

International Committee
for Weights and Measures

Proceedings of Session III

of the 113th meeting

(15–16 October 2024)

Executive Summary

Session III of the 113th meeting of the CIPM (15-16 October 2024)

Value of the point

The CIPM decided that the value of the point applicable to salaries and pensions be revised on 1 January 2025 by 2.5 %.

Exceptional transfer of unreserved cash to the Pension Fund

The CIPM decided to authorize a fourth exceptional transfer of 3 million euros of unreserved cash to the Pension Fund.

Metrologia

- The CIPM endorsed *Metrologia* as its journal of choice.
- The CIPM asked the CCs and Forums each to nominate one or more ambassadors to *Metrologia*.
- The CIPM asked the BIPM to pursue an Open Access publishing model for the journal.
- The CIPM recommended the creation of a separate entity for the publication of comparison reports.

Changes to the membership and observership

CCL:

- INTI (Argentina) as a member
- RISE (Sweden) as a member
- SCL (Hong-Kong, China) as an observer

CCT:

- INM (Colombia) as an observer

**MEMBERS OF THE
INTERNATIONAL COMMITTEE FOR WEIGHTS AND MEASURES**

As of 15 October 2024

President

W. Louw, South Africa.

Secretary

T. Usuda, Japan.

Members

V.G. Achanta, India.

D. del Campo Maldonado, Spain.

V. Coleman, Australia.

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.

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1. WELCOME AND OPENING REMARKS

The International Committee for Weights and Measures (CIPM) held Session III of its 113th meeting on Tuesday 15 October to Wednesday 16 October 2024 as a hybrid meeting.

Participants: V.G. Achanta (online), V. Coleman, D. del Campo Maldonado, C. Denz, 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, 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), 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 ILC Department), P. Gournay (Physical Metrology Department), R. Guliyeva (ILC Department and CCE), C. Kuanbayev (ILC Department), J. Miles (ILC Department and *Metrologia*), G. Panfilo (CCL Executive Secretary), A. Rohrer (Legal Adviser), D. Spelzini (Head of the Finance Office), M. Stock (Director of the Physical Metrology Department and CCU Executive Secretary), P. Tavella (Director of the Time Department and CCTF Executive Secretary) and R. Wielgosz (Director of the Chemistry Department and CCQM Executive Secretary).

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

The President opened the meeting and welcomed the participants. G. Rietveld commented that the Netherlands has been represented continuously on the CIPM since 1954 with the election of J. de Boer.

2. APPROVAL OF THE AGENDA AND THE REPORT OF SESSION II OF THE 113TH MEETING

The CIPM approved the agenda and accepted the report of Session II of its 113th meeting as a true record.

Decision CIPM/113-23 (2024) The CIPM accepted the minutes of Session II of the 113th meeting of the CIPM as a true record.

3. SECRETARY'S REPORT

The Secretary said that the CIPM bureau's activities since Session II had focused on the recruitment and handover process for the new Director of the BIPM. The bureau, at its meeting held on 22 August 2024, discussed the rules and procedure for the selection of the next Director. A discussion was subsequently held with the members of the Selection Committee to finalize the vacancy announcement, which was published on the BIPM website on 2 September 2024. The bureau drafted the agenda for Session III of the 113th meeting of the CIPM at its meeting on 23 September. The agenda was circulated to the CIPM on 27 September. The bureau confirmed and updated the agenda at its meeting on 14 October as well as finalizing the agenda for the 23rd meeting of State Representatives and NMI Directors, to be held on 17–18 October 2024. The bureau also discussed plans for the 28th meeting of the CGPM (2026) and arrangements for Session I of the 114th meeting of the CIPM in March 2025.

M. Milton said that there was incorrect information in the report regarding his retirement. The President replied that this will be discussed during §7 on the agenda. He added that the bureau now meets monthly to discuss matters, rather than solely scheduling its meetings in advance of CIPM sessions.

The Secretary presented documents: "Note from the Director of the BIPM re CIPM Rules of Procedure" and "Proposed amended version of the CIPM Rules of Procedure". He recalled decision CIPM/113-18 (2024), which

approved the attendance of a staff representative of the BIPM Commission for Conditions of Employment (CCE), with the status of an observer, at those parts of CIPM sessions that examine proposals on conditions of employment. The Director had suggested that the CIPM could include information in its Rules of Procedure to cover guidelines on the attendance. To implement the above suggestion a new paragraph 4 could be added to Rule 27 of the CIPM Rules of Procedure as follows. “A staff representative of the BIPM Commission for Conditions of Employment may attend those parts of CIPM sessions that examine proposals on conditions of employment, as an observer.” The CIPM discussed the proposal and the following decision was agreed.

Decision CIPM/113-28 (2024) Recalling Decisions CIPM/110-08 (2021), CIPM/110-25 (2021), CIPM/112-32 (2023) and CIPM/113-18 (2024) the CIPM approved edition 1.3 of the CIPM Rules of Procedure, with an amendment to Rule 27, in order to allow a staff representative of the BIPM Commission on Conditions of Employment to attend, with status of observer, those parts of CIPM sessions that examine proposals on conditions of employment. The CIPM requested the BIPM headquarters staff to publish the amended CIPM Rules of Procedure and to update the Compendium accordingly.

4. PRESIDENT’S REPORT

The President reported on the period since Session II in June 2024, recalling that two Consultative Committee Presidents have taken office: R.J.C. Brown (Consultative Committee for Units (CCU)) and G. Ripper (Consultative Committee for Acoustics, Ultrasound and Vibration (CCAUV)). He recalled that the CCU, at its meeting in April 2024, had recommended to the CIPM that a new version of the 9th edition of the SI Brochure (v3.01) be published, incorporating the changes suggested by the CCU Task Group and Focus Group considering angles, dimensionless quantities, counting and number quantities. This has been done and the new version includes a note to explain the changes, signed by the Presidents of the CCU and CIPM and the Director of the BIPM.

He recalled that there had been significant progress with governance issues since the Session II meeting and that this will be discussed during this meeting. In addition, the CIPM Sub-Committee on Finance (FSC) and the BIPM Pension Fund Advisory Board (PFAB) met during the period and the outcomes of these meetings will be presented.

