry, as well as the on-going programme, one of the new focus areas will be DNA and RNA, which will be conducted in collaboration with NMIs to support digital polymerase chain reaction (PCR) manufacturers.

The Director Designate said that in terms of the coordination role, the BIPM is an important holder of, and producer of, data that underpins the comparability of measurements. The Strategic Plan includes a commitment to continue the BIPM's work to improve data access and

tools for the KCDB, JCTLM and UTC. In particular, a significant amount of the KCDB comparison data is only available as PDFs. Improving access to this data represents a big challenge. Ongoing digitalization activities will include investigating how traceability becomes embedded in the data shared between NMIs and the BIPM's end users. The BIPM needs to ensure that the SI Reference Point (SIRP) becomes the established point of contact with the SI. The BIPM will continue to build support for RMO secretariats. This could include activities such as supporting document management, maintaining websites, centralized reporting tools, and training for the secretariats.

Capacity building and knowledge transfer activities will focus on extending knowledge transfer across all the BIPM's laboratories as well as increasing and allowing easier participation in the CIPM MRA. The latter will include initiatives to better understand the processes and making sure that they are accessible to all the signatories of the CIPM MRA regardless of whether or not they are associated with an RMO. These initiatives will include training for technical committee chairs and comparison pilots so that the work of maintaining or building technical competency in the CIPM MRA is shared evenly across all signatories. The BIPM will expand the impact of regionally or nationally resourced work through e-learning and participation in workshops.

The BIPM's stewardship role (of assets, people and infrastructure) in the Strategic Plan (2026) includes a need to clarify roles and competencies of staff and to build flexibility to respond to priorities. The BIPM is committed to the exchange of expertise, particularly developing initiatives so that staff can be exchanged between the BIPM and NMIs as required. In terms of infrastructure, the priority areas will be cybersecurity and developing policy and tools for data architecture and artificial intelligence (AI). The Strategic Plan includes a commitment to ensure that the BIPM makes best use of its facilities and what is considered to be appropriate investment in its facilities for the future. In terms of facilitating meetings, the BIPM is aware that technology changes quickly and that hybrid meetings may be appropriate in certain circumstances but not others. The BIPM needs to be at the forefront, making sure that its meetings' facilities are as good as possible to maximize efficient participation.

The Director Designate said that one of the most frequent comments on the Strategic Plan from the NMI consultation exercise was that the plans are ambitious and questioned how the BIPM will achieve the targets with the resources that it has. She added that the Strategic Plan was developed within the context of the known resources using the following strategies to facilitate delivery. Firstly, there are high expectations from Member States and Associates for the CBKT programme. This is derived from a desire from NMIs to rapidly increase their capabilities and to start contributing more broadly to the metrology community. Secondly, the CIPM Consultative Committees' (CCs) plans are ambitious. They are dealing with particularly challenging technical frontiers and there are growing needs from their stakeholders across different measurement areas. The BIPM has found that requests for CC workshops are increasing, and more work is being conducted in the CCs, not less. In addition, the recent sectoral initiatives driven by the CIPM strategy have been successful and there will probably be more in the next few years. Finally, the BIPM, like the NMIs, is experiencing an increase in costs. Everything costs more than it did before to do the same amount of work, whilst operating under the same constraints. At the same time, technology is evolving rapidly, which promises improved efficiency, but requires investment and learning. It also requires considerable effort to realize the benefits and its potential set against a context of changing national priorities. The next Strategic Plan for the BIPM covers the period 2028-2031; it is impossible to predict the

outlook for metrology in 2031, but it is known that the BIPM's Member States and Associates will have different needs in the future and it is vital to maintain current awareness of technology.

The Director Designate commented on the options that the BIPM can explore towards becoming a more responsive and sustainable organization, for example the wider use of supplementary resources for growth. The strategic plan includes options for financial sustainability and highlights opportunities that are not new, but will increase in importance, for example by forming partnerships. The first option is for contributions from participants for sector-specific activities; where there is a sector-specific activity, the participants themselves can contribute directly to the work. Another option is essential equipment donations. The BIPM has received donations in the past and there is currently potential for donation of a transportable clock. The BIPM will need to think more about the on-site facilities that it should invest in, and where it can partner with facilities off-site. Joint technical projects have been successful in the past, particularly where one or more NMIs have a technical problem and they partner with the BIPM to find a solution. Finally, none of these options are possible without flexibility in staff and complementary staff. This is a model that is particularly important for the future of the BIPM.

The BIPM will continue to build flexibility in the deployment of staff, with complementary staff being part of the solution. In addition, there is an ongoing need to consider the balance of permanent staff and the types of contracts offered to allow the organization to change and respond to the needs of its stakeholders. Any plans for the BIPM to become a more sustainable organization must include discussions on the dotation, contributions and subscriptions. However, it is expected that discussions at the 28th meeting of the CGPM on a proposed increase in the dotation for 2028-2031 will not to be easy. The Director Designate asked the CIPM members to provide any help they can in terms of advice on how national governments might be approaching the question and to offer support during the conversations leading up to the General Conference.

The Director Designate suggested that the BIPM may be able to conduct sectoral activities in a "supplementary mode" resourced by interested NMIs and stakeholders. Such activities may previously have been undertaken internally. The BIPM is investing in certain areas of interest that may not be required universally, or they may be of different priority to NMIs and stakeholders. It is imperative for the organization to consider what activities are essential for its identity, mandated by its objectives and are useful to all Member States. The BIPM will also need to determine what activities can be resourced by the Member States as their individual government's priorities change and as their stakeholders come to them with questions. The BIPM will continue to support the members to achieve what they need. However, it will need to think about how it resources such work in the future.

The Director Designate concluded by saying that the BIPM will develop a work programme to satisfy the needs of Member States so that they can deliver on the mandate from their governments to provide quality measurements in their countries. If the BIPM work programme covers their critical needs, the dotation is worth the investment.

The President thanked the Director Designate and invited questions. D. del Campo Maldonado asked for clarification about what is meant by conducting sectoral activities in a "supplementary mode". She commented that the Sectorial Task Group on Climate and Environment has been working successfully with limited resources and asked if this suggested way of working may

result in the work of the sectoral groups being influenced by “political considerations” with a loss of the scientific independence that they have currently. The Director Designate replied that the BIPM remains committed to engaging with IOs and other entities that operate within the environmental sector. The BIPM Strategic Plan is driven by its Member States, who set the agenda for its technical and sectoral work. The BIPM Strategic Plan that was presented was developed by taking account of the feedback from the Member States. The BIPM responds to the needs of the Member States via the CIPM rather than driving the decisions about what sectors it will focus on and when.

The Director Designate was asked how the BIPM will develop a “digital twin” of its Kibble balance if it does not have the expertise within the organization. The Director replied that the BIPM will collaborate on the development of the digital twin with a partner in a Swiss university.

The Secretary commented that the BIPM’s request for an increase in the dotation for 2028-2031 may be challenging. He suggested that the BIPM should provide the 28th meeting of the CGPM with success stories that show how it is making significant efforts to reduce costs and to maintain its facilities in a sustainable way. For example, it could highlight how it is sharing facilities in ionizing radiation. He also asked the CIPM to support donations to the BIPM, such as a replacement for the NMR equipment and a transportable optical clock.

The CIPM discussed their views on the likelihood of achieving an increase in the dotation of up to 1.5 % and if the Strategic Plan has flexibility to operate within the level of dotation that is ultimately agreed. The President noted that the CIPM will need to think strategically about a level that can realistically be presented to the General Conference.

H. Laiz asked why the calculable capacitor and AC quantum Hall effect were not included in the strategy document. The Director replied that these should be included in the BIPM Work Programme and will be covered under Consultative Committee for Electricity and Magnetism (CCEM) Key Comparisons. He added that the calculable capacitor is a project that must be completed in the current work programme.

V. Coleman suggested that any proposed increase in the dotation request to Member States could be accompanied by a “shopping list” of what can and cannot be achieved at each level. She commented that the proposed work programme for the Chemistry Department for 2028-2031 is ambitious, particularly with regard to the comparisons for both high and low molar mass DNA and RNA markers. This work will require considerable resources, and she asked how this will be approached in terms of people and equipment. The Director Designate replied that the Director of the Chemistry Department is confident that the existing equipment and expertise in the department will transfer directly into this new field with no significant additional resources being required. S-R Park added that the move into DNA and RNA will use existing mass spectrometry technology.

G. Macdonald warned that the discussions at the 28th CGPM about increasing the dotation will be impacted by the fact that many NMIs are facing cuts to their own budgets. The BIPM will be seeking an increase in the contributions from Member States at the same time as asking for more resources from the NMIs in terms of supplying complementary staff to assist with its work programme. Member State representatives need to be informed about how they can derive more benefits from the organization, particularly in terms of how it serves the needs of NMIs and nations. The Director Designate replied that the BIPM offers many opportunities for NMIs to develop their staff, train them and achieve the objectives of the technical activities in their laboratories, in collaboration with the BIPM. Both parties benefit from these arrangements.

The CIPM concluded with a brief discussion on the level of increase in the dotation that should be presented to the 28th CGPM.