The bureau had noted that § 8 on the agenda will include a discussion on the value of the ‘point’ applicable to salaries and pensions. They decided that according to Decision CIPM/113-18 (2024) a representative of the BIPM Commission for Conditions of Employment (CCE) could attend during the discussion as an observer.

The President said that feedback on the BIPM Workshop on Accelerating the adoption of Quantum Technologies through Measurements and Standards, which had been held on 21–22 March 2024, will be given later in the meeting by J.-T. Janssen.

He recalled that he had given a presentation on the CIPM strategy to the meeting of Young Metrologists, held at the BIPM headquarters in July 2024. The CIPM has received a copy of the Young metrologists’ 2050+ vision, which will enable the CIPM to complete its own strategy report. The CIPM will finalize its strategy in §5 and the discussions will include a publication schedule.

The President noted that he had given a presentation on the CIPM’s vision for the BIPM at IMEKO 2024 in Hamburg (Germany) in August.

The Selection Committee will update the CIPM on the recruitment of the next Director of the BIPM in §7.

5. CIPM STRATEGY UPDATES AND NEXT STEPS

The President gave a summary of the work of the CIPM Sub-Committee on Strategy towards the development of the CIPM Strategy 2030+. He recalled that in June the CIPM had agreed that the strategy should reference all the input received during its development and should detail the major successes that have already been achieved, such as the establishment of the CIPM Sectorial Task Group on Climate Change and Environment (CIPM-STG-CENV) and the Forum on Metrology and Digitalization (FORUM-MD).

The President said that the CIPM has added two new challenges to the strategy document: Artificial Intelligence (AI) and Quantum Technologies. An additional section on “new metrology” will be included by summarizing information in the Young metrologists’ 2050+ vision document. New text on the redefinition of the candela will be added to the document by the end of November 2024.

D. del Campo Maldonado asked if the CIPM Strategy 2030+ should include an update on the possible revision of the International Temperature Scale (ITS). She said that the Consultative Committee for Thermometry (CCT) has discussed the conditions that will need to be met before the ITS can be revised. The conclusion is that this is a medium- to long-term project and a paragraph can be prepared for the strategy, but it will be the responsibility of the CIPM to decide its suitability for inclusion. D. del Campo Maldonado said that the scale may eventually be replaced by direct measurements of thermodynamic temperature. Following a discussion, the CIPM agreed that a paragraph should be included on the revision of the ITS, even if it is a long-term project, because the CIPM Strategy 2030+ should be a visionary document.

The President asked members of the CIPM for feedback on what to include in the strategy document relating to standards and traceability in biological quantities. The CIPM, at its June meeting, had suggested the following text: *“The CIPM should consider how the unit system works for biology, and how it may have to adapt over the next 10 years to address the needs of biological measurements.”* S.-R. Park said that there is a misunderstanding in the biological measurements community over international units, unit one and their application when applied to biological quantities. He suggested that the CIPM should consider how the unit system works for biology. The President said that the discussion should continue later in the meeting with the President of the CCU to decide whether to accept the text that has been suggested or if it needs changes. The Director recalled that the chemistry and biological measurement community has achieved significant progress over the last 10 years, for example with the creation of the CCQM Working Group on Nucleic Acid Analysis (CCQM-NAWG), the CCQM Working Group on Protein Analysis (CCQM-PAWG) and the CCQM Working Group on Cell Analysis (CCQM-CAWG). These groups have introduced the basis for comparable measurements that did not exist a decade ago to large fields within the biology sector. He suggested that the CIPM Strategy 2030+ should reflect these achievements and be more ambitious. S.-R. Park highlighted the complexity of measurements in biological systems, noting that there is a danger of oversimplification if SI units do not reflect the real measurement requirements. It is technically possible to use SI units for biological measurements, but further investigations are required to ensure that complex needs are met. The Director added that the discussions on biological measurements should focus on comparability of measurements, rather than simply whether the SI is applicable. NMIs are already producing comparable measurements for biological quantities and the outlook is positive. The President summarized by suggesting that the short text that has already been proposed could be supplemented by a paragraph on the current situation and vision for comparable biological measurements.

The President asked V. Coleman to give an update on progress with the “universal adherence” project in relation to the CIPM Strategy 2030+. She said that the CIPM had previously been informed about the possibility of introducing the category of affiliate status. After some detailed review, this has now changed to “Observer” status that will allow those states that have not yet acceded to the Metre Convention and that are not Associates of the CGPM to adhere. The option of Observer status will also open the possibility of participation in BIPM activities by international organizations. The CIPM is discussing how to minimize the effect on existing Member States and Associates, whilst making the opportunity valuable to new states. V. Coleman noted that these states are primarily those that meet the UN criteria for the least-developed economies and that many are small island

micro-states. One of the main requirements would be for such states to demonstrate that they have adopted the metric system and that they use UTC. They would also be expected to agree to adhere, in good faith, to the terms of relevant resolutions adopted by the CGPM.

The President thanked V. Coleman and said that the CIPM Strategy 2030+ will not go into details of the proposals for universal adherence but will include a statement about it. A draft resolution on universal adherence will be presented to the 28th meeting of the CGPM (2026) and the procedure for becoming an Observer will need to be ready for implementation if the resolution is adopted. The plans for universal adherence will be presented to the NMI Directors and Member State Representatives at their meeting on 17–18 October.

Future CIPM and BIPM

The President presented a statement on the future of the CIPM that is proposed for inclusion in the CIPM Strategy 2030+. This statement is available in §8 of the report of Session II of the 113th meeting. It was reiterated that the sentence “*The CBKT programme is an indication of how the CIPM is trying to accomplish these activities*” should be included after the statement. He added that the statement could include a paragraph giving details of how the CIPM intends to ensure that its composition is optimized to tackle the world’s major issues and new technologies. This paragraph will confirm that the CIPM will be able to coopt experts to future discussions on topics where it may lack specific expertise.

The President then presented a proposed statement on the future of the BIPM. The original statement was also published in §8 of the report of Session II of the 113th meeting. This statement included the phrase “*The BIPM laboratories should focus on fulfilling the traceability needs of the smaller NMIs around the world.*” The Director asked the CIPM to clarify what it means when it refers to smaller NMIs. He noted that the ten largest Member State contributions were approximately 60 % of the total dotation and the statement could be misinterpreted to mean that attention will be refocused on the smaller NMIs, rather than the medium and large NMIs. The largest States receive services that, pro rata, reflect their contributions. This perceived refocusing would not be in line with the needs of the larger and medium-sized NMIs and the facilities offered and services developed for them by the BIPM. G. Rietveld agreed with the Director and added that the word “focus” is ambiguous as it could mean “to concentrate on” or “include”. This could imply that the smaller NMIs were previously ignored or not included, which is not the case. J.-T. Janssen commented that the two statements on the future BIPM have a broad scope, from tackling the grand challenges for metrology through to the provision of “traditional” metrological services to smaller NMIs. He asked if sufficient resources are available at the BIPM headquarters to cover both areas at the same time.

C. Denz said that the CIPM may need to refine the definition of what is meant by “future BIPM” depending on the content of the future By-Laws project. She also commented on the sentence “*The direction of the laboratories needs to align with the priorities in the strategy and this will require them to change*”. She said that if the laboratories are already aligned with the strategy, they will not be required to change. Therefore, the second part of the sentence “and this will require them to change” can be deleted. V. Coleman noted that the CIPM should take into account whether there are appropriate structures in place at the BIPM headquarters, for example future measurement capabilities, to handle additional work related to new technologies recommended in the strategy.

S.-R. Park asked for clarification if the reference to NMIs in the two statements on the future CIPM and BIPM includes DIs. The President confirmed that NMIs and DIs will be treated equally throughout the document and a statement to this effect will be included in the introduction. Any references to NMIs will therefore also refer to DIs.

J. Olthoff proposed that the statement on the future BIPM should reflect the increasing role of the BIPM in engagement with other international organizations (IOs) and how it acts as a single point of contact with them for NMIs around the world. The statement should include a sentence to reinforce that the future BIPM will continue to be a centre of metrology expertise. The President replied that this would be a good topic for the start of the statement.

The Director suggested that the strategy document could include boxes with background facts and figures to inform readers about topics such as the balance of contributions or services in the laboratories. For example, the services offered by the mass laboratory are used by all Member States and time services are based on data from 85 laboratories around the world. The President replied that statistics related to services could be included. He said that he will ask the Director and bureau members to assist with drafting the strategy document.

The CIPM discussed the necessity of referring to “smaller NMIs” in the statement. It was agreed that this should be changed to “all NMIs”.

S.-R. Park said that the staff of the BIPM headquarters may not have all the expertise required to deal with every topic included in the proposed strategy. He suggested that the BIPM should be open to allowing staff with specific expertise from the NMIs to work in its laboratories as required. The Director thanked S.-R. Park for raising this point and recalled that some of the areas where the BIPM headquarters has made rapid progress are due to the support of secondees from the NMIs. For example, some of the facilities in the Chemistry Department were developed by recently retired staff from NIST and the National Oceanic and Atmospheric Administration (NOAA). He added that the staffing model for the BIPM headquarters in the future may have more emphasis on experienced scientists bringing their experience to develop facilities, together with younger secondees receiving training. J. Olthoff agreed and suggested that the BIPM headquarters needs to remain as a centre of excellence to ensure that it continues to be an appealing place in which to work. C. Denz proposed that the organization of the laboratories may need to change to align with such a staffing model. The Director suggested that the CIPM could mention in its strategy that it is signalling its support to the BIPM to encourage people to engage in its work. H.A. Frøystein recalled that in ionizing radiation there are collaborative arrangements in place with institutes in the greater Paris area and suggested that similar arrangements could be sought in other areas of work.

The President said that the CIPM needs to emphasize the requirement to retain expertise at the BIPM headquarters following the introduction of the revised SI. The Director noted that the chemistry, ionizing radiation and time departments have never relied on artefacts and their day-to-day work was unchanged following the revision of the SI in 2018. G. Rietveld recalled that the BIPM has been involved in quantum electrical metrology for about 30 years and the BIPM has a crucial role in assuring that the world-wide implementation of the quantum revised SI is consistent. He added that this is one of the BIPM’s core roles. The “larger” NMIs benefit from the work of the BIPM in this area and its move into quantum AC measurements will add further value. The President answered by saying that the strategy or the accompanying paragraph should include a strong statement that ongoing expertise is needed in the BIPM laboratories to ensure support to the revised SI.

The President presented the timetable for completion of the CIPM Strategy 2030+. He said that he will need the final input from CIPM members by mid-December 2024. The final draft will be completed by the end of January 2025. The report will be typeset by the end of February ready for final discussions at the next CIPM meeting in March 2025. The President will make any final changes by mid-April and the document will be ready for publication by the end of April 2025.

6. REPORT FROM THE CIPM SUB-COMMITTEE ON GOVERNANCE

P. Richard, Chair of the CIPM Sub-Committee on Governance, gave the presentation “*Status on the By-Laws of the BIPM and the Rules of Procedure of the CGPM*”. He commented that the presentation will be given to the 23rd meeting of State Representatives and NMI Directors, to be held on 17–18 October 2024.

He said that the By-Laws, Rules of Procedure of the CGPM and a regulation governing the competencies of the Director (delegation of authority) are not yet finalized. The President recalled that the CIPM is responsible, under the terms of the Metre Convention, for appointing the Director and that the Metre Convention explains his or her tasks. The proposed document will explain the tasks and current practice.

C. Denz said that the government representatives from Germany had misinterpreted that the By-Laws could lead to the Metre Convention being changed. This can be avoided by not referring to the Metre Convention to reinforce that it is intended as a standalone document. There is a similar problem with producing a document to outline the competencies of the Director, which are already explained in the Metre Convention. P. Richard replied that the document will clarify that the role of the Director is as an international civil servant with diplomatic status. The President highlighted that the document is not intended to change any existing practices, its aim is to outline best practices.