8. Plans for the 28th meeting of the CGPM (2026)

The CIPM discussed the draft resolutions proposed for the 28th meeting of the CGPM (2026). The President commented that ideally the draft resolutions should be sent with the Convocation in January 2026. He added that if the final wording was not agreed during the meeting, the draft resolutions could be circulated to the CIPM for finalization in December.

One of the main points of the discussion was whether to merge the draft resolutions *On the coordination of metrological work to address emerging global challenges* and *On the further digital transformation of global metrology.* The President suggested that the wording in the draft resolution on emerging global challenges could be strengthened, possibly with examples, to demonstrate to the CGPM that the CIPM has implemented what was requested in Resolution 1 of the 27th CGPM (2022). The CIPM agreed that this would provide support for the dotation resolution and it could possibly be presented immediately beforehand. The CIPM also discussed the possibility of adding information to the draft resolution to encourage NMIs to contribute to the work programme as well as demonstrating the achievements of the last work programme. The draft resolution *On the further digital transformation of global metrology* could be presented as the first resolution. The CIPM acknowledged that this resolution was written for metrologists and will need to be shortened and reworded for Member State representatives. The President said that he will work with D. del Campo Maldonado and the Director Designate to finalize the Draft Resolution *On the coordination of metrological work to address emerging global challenges* and whether to merge it into the Draft Resolution on the dotation. He will also work with C. Denz and H. Laiz to finalize and shorten the draft resolution *On the further digital transformation of global metrology.*

V. Coleman reported that the draft resolution *On universal adherence to the Metre Convention* is close to being finalized.

N. Dimarcq presented the draft resolutions related to time metrology. Draft Resolution B *On the future definition of the second* requires validation of the CCTF Roadmap towards a new definition of the second, with a decision expected in 2030 for a new definition or postponement until 2034 if all the criteria in the roadmap have not been fulfilled. The President, Director and Director Designate will work with N. Dimarcq to finalize the draft resolution.

Draft Resolution C *On the technical measures/changes requested to ensure the continuity of UTC* would make a decision on the new tolerance for UT1-UTC and the date of its implementation. This will be either 20 May 2027 or 2028 and will be fixed in January 2026 after an updated estimation of the probability for a negative leap second is agreed. The Director commented that this is a landmark resolution that marks the culmination of decades of work. If the draft resolution is adopted by the 28th meeting of the CGPM and then the same decision is adopted by the International Telecommunication Union (ITU) World Radiocommunication Conference (WRC) in 2027, the future of UTC will be secure. The draft resolution is very detailed so that the WRC Member States will be able to see that the CGPM has taken account of their concerns. N. Dimarcq added that there may be opposition to this resolution from some Member States. For this reason, it is important not only to finalize the text, but also for CIPM members to promote and explain the content and rationale for the draft resolution on continuous UTC to the Member State representatives and as widely as possible. G. Rietveld

noted that the government in the Netherlands and its Technical Advisory Board have already been informed that a series of important resolutions regarding time and frequency will be presented at the 28th CGPM. This will allow them to attend the CGPM with a full understanding of the importance of the resolution and the background to why it is needed. The Secretary and N. Dimarcq noted that P. Tavella will give a presentation on the importance of continuous UTC to the Member State representatives during their meeting on 17 October.

Draft Resolution D *On the definition of an international Lunar reference time scale and its traceability to UTC* will make a recommendation on the international Lunar reference time scale TL to be used by providers of Lunar position, navigation and timing (PNT). This will be fixed in February 2026 after the International Committee on Global Navigation Satellite Systems / Interagency Operations Advisory Group (ICG-IOAG) Workshop on Moon PNT in Vienna (Austria). The President said that the technical aspects of this draft resolution have been considered in other meetings and the Director will work with N. Dimarcq to finalize it.

The President recalled that the Special Procedure regulating the conduct of the 27th meeting of the CGPM (2022) will need to be modified so that it can be used at the 28th meeting (2026). P. Richard said that it will need to be aligned with the RoP of the CGPM and advice is needed from the BIPM Legal Adviser. He added that the modifications required to the Special Procedure will be clearer after the on-line meeting of Member State representatives on 22 October as mentioned in §6. The President asked the Director Designate to assist with updating the Special Procedure after the meeting on 22 October.

9. Reports from the QMS Review, Forums and Sectorial Task Groups

BIPM QMS Review report

The Secretary presented the report of the BIPM Quality Management System (QMS) Review meeting, which was held at the BIPM headquarters on 21 March 2025. The meeting was informed that the BIPM appointed an electrician and air-conditioning technician following the 2024 review of the maintenance of air conditioning units. Daily inspections have been carried out since April 2024 to monitor the status of the electrical and air conditioning systems in the BIPM laboratories. This proactive approach has led to faster identification and resolution of problems.

He recalled that the introduction of a Risk Management (RM) approach that covers all BIPM activities, based on ISO 31000, was reviewed during the QMS meeting. The RM approach covers IT security and, as a result, access from computers to uncontrolled external storage media was reviewed and has been permanently disabled. IT security is subject to external audits and phishing tests are conducted regularly. He noted that, as mentioned in §4, a member of the BIPM staff had been the victim of a phishing attack in July. IT security has subsequently been further upgraded and this will be confirmed at the next QMS meeting.

CIPM Sectorial Task Group on Quantum for Metrology (CIPM-STG-QfM)

J. Qu, Chair of the CIPM-STG-QfM, presented the draft Terms of Reference (ToR) for the Task Group and recalled the discussions in Session II of the 114th meeting and Decision CIPM/114-13.

He recalled that a central question for the CIPM-STG-QfM was how to validate and maintain traceability for quantum measurement systems; the Task Group will provide the CCs with guidance on this issue. He added that it was clear from the previous session that the new Task Group will be established by the CIPM and will operate independently from the proposed NMI-Q grouping. J. Qu also recalled the previous discussions on the membership of the Task Group and the need for the ToR to consider the strategic perspective of creating the group but avoiding the establishment of too many cross-cutting groups. It was considered that the added value of creating a dedicated Task Group on quantum for metrology needs to be articulated clearly, particularly as some of the CCs already conduct work in this area. The CIPM will have to monitor the effectiveness of the new Task Group.

J. Qu said that the draft ToR are structured around three main pillars: macro-level objectives that were summarized in 40 goals; governance structure including membership; and specific tasks for the group. The President thanked J. Qu and invited questions and comments.

J. T. Janssen stressed that the CIPM-STG-QfM is not intended to replace the work on “quantum for metrology” that is being conducted in the CCs, it will instead focus on the overarching topics. The CIPM discussed the planned frequency of meetings of the Task Group and whether the membership should be broadened. The President added that the membership of the Task Group will be limited at the outset to focus on developing its activities. The membership of the Forums and Sectoral Task groups will be examined in the wider discussions on document CIPM-D-01 *Rules of procedure for the Consultative Committees (CCs) created by the CIPM, CC working groups and CC workshops*. The required frequency of meetings will become clearer as the membership expands in the future, however the initial plan is to meet annually. G. Rietveld cautioned against expanding the membership of the Task Group to all CCs and stakeholders as it will become too large to function efficiently. He suggested retaining a core group and organizing workshops, to which the wider stakeholder community can be invited to obtain input on specific topics. He added that having a large group with many members will place an extra burden on NMIs in having to send delegates at a time of diminishing budgets. The President reiterated that the intention is to start with a small core group and to have a broader discussion on membership in the future.

D. del Campo Maldonado said that the experience of the CIPM-STG-CENV was that during the initial phases of the Task Group, it was more efficient to hold short on-line meetings every three months, rather than limiting meetings to once a year. This allowed the group to develop more rapidly. G. Macdonald recalled that the initial intention was to set up a discussion group at the CIPM level, with the inclusion of selected experts, as the first step to launching the Task Group. The draft ToR suggests a more formal structure with wider participation. She suggested setting up a discussion group that would meet more frequently than once a year as a first step.

The President suggested that the Task Group should officially start its work so that it can become the focal point for external enquiries on “quantum for metrology”. V. Coleman suggested that the acronym for the Task Group could be changed from CIPM-STG-QfM to CIPM-STG-Q4M.

The Director commented that the ToR for the Task Group mentions that it could liaise with representatives from other IOs that have programmes dependent on quantum measurement standards and their traceability. He asked for clarification as to which IOs the ToR are referring to. J.-T. Janssen replied that the European Committee for Electrotechnical Standardization (CENELEC) and the European Telecommunications Standards Institute (ETSI) are being considered. J. Olthoff commented that the list of tasks in the ToR is impressive, but the initial group should formulate a plan on how it will achieve the tasks and the people that should be engaged.

The CIPM agreed the following decision.

Decision CIPM/114-20 (2025)
The CIPM noted the terms of reference of the CIPM Sectoral Task Group on Quantum Technologies for Metrology and encouraged them to implement the actions.

Forum on Metrology and Digitalization (FORUM-MD)

C. Denz presented the recent work of the FORUM-MD. The Strategy Group focused on three topics at its meetings in April and June 2025. The main one had been the Draft Resolution *On the further digital transformation of global metrology*. She noted that this has been discussed by the CIPM and the Strategy Group will respond to the request to shorten the draft resolution. The second topic was the planning for the annual meeting of the FORUM-MD which will be held in March 2026, including a workshop on 12-13 March. The third topic was to draft a short text on the tasks of the FORUM-MD for inclusion as an annex to the CIPM Strategy 2030+, which has been completed. The President thanked C. Denz for the short text and asked for it to be added to the Strategy 2030+.