P. Richard recalled that during the consultation process for the draft By-Laws among the Member States, 75 % of respondents were in favour and 25 % had significant reservations. He commented that there had been some difficulties in ensuring that the documents that had been sent to embassies were transferred to the relevant ministries. This could have added to the low response rate.

The consultation process found no objections to the naming proposals and there were no comments on the CIPM election procedure. The main reservations expressed by the Member States concerned whether the By-Laws can be adopted by the CGPM without a formal ratification i.e. an amendment to the Metre Convention, and their legal effect. P. Richard noted that the position of France regarding the By-Laws is very clear: *“The draft By-Laws in their version of 13 May 2024 set out the provisions of the Metre Convention and the Headquarters agreement without contravening them.”*

The CIPM discussed the next steps, particularly if solutions can be found to the main reservations from the Member States. P. Richard was asked if there is a deadline for Member States to send their comments from the consultation exercise. He replied that comments can be accepted until the end of November 2024 and this deadline will be communicated to the State Representatives at their meeting on 17–18 October.

7. UPDATE ON RECRUITMENT OF THE NEXT DIRECTOR

The President gave the CIPM a brief summary of the process to recruit a new Director of the BIPM. The Secretary presented the timetable, noting that the deadline for submissions is 31 October 2024 and the next Director is expected to be in place in the fourth quarter of 2025. The external recruitment consultancy, Carrhure Executive Search, will provide a list of 10–15 candidates to the Selection Committee on 15 November 2024. The Selection Committee consists of the CIPM President, Secretary, Vice-Presidents, G. Macdonald, V. Coleman, D. del Campo Maldonado and B. Mutter (Head of the BIPM Human Resources Service). The Selection Committee will interview the ten shortlisted candidates online during December 2024 and January 2025. Final interviews with the five selected candidates will take place in Paris on 13–15 March 2025. The interview will be coordinated by Carrhure and B. Mutter and the Selection Committee will choose the top candidates. The Selection Committee will meet on 17 March 2025 to propose a recommended candidate and up to two alternatives. The CIPM will be informed of the final decision by the end of March and a secret ballot will be held before the end of the month.

The CIPM discussed whether or not there is a conflict of interest in acting as referees for potential candidates, the final selection process by the full CIPM, and the secret ballot. The Director recalled that the Metre Convention allows the CIPM to take a vote by correspondence but not electronically. During the 27th meeting of the CGPM, a number of Member States made it clear that they did not support voting for individuals to certain positions by electronic mechanisms. The CIPM should consider this when deciding on the process.

8. ORGANIZATIONAL GOVERNANCE ISSUES

BIPM Pension Fund Advisory Board (PFAB)

G. Macdonald gave a report on the activities of the PFAB. The PFAB had met on 27 September 2024 and discussed the findings of the latest Asset Liability Management Study conducted by Mercer. It also noted that the CIPM Sub-Committee on Finance (FSC) at its meeting on 12 June 2024 had considered whether the transfer of a fourth tranche of unreserved cash to the Pension Fund might be possible and the FSC had concluded that the reserves were sufficient to allow this to go ahead. The PFAB therefore recommends that under article 16.2 of the Financial Regulations, the CIPM authorize an additional cash injection of 3 million euros to the BIPM Pension Fund before the end of 2024.

The CIPM asked if there is a cap on the number of transfers that can be made from the unreserved cash to the Pension Fund. G. Macdonald replied that this is a discussion for the FSC. The Director said that the intention is to put in place an investment strategy recommended by financial experts that will stabilize the Pension Fund. The BIPM finances are exposed to inflation as salary and pension increases are linked to inflation but dotation increases are not. The investment portfolio should therefore target a reasonable level of returns as well as some protection against inflation. P. Richard added that aiming for a return on investments of 4 % would expose the Pension Fund to some risk. There would be less of a risk if a fourth payment of 3 million euros of unreserved cash into the BIPM Pension Fund was made and a lower return on investments could be targeted.

The CIPM discussed the level of the transfers of unreserved cash and the background to the payments. G. Macdonald suggested that the CIPM should return to the discussions on the possible transfer of a fourth tranche of unreserved cash to the Pension Fund after the report from the FSC. This would allow a decision to be taken if required. G. Rietveld commented that the minutes should record that the proposed fourth transfer may not be the last. Future transfers of unreserved cash into the Pension Fund may be required. P. Richard added that this is the last injection of unreserved cash in order to achieve a sustainable Pension Fund according to present knowledge.

The Director recalled that stabilizing the Pension Fund has been a major task over the last 12 years. The task has not only involved the transfer of unreserved cash; it has also included significantly increased contributions by staff. The contribution rate to the Pension Fund by staff ranges from 19.6 % to 15 % depending on starting date and their level of benefits.

The President noted that 12 years ago the Pension Fund was not in a financially viable situation and the CIPM has taken difficult decisions, which have had an impact on the staff and pensioners, in order to stabilize it.

CIPM Sub-Committee on Finance (FSC)

P. Richard said that the FSC had met on 12 June 2024 ahead of the previous session of the CIPM. The report of that meeting had already been presented and approved by the CIPM. It had discussed the transfer, the value of the point and the budget for 2025. All three topics had been recommended.

The Director gave a presentation to support the CIPM decision making on finance topics. He started with the proposed exceptional transfer of 3 million euros of unreserved cash to the Pension Fund. If the CIPM approves the transfer, the BIPM would end 2024 with reserves of approximately 10 million euros, which is 4 million euros more than the amount that the CIPM requires to cover for unexpected circumstances. Hence, the FSC has concluded that the transfer is affordable.

The CIPM discussed the presentation and focused on the background to the budgetary surplus that allows the amount of unreserved cash to increase. The Director replied that this is due to good financial management practices and a historic underspend on building investments. The latter has been tackled by changing staff responsibilities for building maintenance so that spending is aligned to the budget. In addition, there is an underspend on staff costs associated with the time delay between staff leaving and replacements being recruited and the hiring of staff on lower salaries to replace departures. The CIPM agreed the following decision.

Decision CIPM/113-27 (2024) Recalling Decisions CIPM/106-07 (2017), CIPM/109-12 (2020), CIPM/110-18 (2021), CIPM/111-15 (2022), CIPM/112-31 (2023) and following the review of the BIPM reserves and the consequent recommendation from the CIPM Sub Committee on Finance meeting held on 12 June 2024, the CIPM decided to authorize a fourth exceptional transfer of 3 million euros of unreserved cash to the Pension Fund, effective by the end of 2024.

The Director presented the budget for 2024 and 2025. The budget for 2024 includes savings of 200 k euros in terms of staff costs and additional savings from fuel costs and lower than expected electricity tariffs. The budget for 2025 will require a 10 % increase in laboratory expenses. It has been balanced in 2024 due to an underspend on transport of materials and travel but this will not be possible in 2025. In addition, the BIPM requests an increase in the budget for complementary staff from 309 k euros to 350 k euros in 2025 to achieve the target of 13 FTE complementary staff in 2026. P. Richard added that total revenue for 2025 remains the same as the budget agreed at the 27th CGPM (2022) and total expenses are lower. The proposed changes simply represent a readjustment of the figures.

The CIPM discussed the budget and the Director confirmed that the budget will be balanced over the four years of the Work Programme and the budget for 2025 and 2026 includes provisions to cover the costs associated with the 150th anniversary and the 28th meeting of the CGPM. The CIPM agreed a decision on the budget.

Decision CIPM/113-24 (2024) The CIPM decided that the budget for 2025 should follow the expenditure agreed by the CGPM at its 27th meeting (2022) with updated values for the staff cost and electricity cost as presented to the CIPM Sub-Committee on Finance and the CIPM by the BIPM Director.

The Director presented a proposal for the value of the point for salaries and pensions for 2025. The proposal is for a 2.5 % increase in 2025, which follows the consumer price index calculated by the services of the Coordinated Organizations. The text of two decisions was presented, which were agreed by the CIPM.

Decision CIPM/113-25 (2024) The CIPM decided that the value of the point applicable to salaries be revised on 1 January 2025, in accordance with Regulation 10.2 of the Regulations applicable to BIPM staff members, by 2.5 %, which will allow the BIPM to meet its financial obligations and essential operating requirements, while safeguarding the interests of staff given the particularly high inflation rate in France.

Decision CIPM/113-26 (2024) The CIPM decided that the value of the point applicable to pensions be revised on 1 January 2025, in accordance with Rule 17.4 of the Rules of the Pension and Provident Fund, by 2.5 %, which will allow the BIPM to meet its financial obligations and long-term financial sustainability of the Pension Fund, while safeguarding the interests of pensioners given the particularly high inflation rate in France.

9. PLANS FOR THE 28TH MEETING OF THE CGPM (2026)

The Director recalled Decision CIPM/113-10 (2024), which stated that the 28th meeting of the CGPM will be convened during the week beginning 12 October 2026 and that it will be organized over three days. The Palais des Congrès, Versailles, has been booked for the conference. He reminded the CIPM that the conference would be held over three days because many of the discussions on the long-term vision and strategy will take place during the week of the 150th anniversary in May 2025.

The Director presented a preliminary list of draft resolutions for consideration:

- A. On the universal adherence to the Metre Convention
- B. Towards a new definition for the second
- C. On the continuous nature of UTC
- D. On the definition of a timescale on the moon
- E. On the digital transformation of metrology
- F. On the importance of measurement science for addressing climate change
- V. The dotation for the period 2028-2031

The President suggested that there should be another draft resolution on strategy. He asked if the By-Laws would require a resolution or a decision. The Director referred to a hierarchy of norms and noted that in this scheme, the highest level document is the Metre Convention, followed by Resolutions of the General Conference, Decisions of the General Conference and Procedures of the General Conference. By-Laws, which are considered as higher norms, cannot be approved by a Resolution because a Resolution is a subsidiary instrument to a By-Law. The adoption of the By-Laws will require a special process. The Director added that the General Conference will have to open with the By-Laws as they include proposed new practices that affect the Conference. These new practices can then be used during the remainder of the Conference. Therefore, the first agenda item should be the adoption of the By-Laws by the agreed special process.

The CIPM cautioned that if the By-Laws are not adopted, this will affect the remainder of the Conference. The Director replied that a contingency plan will be required to deal with such a situation. This could be similar to the plan developed for the 27th CGPM (2022) that dealt with the possible rejection of the special procedure for electronic voting and on-line participation. G. Macdonald asked if adoption of the By-Laws needs to be unanimous. The President replied that this is being discussed with the BIPM Legal Adviser and the situation will be made clear before the General Conference. He added that the CIPM is working towards achieving consensus on adoption of the By-Laws among the Member States before the General Conference.

The CIPM expanded on the President's suggestion for a draft resolution on strategy to encompass "new metrology" topics such as quantum metrology and artificial intelligence. W. Louw agreed to produce the first draft.

The President said that the final draft resolutions must be complete by October 2025 so that they can be sent in the Convocation in January 2026. He suggested that the first drafts should be available for review by the CIPM at its next meeting.

The Director concluded by presenting a timeline for preparation of the BIPM work programme, long-term financial plan and dotation bid.

10. REPORT BY THE BIPM DIRECTOR

The Director gave the CIPM an update on staff changes at the BIPM headquarters since their last meeting in June 2024. A. Villevalde (Ionizing Radiation Department) and C. Robertson (Chemistry Department) have started work to replace D. Burns and S. Westwood following their retirements. A. Rohrer-Morris has been recruited as the *ad interim* Principal Legal Adviser during the period of loan to UNESCO of F. Rojas. B. Mutter is the new Head of HR following the resignation of F. Aktas. L. Parry-Davies has been recruited as a Senior Communications Officer following the resignation of D. Vlad. Two new Executive Secretaries have been appointed: R. Coulon at the Consultative Committee for Acoustics, Ultrasound and Vibration (CCAUV) and G. Panfilo at the Forum on Metrology and Digitalization (FORUM-MD). The Director commented that the gender balance among the 25 senior staff at the BIPM is split 12:13 between female and male staff.