CIPM Sectorial Task Group on Climate and Environment (CIPM-STG-CENV)

D. del Campo Maldonado said that the CIPM-STG-CENV will prepare a short text that can be added to the CIPM Strategy 2030+ as an annex. She gave an update on the latest work of the Task Group, noting that it had held an on-line meeting on 16 September 2025, which discussed the organization of a webinar in parallel with the UN Climate Change Conference (COP30) meeting in Belém (Brazil) in November 2025. The workshop is being co-organized with INMETRO, the European Metrology Network (EMN) for Climate and Ocean Observation and the APMP Forum for Climate. The one-hour long webinar will focus on the carbon cycle and related topics such as carbon dioxide and other greenhouse gases, and ocean acidification. D. del Campo Maldonado said that she is waiting for final approval from the organizers of COP30 and commented that the idea is to engage with a wide audience to promote the importance of metrology in climate science.

The next meeting of the CIPM-STG-CENV stakeholders is scheduled for 2026, although this may be difficult due to the constraints imposed by organizing the 28th meeting of the CGPM and existing commitments by the World Meteorological Organization (WMO). The meeting may be postponed until September 2027. The CIPM-STG-CENV will finalize the dates for the meeting in January 2026.

The President thanked D. del Campo Maldonado and said that when he receives the short text to be added to the CIPM Strategy 2030+, he will work with the BIPM ILC Department to reformat the text for inclusion as an annex to the document.

10. CIPM member plans

The Secretary presented the process and timetable for the election of the CIPM. He noted that the existing *Criteria and Process for Election of CIPM Members* will remain in place for the 28th meeting of the CGPM, including the preparation of a recommended list of 18 candidates. The Secretary asked CIPM members to inform him of their intention to either stand for re-election or to stand down. The main points were that the Member States will be asked to submit nominations for CIPM membership by the end of January 2026. The CIPM bureau will draft the recommended list of 18 candidates in May 2026, for possible adoption by the CIPM at its meeting in June. The CEC will make a decision on the list of candidates in July and the candidates will be announced in August 2026. The list, along with related materials, will be uploaded to the restricted area of the CGPM website at the same time. He recalled that the newly elected CIPM shall meet for the first time no later than six months after the CGPM. The Secretary reminded the CIPM that three people have been elected on an “interim” basis since the 27th meeting of the CGPM: C. Denz, H.A. Frøystein and J. Qu.

The following seven CIPM members announced that they will not stand for re-election at the 28th meeting of the CGPM: N. Dimarcq, W. Louw, J. Olthoff, S.R. Park, M.L. Rastello, G. Rietveld and T. Usuda.

11. Reports from the Joint Committees

Joint Committee of the Regional Metrology Organizations and the BIPM (JCRB)

K. Yamazawa, Executive Secretary of the JCRB, presented a report on its recent activities. He said that as of September 2025 there were 26 453 calibration and measurement capabilities (CMCs) published in the KCDB and 1 982 comparisons, 38 % of which are supplementary comparisons. He gave an overview of the CMC submission and review process for the JCRB review (inter-RMO review) stage for the period 28 August 2024 to 1 September 2025, noting that approximately 2 320 CMCs existed within the stage reviewed during the period.

The JCRB held its 49th meeting in Tashkent (Uzbekistan) on 23-24 September 2025. The meeting resulted in four actions and four resolutions, which were presented and are available in the meeting report. K. Yamazawa said that one of the actions concerned comparisons that are more than five-years old. This subject was first raised by the JCRB in 2015 and, as of June 2025, there were around 100 comparisons that are incomplete and more than 5 years old. Following an action agreed at the 48th meeting of the JCRB, the cause of delay and measures to resolve the problem have been investigated by the Executive Secretary. He sent a list of comparisons that are incomplete and older than 5 years to the CCs and RMOs. The causes of delays, as outlined in feedback received from the CCs and RMOs, were presented. Subsequent discussions at the 49th meeting of the JCRB concluded that there is a need to set targets and key performance indicators (KPIs) to resolve delayed comparisons. In addition, cause analysis will be used to prevent future delays, for example more CBKT training on relevant topics and

CC WGs will be reminded to share information on comparisons to avoid duplication among the RMOs. A JCRB action item was agreed to cover these discussions.

K. Yamazawa concluded by recalling that the Consultative Committee for Acoustics, Ultrasound and Vibration (CCAUV) had raised the issue of "hanging CMCs" and encouraged the JCRB to consider imposing a time limit for these CMCs. There are currently 182 "hanging CMCs" that have been reviewed and flagged for revision. However, the NMI responsible for the revision has not proceeded with the work for more than six months.

H.A. Frøystein, the CIPM representative to the JCRB, added that the CIPM MRA is running well, but there are a few challenges. The risk associated with key comparisons that are incomplete and more than 5 years old is that they become less relevant and the hard work that went into them is wasted. The proposal is for the regions and CCs to define KPIs to improve the situation. He also commented on the JCRB action regarding the validity of CMCs. Certain CMCs were approved a long time ago and the plan is to highlight clearly and simply when they were revisited to confirm that they remain valid.

The Director said that the subject of delayed key comparisons is a long-standing issue and there are some that have not been completed within ten years. He suggested that the CIPM should consider making a decision to ask the CC Presidents to review the situation at their next CC meeting. EURAMET has set KPIs for key comparisons and the CCs could consider a similar arrangement to set improvement targets. Following a discussion, the following decision was agreed.

Decision CIPM/114-22
The CIPM asked the Presidents of the Consultative Committees (CCs) to review progress with key comparisons with a particular attention to those that have not been completed within five years. The CIPM encouraged CCs to set targets and take appropriate actions to reduce the number of delayed comparisons.

Joint Committee for Traceability in Laboratory Medicine (JCTLM)

R. Wielgosz, the Executive Secretary of the JCTLM, gave a presentation that focused on the proposed change in the governance model for the JCTLM and its funding. This proposal has been discussed by the CIPM, for the BIPM, at previous meetings as well as the three other JCTLM Executive Committee organizations, namely the BIPM, International Committee for Standardization of Haematology (ICSH), International Federation of Clinical Chemistry and Laboratory Medicine (IFCC) and International Laboratory Accreditation Cooperation (ILAC). This endorsement is important since the funding proposed in the new model will come from among the membership of these organizations.

R. Wielgosz said that version 3.0 of the JCTLM database is currently under development. The development of this version has been sponsored by voluntary contributions from NMIs and the *in vitro* diagnostics (IVD) industry. The new version will include a web-based interface to allow easier input of data. The current version of the database was made searchable by ChatGPT and other large language models during 2025.

He said that the annual operating costs for the JCTLM Secretariat, including BIPM staff costs, are around 120 000 euros, with annual maintenance costs for the JCTLM database of

10 000 euros. The JCTLM's annual operating costs are paid for through the BIPM annual staff budget, with an annual grant from the IFCC of up to a fixed ceiling of 50 000 euros and the BIPM Chemistry Department budget of 10 000 euros. Development of version 2.0 of the database cost 210 000 euros, with an estimated useful lifetime of ten years. This was paid for through the BIPM investment budget (130 000 euros), third-party donations (70 000 euros) and a surplus from the 2023 JCTLM stakeholders' meeting (10 000 euros).

R. Wielgosz presented a proposal for the future funding of the JCTLM. JCTLM stakeholders indicated in previous discussions that registration fees for meetings or a membership fee would be a workable model. He presented the IFCC's latest membership business model. It consists of IVD corporate members, which are commercial organizations that manufacture products and have voting rights. In addition, there are non-IVD corporate members that offer services in clinical laboratory science, but are not directly involved in manufacturing IVD instruments or reagents, for example specialized laboratories, software suppliers and commercial laboratories. These are non-voting corporate members that pay a membership fee proportional to their incomes. A similar model could be adopted to fund the JCTLM, and because it is already used by the IFCC, its members are familiar with the principle. This method of funding the JCTLM is allowed under Article 17 (Grants, bequests and other income) of the BIPM financial rules, which were presented. A breakdown of the current JCTLM membership was given, noting that there are 24 national and regional members and 53 stakeholder members, of which 16 are corporate members.

R. Wielgosz presented the proposed tiered membership model for the JCTLM. National and regional members, including NMIs, would have the option to pay: an annual fee of 1 000 euros for Member Status, with a reduction for biennial meeting registration fees; or no annual fee for Associate Member Status, with no reduction for biennial meeting registration fees. Stakeholder members, that were either corporate members consisting of IVD manufacturers and for-profit entities, would pay an annual membership fee of between 1 000 to 5 000 euros, proportional to their incomes, with reductions for biennial meeting registration fees. For other stakeholder members, such as associations, reference laboratories, EQAS, government organizations and standards developers, there would be an annual fee of 1 000 euros for Member Status, with a reduction for biennial meeting registration fees or no annual fee for Associate Member Status, with no reductions for biennial meeting registration fees. The proposed membership model includes guidelines on the use of fees collected for the JCTLM. They would be for JCTLM database maintenance and development costs, and operating costs for the JCTLM secretariat above the levels covered by the BIPM and IFCC. It would be made clear that in the event that funds cannot be used for these needs, for example if JCTLM activities were to cease, the funds can be used for laboratory medicine-related activities in the BIPM Work Programme.