Operational activities included the transfer of the BIPM's banking arrangements, including the Pension Fund investments, from the HSBC to Société Générale. Mercer is carrying out an investment study for the pension fund and the findings will be presented to the PFAB before the end of 2024. The BIPM is recalculating the Member State contributions now that a new draft of the UN scale has been published for 2025–2027. The draft scale is published during September/October but it is not ratified until 1 January of the following year. The BIPM has previously waited until ratification to carry out the recalculation, resulting in the calculation being out of synchronization with the scale. The Director has discussed this matter with the Member State representatives who agreed that it is acceptable to use the draft values in the calculation. Historically, the draft values have always been endorsed. If the draft figures were not endorsed, the BIPM would have to make a correction. The draft UN scale for 2025–2027, when used to recalculate the contributions, will not result in any increase for the Member States paying the maximum and minimum and Associates paying the minimum, apart from the 1.5 % increase in the dotation. There will be small changes for the other states.

The Director said that the BIPM has completed the first cycle of a new risk management assessment and the results will be reported at the quality review meeting with the CIPM Secretary in February 2025. The BIPM used a conformity tool developed by a French university, which gave a 70 % conformity level with ISO 31000 "Risk management". The BIPM has bought and installed a helium liquefier at a cost of 280 k euros to help overcome supply problems. The BIPM had been spending 40-50 k euros annually on liquid helium when it is available.

The service for the manufacture of 1 kg Pt/Ir prototypes at the BIPM is to be closed. A last polishing exercise for a stack of Pt/Ir absorption artefacts will be carried out for NIM (China).

The Director presented a summary of major events since June 2024. The first summer school on qNMR measurement techniques was held at the BIPM headquarters on 24–28 June with 25 participants. The CCQM held an online digital workshop on Digital and FAIR Chemical and Biological Reference Data and Certificates: Challenges and Opportunities on 9–12 September, with 431 participants. The CIPM Sectorial Task Group on Climate Change and Environment (CIPM-STG-CENV) held its first stakeholder meeting on 16–18 September with 92 participants at the BIPM headquarters and a further 240 online. The Joint Committee of the Regional Metrology Organizations and the BIPM (JCRB) held its 48th meeting on 24–25 September with 28 participants at the BIPM headquarters and seven online, and the Consultative Committee for Length (CCL) met on 10–11 October, with 46 onsite attendees and 33 online participants.

Official visits since the last session of the CIPM included a visit by Prof. Rong Zeng, Vice-President of Tsinghua University, with Prof. Shisong Li on 28 August 2024. The delegation discussed the next generation of Kibble balances. Mr Alexey Diachenko, Counsellor in the Russia Embassy in Paris, visited on 6 September to discuss the By-Laws project. The Director attended the opening of the Świętokrzyski Laboratory Campus of the Central Office of Measures (GUM), Poland, on 9 September. On 24 September, the BIPM headquarters hosted a visit by Joanna Villarreal Rodriguez, chargée d'affaires at the Embassy of the Republic of Panama and on 10 October a delegation visited from the Embassy of Costa Rica, including Francisco Gamboa Soto, Minister for the Economy. A capacity building activity planned for Costa Rica is being sponsored by the NPL (UK).

The Director highlighted two events that have taken place at the BIPM headquarters. A group of students from the International Congress of Astronomical Youth visited on 29 June as part of their meeting in Paris. The annual *Journées du patrimoine* attracted 800 visitors on the weekend of 21–22 September. The BIPM headquarters has welcomed almost 3000 visitors over the five years it has participated in the *Journées du patrimoine*.

11. UPDATES FROM THE BIPM HEADQUARTERS

International Liaison and Communication

A. Cypionka reported that there are currently 64 States Parties to the Metre Convention and 36 Associates of the CGPM. Nine of the Associates are on the escalator mechanism, with five being on the final step. The ILC Department has sent *Notes Verbales* to the Embassies in Paris of Argentina, Iran and Tunisia to chase outstanding payments over the last nine months. Argentina and Tunisia have responded by making payments during 2024 and discussions are ongoing with the Iranian Embassy and its NMI.

Discussions are under way with Azerbaijan, Luxembourg, Panama and Uzbekistan regarding their possible accession to the Metre Convention. In addition, the department has interacted with Armenia, Bahrain, Côte d'Ivoire, Fiji, Guatemala, Kosovo, Kyrgyzstan and Uganda regarding the possibility of becoming Associates. The BIPM has been in contact with the excluded Member States, Dominican Republic and Venezuela, and the excluded Associates, Cuba and Sudan, regarding their potential reinstatement.

The ILC Department has undertaken a range of liaison activities over the last nine months. A World Metrology Day Launch Event was held at the United Nations Educational, Scientific and Cultural Organization (UNESCO) headquarters on 14 May 2024. In addition, preparations are under way for the World Metrology Day 2025 and 150th anniversary celebrations at the UNESCO headquarters on 20 May 2025.

The BIPM was granted Observer status by the Intergovernmental Panel on Climate Change (IPCC) in August and a delegation from the BIPM will attend the United Nations Framework Convention on Climate Change (UNFCCC) COP 29 meeting in Baku (Azerbaijan) in November 2024.

A. Cypionka recalled that the BIPM attends World Trade Organization (WTO) Technical Barriers to Trade (TBT) meetings as an Observer and the Australian delegation to these meetings has drafted a proposal to organize a side event or thematic session at the WTO meeting in 2025 to mark the 150th anniversary of the signing of the Metre Convention. This side event would focus on metrology or QI and its importance for developing countries. The event would also allow the BIPM to promote its proposed new category of Observership to boost universal adherence. The Secretary noted that the proposal by the Australian delegation is supported by Japan.

The BIPM and United Nations Industrial Development Organization (UNIDO) are coordinating outreach activities to organize a side event or thematic session at the UNIDO General Conference in 2025 to celebrate the 150th anniversary. UNIDO operates technical projects in regions such as Africa and the Pacific Islands, where the BIPM could contact potential Observers. The ILC Department is involved in negotiating a new Memorandum of Understanding with the International Commission on Illumination (CIE).

A. Cypionka finished the presentation by inviting the members of the CIPM to attend a full-day joint BIPM/OECD Workshop on Quality Infrastructure and Regulation to be hosted at the BIPM headquarters on 6 December 2024. The workshop will include a presentation of a draft study that was developed during R. Guliyeva's loan to the OECD. Details of the workshop which is partly funded by PTB were presented.