R. Wielgosz requested confirmation from the CIPM to proceed with introducing the tiered membership model for the JCTLM. He noted that the 27th meeting of the JCTLM Executive Committee will be held on 4-5 December 2025, where the proposal will be presented for feedback. If approved by the CIPM and the JCTLM, the membership model will be introduced on 1 January 2027. He concluded by saying that if introduced, the proposed model will reduce the JCTLM's funding requirement from the BIPM and will allow the next version of the database to be paid for entirely by funds collected by the JCTLM.

The President thanked R. Wielgosz and invited questions and comments. In response to a question, he confirmed that the IFCC has made an annual donation of 50 000 euros to the JCTLM for the last 12 years and has agreed to continue to do so until the end of 2026, when the

agreement will be renegotiated. He added that the proposed business model is intended to cover the additional costs incurred by the JCTLM, such as developing the database, so that the costs are balanced by income. The President raised a concern that Member States already pay a dotation, so NMIs from these states do not pay for activities at the BIPM and may question why they have to pay to participate in the JCTLM. R. Wielgosz replied that some of the NMIs that would be affected sell reference materials and provide services to industry. He added that they have the option of not paying an annual fee and maintaining the current arrangement by becoming Associate Members. Initial discussions with NMIs that sell reference materials and provide services have indicated that they are willing to pay a membership fee.

G. Macdonald asked if the proposed model will have a negative impact on NMIs that are less able to pay for membership of the JCTLM compared to those that have the capacity to pay an annual membership fee, and if this could potentially affect their future access to BIPM products and services. R. Wielgosz replied that all NMIs have the option to pursue Associate Member Status, which does not involve any costs. This will allow NMIs to continue to participate in the JCTLM under the same conditions as they do at present. The Director said that the proposed funding model could be considered for other sector-specific activities.

The President summarized the discussions and asked the members if they endorsed the proposal. There was unanimous support and the following decision was agreed.

Decision CIPM/114-23 (2025)
The CIPM endorsed the proposed tiered membership model for the Joint Committee for Traceability in Laboratory Medicine (JCTLM).

Joint Committee for Guides in Metrology (JCGM)

The Director said that the JCGM Working Group on the Expression of Uncertainty in Measurement (JCGM-WG1:GUM) has proposed an amendment to document JCGM 100:2008 *Evaluation of measurement data — Guide to the expression of uncertainty in measurement to address an inconsistency concerning the treatment given to measurements whose model is nonlinear*. This amendment refers to a condition when a measurement model is sufficiently nonlinear that a nonlinear correction is added to the estimated value as well as to the uncertainty. Documents explaining the change had been uploaded to the CIPM webpage in advance of the meeting for information. He asked the CIPM for approval for the amendment. The President asked for comments and questions. There were none and the following decision was agreed.

Decision CIPM/114-24 (2025)
The CIPM approved the proposed amendment to document JCGM 100:2008 Evaluation of measurement data — Guide to the expression of uncertainty in measurement to address an inconsistency concerning the treatment given to measurements whose model is nonlinear.

The Director reminded the CIPM that he is the current Chair of the JCGM. Following his retirement, a new Chair will be required and the CIPM should consider nominating a replacement. The President said that H.A. Frøystein is the CIPM representative to the JCGM and suggested that the incoming Director, A. Koo, should be proposed as the new Chair. G. Macdonald

asked how many CIPM representatives can be nominated to attend the JCGM plenary meeting. The Director clarified that each member organization shall be invited to appoint one representative and each representative may be accompanied by two experts. The Director is the BIPM representative and H.A. Frøystein is considered as an accompanying expert.

P. Richard asked if there is an advantage to the BIPM Director being the Chair of the JCGM. The Director said that there are clear benefits. The work of the JCGM is carried out through its two working groups. The GUM was originally developed by the CIPM. It was then decided to share further developments of the GUM with the JCGM to ensure that other organizations, particularly ISO, agree to its use. In the case of the Working Group on the International Vocabulary of Metrology (JCGM-WG2:VIM), the eight member organizations of the JCGM each have their own vocabularies. However, the VIM is the only vocabulary that is common to the whole NMI community and to the eight member organizations. It is important that the Chair of the JCGM comes from the BIPM to ensure good management of the intellectual property and resources that have been invested in the development of the VIM and the GUM by the BIPM and the NMI community.

The President summarized the discussions and proposed the following decision, which was adopted by the CIPM. The President added that A. Koo can nominate a second expert from within the CIPM to attend the JCGM plenary meetings if required.

Decision CIPM/114-25 (2025)
The CIPM decided to nominate Dr Annette Koo as the official representative of the BIPM to the Joint Committee for Guides in Metrology (JCGM) and encouraged the official representative to ensure that a BIPM candidate stands for election as the Chair when the current Chair steps down in January 2026.

G. Macdonald suggested that the CIPM should discuss the risk of the BIPM losing control of the ongoing development, intellectual property and time that it has invested in the development of the GUM and VIM if a non-BIPM representative were to be appointed as the Chair of the JCGM. She added that there should be a wider debate on overlap of work in the various committees, particularly in terms of digitalization activities, where the same stakeholders attend many committees to discuss essentially the same topics. There may be a lack of coordination of their outputs, and they may be taking different directions. The President said that this could be discussed in March 2026.

12. Reports from the CIPM Consultative Committees

Consultative Committee for Mass and Related Quantities (CCM)

G. Macdonald, President of the CCM, said that it had held its 20th Meeting on 26-27 June 2025. All of its members and observers were represented either in-person or on-line and the CCM Working Groups held meetings. The meeting included technical workshops on Pressure and Vacuum, Key Comparisons, and Digitalization.

The CCM meeting attendees agreed to establish a Task Group on Dynamic Measurements, which will hold its first meeting on 4 November 2025 to discuss its ToR. The meeting included a discussion on the ongoing work on the realization and dissemination of the kilogram.

The draft A report of the key comparison CCM.M-K8.2024 on the realization of the kilogram was sent to participants in early October 2025. The Task Group on the Phases for the Dissemination of the kilogram is calculating the next Consensus Value and is establishing a detailed strategy for advancing towards Phase 3 of the dissemination of the kilogram. A Kibble balance technical meeting will be held at the BIPM headquarters on 18-20 November 2025, including for the first time a special session devoted to knowledge transfer.

G. Macdonald concluded by recalling that INM (Colombia) has applied to be an observer of the CCM. The INM representative made a presentation at the CCM meeting and there is wide support for the application from among the CCM Working Group Chairs. The CIPM approved the application. (See Decision CIPM/114-26 (2025)).

Consultative Committee for Time and Frequency (CCTF)

N. Dimarcq, President of the CCTF, said that it had held session II of its 24th Meeting on 18-19 September 2025. This was the first time the CCTF had met in-person since 2017, although on-line participation was allowed. The CCTF meeting had been preceded by the UTC Summer School on 9-11 September and meetings of its Working Groups and Task Groups on 12 and 15-17 September.

The main outputs from the CCTF meeting were validation of the CCTF Strategy for 2025-2035 and an update of the roadmap towards the new definition of the second, particularly the choice of the new definition and fulfilment of the criteria. The CCTF has produced a document that gives details of the species under consideration for the new definition as a series of factsheets. Tables showing the current status of the achievement against the targets have been updated. These tables include: optical frequency standard (OFS) achievements with respect to criteria targets to show the level of readiness of OFS for a new definition in 2030; categorization of species and transitions in terms of readiness; and draft possibilities for the new definition. The latter includes a shortlist of single species (Option 1) for the new definition and an ensemble of species (Option 2). The CCTF has also updated its factsheets and the table that summarizes of the current fulfilment status of the mandatory criteria that must be met before the new definition of the second can go ahead. The CCTF has suggested mitigation actions to ensure that progress continues towards meeting the criteria ready for the new definition in 2030.

N. Dimarcq said that the CCTF had discussed and approved the text of three draft resolutions on: the new definition of the second, continuous UTC and Lunar time for the 28th meeting of the CGPM (2026). The CIPM had discussed these draft resolutions in §8. He added that in terms of continuous UTC, the CCTF had carried out a survey among the RMOs to assess their views on the risks associated with a negative leap second. The RMOs strongly recommended a rapid implementation of continuous UTC, with no preference between a few minutes and one hour as the new limit for UTC-UT1. The CCTF has received feedback and statements on the risks of a negative leap second from the International Time and Synchronization Forum, held in Seville (Spain) in November 2024 and from groups including the International Earth Rotation and Reference Systems Service (IERS), International Telecommunication Union Telecommunication Standardization Sector (ITU-T), IEEE Precision Networked Clock Synchronization Working Group, and from industry. Most of the devices tested for their ability to manage a negative leap second have failed. In addition, the feedback showed that it is impossible to test all systems due to their sheer number and diversity, especially given the short advance notification period. The feedback and statements were strongly in favour of a rapid implementation of continuous

UTC. The IERS supports the adaptation of a leap hour between UT1 and UTC and agrees with the proposal of advancing the application date to 2027-2028. The IERS will also take the measures necessary to change its operational provision of, and its announcement of, leap seconds. He noted that the CCTF had taken these statements and feedback into consideration when discussing the draft resolution on continuous UTC.

N. Dimarcq said that the CCTF had adopted five recommendations at its meeting. Of these, Recommendation CCTF 24-2: *Updated list of recommended values of standard frequencies for the secondary representations of the second (SRS)* was presented to the CIPM for information. The main change was that $^{115}In^{+}$ (with a recommended fractional uncertainty of 1.8×10^{-16}) has been added as a new SRS and $^{176}Lu^{+}$ has been added to the list of recommended values for the practical realization of the definition of the metre (with an uncertainty of 2.8×10^{-15}).

He informed the CIPM that the CCTF has reorganized its structure. The CCTF Working Group on Time Scale Algorithms (CCTF-WG-ALGO) has been closed. The WG-ALGO was focused on training and education with respect to algorithms and these tasks are being carried out in other Working Groups. The Task Group Promoting the mutual benefit of UTC and GNSS has been refocused to become the Task Group on Traceability to UTC for GNSS measurements.

N. Dimarcq concluded by saying that the CCTF has received applications from VTT MIKES (Finland) to become a member and from INTI (Argentina) and SASO (Saudi Arabia) to become observers, all of which were supported by the committee. The CIPM approved the three applications. (See Decision CIPM/114-26 (2025)).

He reported that the CCTF meeting included a special message of thanks to the outgoing Director for his support over the years.

The President thanked N. Dimarcq and asked if there were any questions or comments. G. Rietveld asked for clarification regarding the ensemble of species (Option 2) for the new definition of the second. Previous discussions had indicated that there was Option 2a for a static ensemble and Option 2b for a dynamic ensemble. He asked if Option 2b was still being pursued. N. Dimarcq replied that both options are under consideration. Option 2a may be adopted in 2030, possibly with an ensemble of six species. It is unlikely that Option 2b would be adopted as it could be disruptive. However, it could be adopted if the selected ensemble is fixed in 2030 and then re-examined subsequently. J.-T. Janssen said that his discussions with time laboratories had found a clear preference for Option 1. N. Dimarcq replied that the CCTF Task Force on the redefinition of the second, the CCTF Working Group on Strategic Planning (CCTF-WGSP) and the CCTF had found no clear preference for Option 1 or 2. He suggested that it may be necessary to obtain the official position of each NMI. The Director added that theoreticians generally prefer Option 2. They will need to back up this preference by demonstrating how the duration of the second will evolve if Option 2 is pursued by a study using real clock data.

Consultative Committee for Acoustics, Ultrasound and Vibration (CCAUV)

G. Ripper, President of the CCAUV, recalled that it had held its 15th plenary meeting on 8-9 October 2025. The CCAUV Working Groups had met on 6-7 October, with a technical workshop on *"Contribution of CCAUV to Measurements for all times, for all people*" being held on the afternoon of 7 October.

The CCAUV discussed the revision of its Strategy Document and concluded that the current document is mostly up to date. The revised document will be published on the website in early 2026.

G. Ripper presented the membership of the CCAUV Working Group on Strategic Planning (CCAUV-SPWG), noting that the Chair and Co-Chairs had been reappointed. The Co-Chair of the Underwater Acoustics Group will step down at the end of 2025 and a call for volunteers was made.

Changes to the Chair and Vice-Chair of the CCAUV Working Group for Key Comparisons (CCAUV-KCWG) were presented. The KCWG reviewed and updated its ToR during its meeting to include pilot studies and the need to review and approve technical protocols for pilot studies. In addition, it carried out a review of comparisons that are in progress and which had been published. The KCWG agreed to delete the SIM MWG-9 pilot study from the list of comparisons that it monitors.

G. Ripper said that the CCAUV Working Group for RMO Coordination (CCAUV-RMOWG) had appointed a new Chair and Vice-Chair according to the rotation policy stated in its ToR. He recalled that the JCRB Executive Secretary had given a presentation at the RMOWG meeting regarding the loss of rights as explained in §11. He suggested that the delays may be due to new Technical Committee (TC) Chairs in the RMOs, with a responsibility for AUV CMCs, not being familiar with the revision process. He proposed more training may be necessary. The JCRB Executive Secretary had also presented the issue of “hanging CMCs”, with 34 AUV CMCs currently waiting for revision for more than six months. G. Ripper noted that this long delay compromises the KCDB statistics and the RMOWG had discussed ways to solve the problem. The RMOWG agreed to consider a time limit and propose it to the JCRB. The RMOWG had received a demand from the LNE (France) and the Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO) for a new service category of “calibration of infrasound sensors”. The RMOWG will discuss the request with the President of the CCM. NIM (China) submitted a request to the CCAUV for a new service category in rotational velocity. The request was discussed with the CCTF and a final agreement will be reached after the CIPM meeting.

G. Ripper recalled that the CCAUV had received applications from EIM (Greece) and SCL (Hong Kong, China) to become observers. The CCAUV supported both applications. The CIPM agreed the following decision.

Decision CIPM/114-26 (2025)
The CIPM accepted the following changes to the membership and observership of the Consultative Committees:
CCM
- INM (Colombia) as an observer

CCTF
- VTT MIKES (Finland) as a member
- INTI (Argentina) as an observer
- SASO (Saudi Arabia) as an observer

CCAUV
- EIM (Greece) as an observer
- SCL (Hong Kong, China) as an observer.

Consultative Committee for Units (CCU)

R.J.C. Brown, President of the CCU, recalled that version 3.02 of the 9th edition of the SI Brochure had been published in August 2025. This version includes: an updated value of the dalton following the 2022 CODATA update; an updated list of binary prefixes following IEC 80000-13:2025, the addition of robi (2^{90}) and quebi (2^{100}); and some edits to improve consistency, including ensuring alignment with the SI Digital Framework; and an update of the license to the Creative Commons Attribution 4.0 International License.

13. Reports from the BIPM departments

Physical Metrology

M. Stock, Director of the department, said that two on-site comparisons of electrical quantum standards and four bilateral comparisons using conventional electrical BIPM transfer standards had been conducted in 2025. Two further on-site comparisons of electrical quantum standards are planned for later in 2025. The BIPM was the central pivot laboratory for the EURAMET.EM-K4 key comparison of capacitance at 10 pF and 100 pF, which is linked to a CCEM comparison, organized by the BIPM in 2017. In addition, the third key comparison of realizations of the kilogram, CCM.M-K8.2024, was completed during the year.

M. Stock presented the results of the previous two key comparisons of kilogram realizations, CCM.M-K8.2019 and CCM.M-K8.2021, organized by the BIPM, and a schematic of the organization of CCM.M-K8.2024, for which there were ten participants, including the BIPM. The results of the latest key comparison showed that the discrepancy observed during previous comparisons has reduced. A new consensus value is due to be introduced and at least one more key comparison will be conducted in 2027 before the CCM can take a decision on whether to abandon the consensus value and allow dissemination from local realizations. He explained how the consensus value is determined and recalled that the CCM had decided in 2019 to limit the changes from one consensus value to the next to ± 5 µg. A graph showing the reproducibility of the kilogram realization results was presented. The graph compared the results of the three key comparisons in 2019, 2021 and 2024 and the Pilot Study in 2016. The results were linked through the stable mass unit maintained at the BIPM headquarters and found that there was generally good reproducibility with the exception of the 2016 Pilot Study.

M. Stock said that the Physical Metrology Department conducted the first on-site quantum Hall resistance (QHR) comparison using graphene in 2025. The BIPM's GaAs-based QHR standard was compared to the PTB's GaAs and graphene QHR standards. Both standards were used to calibrate the BIPM's 100 Ω resistor. The comparison also investigated resistance scaling from 100 Ω to 1 Ω and to 10 kΩ using BIPM standards. When the BIPM results with GaAs are compared with the PTB results using graphene to calibrate the 100 Ω standard, the mean of the results agree to 0.0 parts in 10^9 with an uncertainty of 2.2 parts in 10^9. These results are comparable to comparisons using only conventional GaAs samples. This demonstrates the feasibility of using graphene QHR samples for resistance traceability under relaxed conditions and will provide input for the CCEM guidelines document on graphene for QHR that is being drafted. A second on-site comparison is planned with CEM (Spain) in November 2025.

The BIPM carried out the first comparisons of Josephson voltage standards (JVS) at AC up to 1.2 kHz. A comparison between the BIPM and PTB in June 2025 resulted in agreement within several parts in 10^8. The comparison confirmed the operation of JVS at AC at uncertainties below 10^{-7}, compared to that of conventional thermal voltage converters of about 10^{-6}, which are fragile and difficult to obtain. A second successful comparison was arranged with CENAM (Mexico) in August 2025.

M. Stock presented the EURAMET.EM-K4 comparison of capacitance at 10 pF and 100 pF, which was coordinated by the PTB. The comparison was organized with one inner loop and three outer loops, with the BIPM participating as a member of the support group and the centre of the inner loop with the three sub-pilots of the comparison. Measurements of twelve capacitors were conducted simultaneously from mid-April to mid-May 2025.