The President thanked A. Cypionka and invited questions. The Director noted that the text of the agreement being developed for the CIE will be presented to the CIPM for approval.

Young Metrologists' 2050+ vision

C. Kuanbayev presented the background to the initiative, which started in 2023 with the guiding question "what do young metrologists think metrology will be like in 2050+". The plan to launch the "Young Metrologists' 2050+ Vision" initiative was presented to the 27th CGPM (2022). He gave details of the process that included a series of workshops between November 2023 and April 2024 involving 380 young metrologists from all six RMOs. The aim of the workshops was to explain the background to the questions included in a questionnaire and to debate the challenges and opportunities. Following the workshops, the BIPM received over 170 responses

to the online questionnaire by the end of June 2024. The average age of the participants was 35 years old.

The responses to the questionnaire, the discussions at the online sessions and the ideas of the young metrologists and the RMO coordinators were brought together to create the Young metrologists' vision for 2050+. The vision can be summarized as follows: *“Our vision for global metrology: Metrology, as a cornerstone of natural sciences, must evolve together and drive advances in technology, supporting all stakeholders based on collaborative capacity and capability building to co-shape the future.”*

C. Kuanbayev said that the ideas suggested by the young metrologists were collated by the RMO coordinators and grouped into 13 topic areas on challenges and opportunities that will impact metrology in 2050 and beyond. The young metrologists identified seven key areas for action.

C. Kuanbayev completed his presentation by reflecting on some of the outcomes.

- Quantum technology will accelerate the “convergence” of metrology areas.
- Digitalization is already a “gamechanger”, which will require metrologists with new skills and mindsets.
- AI and sensor networks are promising technologies, however, it is essential to first ensure data reliability.
- The metrology community will have to consider “outer space” where measurement can be trusted anywhere.

He said that young metrologists are eager to engage and get involved in strategy development for the future of metrology. They have fresh and visionary ideas that can be realized through the support of their home organizations. Their wish is to have greater access to information on global metrology issues and they are interested in communicating and networking within their groups. He thanked K. Sung from KRISS for his support throughout the initiative. The President thanked C. Kuanbayev and invited questions and comments.

D. del Campo Maldonado said that the Young Metrologists initiative has been very successful in EURAMET and they have proposed the establishment of a permanent structure to encourage interactions between all metrologists to share their ideas. C. Kuanbayev added that the workshops have acted as a catalyst for the RMOs to set up internal networks and that the initiative was not intended not only to be an exercise in reaching a consensus on the best ideas, it was also intended to find new and visionary ideas. C. Kuanbayev confirmed that the report of the [Young Metrologists' 2050+ vision](#) will be made available immediately after the CIPM meeting. The CIPM commented that the vision could imply that metrology, by its nature, progresses more slowly than advances in technology. This would suggest that metrology is not fast enough to meet the needs of its stakeholders. C. Kuanbayev clarified that the message from the young metrologists is that metrology is always having to work hard to keep pace with technological advances. The young metrologists emphasized that the global vision for metrology should stress that metrology and technology need to evolve together.

P. Richard commented that the number of participants from EURAMET and SIM was small compared to the other RMOs and asked if there was a reason for this. C. Kuanbayev replied that EURAMET had applied a restriction of having been a metrologist for less than five years on participants. P. Richard then asked about the criteria that had been used to select the best responses. C. Kuanbayev said that in order to be selected, an idea had to be original and not part of the CIPM strategy 2030+. V.G. Achanta asked if there are any plans to keep this initiative going among young metrologists to maintain the momentum. C. Kuanbayev said that the BIPM does not plan to continue with the initiative, instead the RMOs will promote networking and encourage young metrologists to develop their own network within the RMO structures.

The President thanked everyone involved in the Young Metrologists' 2050+ Vision initiative and said that he has asked C. Kuanbayev to provide a summary that can be used in the CIPM vision 2030+. The full document will be referenced from the CIPM vision.

Time Department

P. Tavella said that the Time Department now has seven members of staff, including, since May 2024, a new software engineer, F. Collini. She added that secondees are fundamental to the work of the department. The department has been working on three main areas from the strategy for time metrology for the Work Programme 2024-2027: improving the performance and universality of UTC; achieving the best use of new optical frequency standards; and promoting the importance and benefits of UTC.

P. Tavella said that the high performance and global reach of UTC is demonstrated by the 85 laboratories around the world that contribute to UTC each month. She gave a brief history of UTC since its inception in 1967. P. Tavella noted that although it is encouraging to welcome UTC laboratories from new countries to boost the global reach, the quality of the data that they contribute is also important. Capacity building is vital to help improve the quality of the input data. A Consultative Committee for Time and Frequency (CCTF) capacity building programme started on 1 October 2023 with the help of secondees from NICT (Japan), NPLI (India) and NIST (USA). Training sessions, online workshops and summer schools are being organized within the RMOs.

P. Tavella continued by presenting how the department is improving the accuracy and stability of UTC. She said that optical frequency standards have the potential to contribute to UTC with an accuracy of 10^{-18} , which is 100 times better than the current microwave-based frequency standards. In order for optical frequency standards to contribute, the UTC algorithms will need to be revised to deal with automated data pre-processing and detection of anomalies. In addition, the optical frequency standards will use advanced time and frequency comparison systems at 10^{-18} for future integration into UTC. She added that there is an opportunity for a secondee to assist with this work.

The department is actively involved in the comparison of optical clocks over long distances at an accuracy of 10^{-18} . The use of optical fibres is promising but it is currently limited to continental links. Portable optical clocks are under development but require further work. Optical signals in space using a two-way comparison via satellites shows promise. Several other candidate techniques can achieve accuracy at the 10^{-17} level. The Global Navigation Satellite System (GNSS) Integer PPP technique can achieve an accuracy level of $<1 \times 10^{-16}$ after several days. This technique is readily available without constraints and is being studied by the BIPM. Satellite two-way carrier phase can achieve an accuracy of $<1 \times 10^{-16}$ after one day and is available with constraints. The ESA-Atomic Clock Ensemble in Space (ACES) microwave link has an accuracy of 1×10^{-17} after one to several days and is scheduled to launch in early 2025, for installation on the International Space Station.