A Kibble balance technical meeting will be held at the BIPM headquarters on 18-20 November 2025. The meeting will include for the first time a full day dedicated to knowledge transfer on topics relevant for Kibble balances. M. Stock concluded by presenting an overview of the services offered by the Physical Metrology Department, including comparisons since 2000 and calibrations since 2015 by country.

Time

P. Tavella, Director of the department, said that it had continued to improve the computation of rapid UTC (UTCr) in 2025. New algorithms have improved the agreement of UTCr against UTC at the 1 ns level by refining the clock weight and the steering process. The newly updated UTCr became official in July 2025 following a period of testing and six months of parallel computation. UTCr enables the UTC laboratories to generate their national time scales in closer agreement to UTC. For example, CENAM (Mexico) has published a study[3] that covered 25 years of UTC(*k*) performance. The study showed that UTCr has demonstrably improved the accuracy of UTC(*k*) realizations world-wide, even for those with primary frequency standards.

P. Tavella recalled that the department has been actively involved in capacity building and now has six e-Learning courses available. These courses are designed to help with the validation of data before it is submitted to the BIPM. The department was involved in two UTC Summer Schools in 2025. The SIM Summer School was held in Queretaro (Mexico) on 7-9 May and the BIPM Summer School was held at the BIPM headquarters on 9-11 September. The IEEE Ultrasonics, Ferroelectrics and Frequency Control Society (IEEE UFFC) provided USD 47 000 in sponsorship to support the two schools.

P. Tavella said that the Time Department's strategy for 2028-2031 includes a proposal to evaluate the cost and benefits of laboratory work to compare NMI optical clock technologies at the BIPM using equipment provided by stakeholders. A company has offered to donate a transportable optical frequency standard (OFS) to the BIPM for this activity. The OFS could become an "international travelling standard" allowing comparisons of optical clocks at the 10^{-18} level. It could also be connected to an optical fibre network at the BIPM headquarters for continuous comparisons with NMIs. The BIPM could use the OFS in the future as a reference for the characterization and calibration of other commercial OFSs. She noted that this project is not currently included in the work programme 2024-2027 as there are insufficient budget

[3] *IEEE Transactions on Instrumentation and Measurement*, (2025), **74**

and resources to initiate the work. If it is considered to be useful, then logistical and financial support will be required along with extra staff. As mentioned earlier, the strategy for 2028-2031 includes a proposal to evaluate the project.

The President thanked P. Tavella and asked if there were any questions. D. del Campo Maldonado commented that having an OFS at the BIPM is a good initiative and asked for clarification about whether the initiative would require secondees and financial support from the NMIs to proceed. P. Tavella replied that this was the case, but the project will also require the continuity provided by permanent staff - a single secondee for a six-month period would not allow the project to progress in the long term. The Time Department would be reluctant to start OFS services at the BIPM without sufficient long-term financial and staffing commitments.

Ionizing radiation

V. Gressier, Director of the department, gave an update of recent staff changes. D. Burns retired in September 2024 and was replaced by A. Villevalde, who had started in April 2024. T. Choteau was transferred from the Chemistry Department to the Ionizing Radiation Department in June 2025. He then presented the distribution of ionizing radiation comparisons and calibrations by country for 2024 and 2025 and by topic (dosimetry key comparisons, dosimetry calibrations and radionuclide key comparisons) for 2016 to 2025.

V. Gressier said that work is progressing with the new medium-energy x-ray facility at the BIPM. The work started in 2021 and in 2025 the calibration bench became fully operational and validation of the primary standard was completed. In addition, the radiation qualities have been fully characterized and the key comparison reference value (KCRV) for air kerma has been established. Work continues to validate the new facility and on the determination of kerma-to-dose conversion. The documentation and quality system are being drafted. Work is under way to update the department's low-energy x-ray facility. A new automated bench is being developed for the primary standard (Free Air Chamber) that will allow chamber positioning in the beam axis. A new x-ray generator is being tested.

V. Gressier recalled that the International Reference System (SIR) has offered a highly stable service in the radionuclides area since 1976. It has produced 818 comparison results covering 73 different radionuclides, but as it is 50 years old and relies on a single detector, backup solutions and a complete renewal of the SIR are needed. The first step in the renewal process has been to carry out mathematical modelling, which was validated in 2025 to transfer KCRVs from the SIR ionization chamber to the backup chamber, in case of failure of the original SIR. This was achieved through a successful collaboration with the NPL (UK), with the results published in 2025. Development of the new SIR (SIR 2.0) has continued with the help of a secondee from NMIJ (Japan) for six months. A noise-optimized ultra low-noise current amplifier has been set-up for the SIR 2.0 and a trial has been conducted of "back-to-back connection" of two ionization chambers with opposite polarity for continuous subtraction of the background. This method was developed by the NPL has an apparent background of less than 1 fA. This will allow potential comparisons at four-times lower ionization currents and expansion of SIR capabilities to lower activities.

The department started the comparison programme (BIPM.RI(II)-K5) with the extension of the international reference system (ESIR) in 2025. The department introduced enhanced automation for the ESIR during 2025 and source preparation capabilities were improved with the transfer of a staff member from the Chemistry Department. In addition, the protocol for the ESIR has been

updated to include the isotopes ^{3}H and ^{36}Cl. The first ampoules were received from NMIs: Tc-99 and Pm-147 from LNE-LNHB (France) and Am-241 from NRC (Canada). The department will develop a new facility in 2026 for source preparation of alpha emitters.

The International Transportable Reference System (SIRTI) is used for comparisons of a significant number of short-lived radioisotopes. The Consultative Committee for Ionizing Radiation (CCRI) agreed to the development of copies of the SIRTI for use in the RMOs in 2023 as the BIPM does not have sufficient resources to answer all the measurement requests from the Member States. These RMO SIRTIs will be linked to the SIR via the BIPM SIRTI. The Ionizing Radiation Department conducted SIRTI knowledge transfer initiatives during 2024 and 2025 at LNMRI/IRD (Brazil) on-site and in remote mode. The first trial linking the BIPM and NIM SIRTIs at NIM will be conducted during the SIRTI comparison campaign in October 2025, with the agreement of the APMP SIRTI WG.

V. Gressier said that the department has continued its digital transformation with tests carried out using a digital electronic acquisition system for the SIRTI with a CAEN module. In addition, the analogue electronics for the BIPM's 4πβ(LS)–γ detection system have been replaced with the assistance of a secondee from NIM. The department is also developing a database for comparison of algorithms for digital data analysis.

V. Gressier concluded by presenting an overview of liaison and coordination activities, noting that an extension of the MoU between the International Atomic Energy Agency (IAEA) and BIPM will be required to prepare for the scientific cooperation to support involvement of the IAEA in CCRI supplementary comparisons on reference materials.

Chemistry

R. Wielgosz, Director of the department, said that the Chemistry Department is two years into the 2024-2027 work programme and presented a series of key programme output indicators for the period 2020 to 2025. He noted that one of the major areas of growth has been in the number of visiting scientists, with an increase from three in 2020 to eleven in 2025. NIM (China), NPL (UK) and the Government Laboratory (Hong Kong, China) provided full support for their scientists to work at the BIPM, thereby reducing the financial burden on the BIPM. Within the Consultative Committee for Amount of Substance: Metrology in Chemistry and Biology (CCQM) structure, the department supports the work of four existing Working Groups and this will extend to a fifth, nucleic acids, in the future.

R. Wielgosz presented updates on the Chemistry Department's comparison programme. CCQM-K148.c digitoxin purity is progressing, with materials supplied by TÜBITAK Ulusal Metroloji Enstitüsü (Türkiye). The key comparison has 18 NMI participations as well participation by the US Pharmacopeia (USP). The organic calibration solution series of comparisons, focusing on both polar and non-polar pesticide calibrants, is under way, with initial work being conducted as a joint technical project with NIM (China), which sponsored a visiting scientist to work on development methods of analysis for non-polar pesticides, with work on polar systems focusing on glyphosate and its metabolites. Visiting scientists from INM (Colombia) and the Government Laboratory (Hong Kong, China) have worked on the polar systems.

In the proteins area, the key comparison CCQM-K115.d parathyroid hormone PTH (1-84) in solution is under way. There is no certified reference material (CRM) for this biomarker for

chronic kidney disease (CKD) and hypo- or hyperparathyroidism. The BIPM has worked with NRC (Canada) to supply material and NIM for its value assignment. The BIPM has a joint technical project with the LGC (UK) to provide material for the CCQM-K155 series for the monitored immunosuppressant drug, cyclosporine A. A visiting scientist from EXHM (Greece) is working on methods for the characterization of the material. In addition, the BIPM has a joint technical project with the NPL in the CCQM-K155 series for *de novo* peptides for CCQM comparisons underpinning the advanced manufacturing and biotechnology sectors.

R. Wielgosz recalled that the department's work in standards for atmospheric monitoring, particularly greenhouse gases, included the establishment of a reference facility for CO_2. The work to develop this facility was supported by visiting scientists from NIST (USA) and RISE (Sweden). The facility is now operational and the key comparison BIPM.QM-K2, CO_2 in Air/N_2 is under way. A designated institute (DI) from Austria has reported the first results and SMU (Slovakia) has also participated. He noted that five institutes had contacted the BIPM for the plans to build similar facilities so that they can use them to value assign standards.

The department's work on isotope ratios in CO_2 underpins work in the wider carbon chemistry area. The key comparison CCQM-P239, CO_2 in Air: Isotopes, is under way with 37 standards from 14 participants sent to BIPM for measurement against the BIPM reference facility. The department is also working on scales for CO_2 in air through coordination of the key comparison BIPM.QM-K5. This comparison will allow different CO_2 scales to be compared. The BIPM.QM-K5 comparison protocol has been agreed with the CCQM-TG on GHG Scale Comparisons and a GHG Scales Database has been developed in collaboration with VSL (Netherlands), National Oceanic and Atmospheric Administration (NOAA, USA) and NIM.

The Chemistry Department's capacity building and knowledge transfer (CBKT) activities in metrology for clean air included a project sponsored by the NPL for systems and methods for CH_4 standards. This project is being supported by a visiting scientist from LACOMET (Costa Rica) who is building a gas autosampler. The department will produce an eLearning module on the assembly and validation of a gas autosampler, which will allow other NMIs to construct these devices.

R. Wielgosz recalled that 2025 is the year that the basis for new accurate ozone measurements was adopted around the world. The work behind this change was conducted at the BIPM headquarters by re-measuring the ozone cross-section in association with visiting scientists from KRISS (South Korea) and GUM (Poland). The data was reviewed by a world-wide expert group that produced a new recommended value for the ozone cross-section in 2019. A workshop initiated the process to update all measurements of surface ozone using the new value. This required changes to ISO and national standards and was coordinated by a CCQM task group.

The President thanked R. Wielgosz and asked for comments. S.-R. Park thanked the Chemistry Department for its support of the CCQM and asked about the department's priorities. R. Wielgosz said that the CCQM Strategy 2030+ prioritized the comparison programme for the department. This was used to develop the Chemistry Department strategy presented in the BIPM Strategic Plan for the BIPM Work Programme (2026) including growing support for organics and biochemical activities. All of the work outlined in the strategy is achievable and is based on the priorities of five of the CCQM's Working Groups. C. Denz asked how the department interacts with the European and national projects that are active in climate monitoring. R. Wielgosz replied that the work is coordinated by a CCQM Task Group, for

example in ozone. The change to the ozone cross-section involved all of the European reference laboratories, equipment manufacturers and standard writers. The BIPM supported the work of this task group and was responsible for drafting the technical documentation and guidelines for example on the values to use and how to convert units. The President asked if the department's work on drug CRMs and traceability involves the JCTLM. R. Wielgosz clarified that the CCQM prioritizes the high-priority analytes that need to be standardized and the BIPM collaborates with NMIs in coordinating comparisons, so that if a CRM is required for their analyte it can be produced by one or more NMIs. J.-T. Janssen asked about the status of quantum chemistry. R. Wielgosz said that the department is active in the area of nuclear magnetic resonance (NMR) and the response of this instrument can be modelled using quantum chemistry. Organizations such as the USP are investigating how to standardize the methodology so that digital standards can be used to replace physical chemical reference materials to underpin the purity of all pharmaceutical products. The BIPM's internal standard reference documents and data are of interest as they can be useful in testing the accuracy of digital approaches. The topic of digital reference materials in qNMR has been included in the department's strategy for 2028-2031.

International Liaison and Communication

A. Cypionka, Director of the department, presented its recent activities. Two new members of staff have joined the department since the last presentation to the CIPM: K. Yamazawa as JCRB Executive Secretary and C. Paredes as the Digital Transformation Liaison Officer.

As of October 2025, there were 64 Member States and 37 Associates. A. Cypionka noted that when states that do not currently adhere to the Metre Convention are in discussion with the BIPM about the Associate Membership status, they are also being informed about the future possibility of becoming Observer States. Discussions have found that this is an attractive option to states such as Guatemala and El Salvador, where funding issues are even a barrier to becoming an Associate. Discussions with COOMET have indicated that Armenia, Kyrgyzstan and Tajikistan are interested in becoming Member States or Associates and the possibility of becoming Observer States was mentioned as an alternative. The BIPM is undertaking activities ready for the anticipated introduction of the category of Observer State, including: raising awareness at RMO General Assemblies; an eLearning course "Introduction to the BIPM" is in preparation; consultations with the United Nations Industrial Development Organization (UNIDO) regarding future CBKT activities for observers are ongoing; and "early adopters" are being identified.

A. Cypionka recalled that the report "*Reinforcing Regulatory Frameworks through Standards, Measurements and Assurance: Making Better Use of Quality Infrastructure in Policymaking*" was published by the Organisation for Economic Co-operation and Development (OECD) in September 2025. A joint OECD-PTB-BIPM-BSI webinar will be held to launch the report and on 6 December, the BIPM and the OECD will host a full-day event "*Building Stronger Connections Between Quality Infrastructure and Regulation*" at the BIPM headquarters to explore the critical links between regulatory systems and QI.

The 222nd Session of the UNESCO Executive Board, being held on 1-16 October, will review the draft MoU with the BIPM that will replace the existing 1949/1952 CIPM-UNESCO Agreement. The MoU is expected to be signed by the end of 2025. The "Thematic Session" of the WTO TBT Committee on the role of metrology in facilitating trade, to mark the 150th Anniversary of the

Metre Convention, will be held on 11 November 2025 in Geneva (Switzerland). The names of the Moderator and Speakers were presented.

A. Cypionka recalled that the ILC Department had restructured, improved and expanded its communications activities in 2025 in parallel with the preparations for the 150th anniversary. The organization of the anniversary events required a considerable amount of work by the communications team and the promotional materials that were produced are being used throughout the year to derive maximum benefit and impact. This supports one of the objectives of the anniversary events, which was to promote metrology to the widest possible global audience, particularly to new groups that had not previously been aware of the BIPM.

Participation in the anniversary events totalled 617 at the World Metrology Day symposium held at the UNESCO headquarters on 20 May and 450 at the Scientific Conference held at the *Palais des Congrès*, Versailles, on 21-22 May. The anniversary events reached a wide audience through other initiatives, for example: an interview with Dr Henry Rotich, Kenya Bureau of Standards (KEBS) on the television channel, France 24; a full-page feature on the LNE (France) in the newspaper Le Figaro; and an anniversary-themed illumination on the roof of *La Mole Antonelliana* in Turin (Italy). In addition, UNESCO has offered to include metrology in its education outreach programmes. A total of 76 national and RMO posters and details of 23 national events were published on the World Metrology Day website.

The ILC Department's communications strategy in 2025 included optimization of communication channels and workflow to raise the global profile of metrology. As of October 2025, more than 40 news items have been published and updates to the website and improved search engine optimization have resulted in a 55 % increase in traffic. More than 20 anniversary videos have been published on the website and a series of education and engagement-based campaigns have been launched on LinkedIn and YouTube. The latter have contributed to a 96 % increase in impressions and more than double the engagement (125 %) on LinkedIn.

A. Cypionka presented the latest activities in capacity building and knowledge transfer (CBKT). Five new e-learning courses have been published in 2025, including the first from SIM. Further e-learning modules are planned to assist comparison pilots as well as an e-learning course that will give an Introduction to the BIPM. Workshop-based activities in 2025 included: the BIPM-SIM UTC Summer School in Queretaro (Mexico) on 7-9 May; the BIPM UTC Summer School at the BIPM headquarters on 9-11 September; and the BIPM–GULFMET workshop for CMC writers, scheduled for 20-22 October in Doha (Qatar).

Laboratory placement activities continued with the eighth cycle of the joint BIPM–TÜBİTAK UME initiative. The 2025 project placement started on 1 September with ten selected young metrologists. Additionally, four young metrologists received sponsorship support to attend the Varenna Metrology School on 9-18 July and to complete a placement at METAS (Switzerland). Three on-line technical exchanges have taken place in 2025 to support the CIPM MRA user community (CMC Writers, comparison pilots and RMO TC/WG Chairs) with the participation of 662 NMI/DI experts. The on-line technical exchange for CMC Writers is now being held twice each year to meet the high demand.

A. Cypionka said that an integrated 'knowledge hub for comparisons' to support potential comparison pilots is under development. Step one on the basic principles is complete and step two covering practical knowledge on CIPM MRA-G-11 is currently being prepared. Step three on specific metrology areas will require input from the RMOs and experts are being sought.

A CIPM MRA Summer School to support RMO TC/WG Chairs in their roles within the context of the CIPM MRA is planned for 30 June to 2 July 2026 at the BIPM headquarters.

A. Cypionka concluded by presenting an update on the management of *Metrologia*, in particular on the progress being made in response to the two recommendations in Decision CIPM/113-29 (2024). The BIPM has been involved in discussions with the Institute of Physics Publishing (IOPP) and the "flip" to *Metrologia* becoming a full open-access journal will be made on 1 January 2026. The flip has involved a complete change to the business model for the journal. The ILC Department has also made considerable progress with creating a separate web entity for the publication of comparison reports, which are currently published in *Metrologia* as Technical Supplements. A new workflow has been developed including for the assignment of DOIs and metadata collection. The latter will be achieved through a new on-line submission process in the KCDB that will start on 1 January 2026. A new catalogue page, which allows searching for the CIPM MRA Final Reports, has been designed that resembles the current *Metrologia* page. Existing comparison reports will remain on the *Metrologia* website.

The President thanked A. Cypionka and invited questions. C. Denz asked if it will be possible to maintain the high level of communication outputs that was achieved in the current year into 2026. A. Cypionka replied that there are plans to produce content on topics that will highlight the work of the BIPM, guided by the strategy. In addition, there are requests from all of the BIPM departments for publications, videos and posts that can be prioritized during the year. The Director added that one of the sessions at the 28th meeting of the CGPM will be a round-table discussion on cross-cutting themes. This could possibly be livestreamed and promoted. D. del Campo Maldonado suggested that the outputs from CC meetings and events could be further exploited.

14. Review of CIPM messages for the State Representatives meeting

The President said that some of the CIPM members will give presentations to the meeting of Member State Representatives on 24 October and asked for a brief summary of the "messages" that they planned to give. G. Macdonald gave a summary of the report on the future of the BIPM headquarters and V. Coleman summarized the presentation on universal adherence.

The President raised the topic of retaining the *ex officio* members of the CEC. He said that this should be discussed with the Chair of the CEC with clear guidelines for the role of the *ex officio* members. He asked the CIPM for their views on the subject in case it is raised during the meeting of Member State Representatives so that a unified CIPM response can be given. P. Richard recalled that a decision on this topic is needed from the Member States; it is not a decision for the CIPM. He added that to retain full independence of the election commission, he will propose that the CIPM President and Secretary shall be "advisory guests" and not *ex officio* members. This could be explained in detail in the commentary to the RoP of the CGPM. This proposal would avoid having to change the wording in the RoP. The President agreed with the suggestion.

15. Meetings in 2026

- Session I of the 115th meeting of the CIPM (in person) 17–19 March
- Session II of the 115th meeting of the CIPM (on-line) 15–19 June (exact dates to be fixed)
- 28th meeting of the CGPM 13-15 October.

The President said that he will contact the signatories to the Joint Statement of Intent on the digital transformation in the international scientific and quality infrastructure (JSI) regarding their membership of the FORUM-MD. He noted that signatories are members of the FORUM-MD. JSI representatives that attend meetings of the FORUM-MD will have to decide whether they are attending on behalf of an NMI, the JSI signatory organization or both. This should be clearly stated at the start of the meetings.

16. Any other business

The CIPM reviewed the decisions and noted that a decision had been taken *in camera* regarding the date that Dr Annette Koo will take on the full duties and responsibilities of the position of Director of the BIPM.

Decision CIPM/114-21 (2025)
Recalling Decision CIPM/114-05 (2025), the CIPM confirmed that Dr Annette Koo will take on the full duties and responsibilities of the position of Director of the BIPM as of 1 January 2026.

17. Closure of the meeting

The President thanked the CIPM members and closed the meeting.

Barry David Inglis, 1940-2025

Dr Barry David Inglis was born in Sydney (Australia) on 23 November 1940. Aside from four years in Adelaide during his primary school years, he spent much of his life in Sydney, attending East Hills Boys High School, and later undertaking Electrical Engineering at the University of New South Wales (UNSW) from 1958 to 1966. He completed his PhD under the mentorship of A/Prof Greg Johnson with a thesis titled "*A study of the Hall effect and related phenomena with particular reference to position control servomechanisms*".

Following the completion of his PhD, Dr Inglis moved to the UK with his wife Kay to undertake post-doctoral research at the laboratories of Muirhead and Co, manufacturers of high-precision electrical measuring instruments. Dr Inglis returned to Australia in 1968 to join the Electrotechnology section in the Division of Applied Physics of the Commonwealth Scientific and Industrial Research Organisation (CSIRO), the foremost government scientific research organization in Australia.

In 1974, the CSIRO Division of Physics and Division of Applied Physics were merged and relocated to a purpose-built laboratory, the National Measurement Laboratory (NML), at Lindfield in the Northern suburbs of Sydney, and in 1975, Dr Inglis was appointed the Leader of the Power Frequency Group.

Between 1975 and 1999 Dr Inglis undertook novel research on ac-dc transfer techniques using thermal converters, achieving precision of 1×10^{-7}. Following his study of errors in ac-dc transfer arising from dc reversal difference, he proposed the "*Barry Inglis Definition of AC-DC Transfer Difference*". This definition has since been universally adopted and used by the ac-dc community. Dr Inglis' research led to significant improvements in the accuracy and reliability of the realization of SI units of alternating voltage and current, both in Australia and world-wide. This was confirmed by the CCEM-K6a key comparison of ac-dc voltage transfer standards at the lowest attainable level of uncertainty, completed in 1999.

In 1988, Dr Inglis was appointed the Manager, Applied Electricity and Magnetism Programme, then Assistant Chief (Standards) in 1992 and Deputy Chief (Standards) in 1994.

Another reorganization occurred in 1996 when CSIRO Division of Applied Physics and CSIRO Division of Radiophysics were merged, with Dr Inglis continuing as Deputy Chief (Standards) with leadership responsibility for Australia's physical measurement capabilities.

In 2000, a review of national science capability by the Chief Scientist of Australia recommended that a National Measurement Institute (NMI) be created by amalgamating the Commonwealth functions in chemical, physical and trade measurement. In 2004, the National Measurement Institute, Australia (NMIA) was created, and Dr Inglis was appointed as its first Chief Executive Officer and Australia's first Chief Metrologist.

Having been one of the key visionaries in the establishment of the NMIA, Dr Inglis worked tirelessly to establish it as a single effective national authority for metrology. He received the Public Service Medal in 2007 from the Australian Government for his exceptional contributions.

From 1994 to 2007, he was the principal Australian representative for all matters relating to metrology. He headed the Australian delegation to the 20th General Conference on Weights and Measures (CGPM) in 1995, the 21st CGPM in 1999, the 22nd CGPM in 2003, and the 23rd CGPM in 2007.

In 2000 Dr Inglis was elected to the CIPM and served as a member through to 2019.

During this time, he built upon his outstanding international reputation in metrology. Electrical metrology was always his passion and for twelve years between 2003 and 2015 he was President of the Consultative Committee for Electricity and Magnetism (CCEM).

Dr Inglis was appointed to the CIPM Bureau in 2002, serving as a Vice-President until 2011. In 2011 he was elected President of the CIPM and served for eight years until 2019. He was the first Australian and only the second non-European to hold this position.

During his time as President of the CIPM, he led the organization of two meetings of the CGPM, and he launched a governance review of the organization in 2012 that modernized many of the practices at the BIPM.

He was at the centre of the 26th meeting of the CGPM (2018), which took the historic decision to redefine the International System of Units (SI). He will be remembered as the President who steered the organization in the lead up to this decision, achieving the successful adoption of the revision of the SI units. In March 2019, he retired from the CIPM and was awarded honorary membership in recognition of his accomplishments as the President of the CIPM.

In recognition of the services he rendered to Australian and international metrology, Dr Inglis was appointed an Officer of the Order of Australia (AO) in the 2021 Australia Day Honours List. This honour recognizes Australians who have demonstrated outstanding service or exceptional achievement.

Dr Inglis was involved in all aspects of the quality infrastructure (QI) which coordinates standardization, accreditation and metrology in Australia and world-wide. He had a strong commitment to capacity building in developing economies. He chaired the Asia Pacific Metrology Programme (APMP) from 1994 to 1999. During his time as Regional Coordinator/Chair of APMP he identified the benefit of having an agreement between NMIs about the equivalence of their standards. His pioneering ideas would go on to become the basis for the CIPM Mutual Recognition Arrangement (CIPM MRA) established in 1999, which is now the cornerstone of multi-lateral recognition in metrology.

He was a member of the Council of Standards Australia, the top national standards-writing body and was a Director on the Executive Board of the National Association of Testing Authorities (NATA, the national Laboratory Accreditation body for Australia) from 1992 to 2011, serving as Chair from 2003 to 2011.

He undertook many international consultancies to help build metrology capabilities in economies including Hong Kong, China; Singapore; South Africa; Thailand and Republic of Korea. He was also a member of the International Advisory Board of NIM (China).

Dr Inglis made a significant contribution to science and engineering, particularly to metrology, measurement standards and research, and professional QI organizations.

Dr Inglis was the author of more than 80 technical publications and reports, and more than 40 in refereed journals and conference proceedings. He was elected a Fellow of the Australian Academy of Technological Sciences and Engineering in 2004. He was a Fellow of the Institution of Engineers Australia, a Fellow of the Institute of Electrical and Electronic Engineers (USA) and an inaugural Fellow of the Metrology Society of Australia. In May 2007 he received the Engineers Australia 2006 M.A. Sargent Medal.

Dr Inglis' contribution to the work of the BIPM, APMP and NMIA were enormous, and he had a deep impact on the people he met with his thoughtful and generous spirit.

Dr Inglis will be remembered by all at the BIPM for his human qualities and his unwavering commitment to supporting all staff and the organization. Dr Inglis will be greatly missed and fondly remembered.

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