P. Tavella said that digitalization is fundamental to the work of the Time Department. It has developed two Application Programming Interfaces (APIs) to access data from UTC and the list of recommended values of standard frequencies for secondary representations of the second. Details of the APIs were given. The Time Department is working with a secondee from PTB to develop a prototype data exchange format that will enhance the semantic content of UTC – UTC(*k*) products by connecting to the SI Reference Point.

P. Tavella completed her presentation by commenting that the Time Department is publishing the offset between UTC and the prediction of UTC broadcast by GNSS UTC - bUTC_{GNSS} in Section 4 of *Circular T*. The computation of UTC has included data from BeiDou and Galileo since June 2024.

Update on *Metrologia* and proposals for future actions

J. Miles gave a brief presentation on *Metrologia*, recalling that the journal was set up by the CIPM in 1965 to promote the work of the NMIs and the BIPM, and 2025 will be its 60th anniversary.

She emphasized the importance of *Metrologia*'s links with the metrology community, and called for these to be actively reinforced through the NMIs as well as the CIPM's Consultative and other Committees. She suggested that the Consultative Committees appoint ambassadors to help promote *Metrologia* at both CC and external events. Strengthening *Metrologia*'s interface with the community would help ensure that the journal attracts the

most important papers on metrology. An initiative has recently been launched to promote the journal through dedicated webinars at NMIs, and opportunities to extend this to the CCs, RMOs and other groups would be welcomed. J. Miles pointed out that these measures were particularly important now, not only because of the rapidly changing publishing industry but due to the increasing number of “competitor” journals, and particularly those of a predatory nature.

She discussed the Technical Supplement, which while providing an important service for the CIPM MRA through raising the profile of reports of international comparisons, seemed to be impacting certain bibliometric statistics such as the fraction of “uncited” papers. To avoid possible confusion in external databases, including Web of Science and Scopus, she recommended that the Technical Supplement be dissociated from the journal and that comparison reports be published separately. In fact the reports are already published on the BIPM website, but removing the step involving the Institute of Physics Publishing (IOPP) would streamline the process. She noted that the BIPM will be able to register DOIs for the reports.

Finally, she asked the CIPM to consider changing the journal’s publishing model to one of Open Access. She pointed out that this could greatly increase the outreach of papers published in *Metrologia*, but that the results of initial modelling by IOPP indicated that there would be a financial cost. She suggested that for the benefit of the wider metrology community the BIPM forego its split in the journal’s revenue over the coming years. If the CIPM supported this move in principle then she and the Director would pursue negotiations with IOPP.

General support was expressed for all points. CIPM members from the SIM region said they would arrange for *Metrologia* to be included on the agenda of the SIM General Assembly in 2025. With respect to the Article Publication Charge (APC) J. Miles added that the BIPM currently supports the Open Access publication of selected review papers, and it might be possible to extend this CBKT initiative to cover the APC for NMIs that would otherwise be unable to afford it. Following a short discussion, the CIPM agreed the following:

Decision CIPM/113-29 (2024) The CIPM endorsed *Metrologia* as its journal of choice for reporting advances in pure and applied metrology at the highest level, including the best research work undertaken by NMIs and under the auspices of the CIPM’s Consultative Committees and Forums.

The CIPM asked the Consultative Committees and Forums each to nominate one or more ambassadors to *Metrologia*, to strengthen the link between these bodies and *Metrologia* and identify topics of interest for Focus Issues.

In the interest of the whole metrology community, the CIPM asked the BIPM to pursue an Open Access publishing model for the journal, even if this results in a loss of revenue to the BIPM.

The CIPM recommended the creation of a separate entity for the publication of comparison reports and asked the BIPM to identify and implement an appropriate mechanism for this.

12. REVISION OF CIPM-D-01

The Director presented the documents *Proposal for review of the observer status at the Consultative Committees* and *Proposal for rules and criteria for participation in the FORUM-MD*.

He said that the intention of the document was to clarify parts of Section 4 of the document CIPM-D-01. Many CCs find it difficult to apply the criteria for observer status consistently and experience some confusion between what are considered to be two “types” of observer as defined in paragraphs 4.3 and 4.5. Against this backdrop, it is proposed to discontinue the status of observer under paragraph 4.3, and to encourage all NMIs that are eligible and wish to participate in CC meetings to do so under the terms of paragraph 4.5. The text of paragraph 4.3 states that “*Observers qualified under this paragraph may send one delegate who may be accompanied by one expert*”. Whilst paragraph 4.5 states that an observer may “*send one person (only)*”. In order to resolve this apparent inconsistency in the number of participants, it is proposed to reword paragraph 4.5 as follows: “*Member States have the right for*

one national laboratory charged with establishing national standards in the field to be an observer at the applicable CC and following their request to the BIPM Director for each meeting. The maximum number of participants from each observer will be determined by the CC President and the BIPM Director and will be stated in the convocation for the meeting” This text would allow the CC President and the BIPM Director to plan the number of participants permitted from each observer institute in view of the expected space available at the meeting. This rewording of paragraph 4.5 would be accompanied by suppression of paragraph 4.3.

The CIPM discussed the proposal and asked if the proposal would mean that observers would be listed in perpetuity and how the new criteria would be applied. The CIPM also asked what will happen to the existing listed observers and why the CIPM decides on membership of the CCs. The Director replied that the existing listed observers will not be changed. V. Coleman said that NMIs in some countries may require formal recognition of their observer status to justify their travel arrangements to attend CC meetings. The Director replied to the comments by saying that when a national laboratory has been approved to be added to the convocation for a CC meeting, it will automatically be invited to the following meeting and will not need to re-apply. He added that the list of observers to CC meetings is growing and this represents a good way for NMIs to get involved. NMIs that are approved as observers will receive a letter from the Director and the CC President to inform them that they have been included on the convocation. V. Coleman asked about the status of Designated Institutes (DIs), specifically if it possible to have multiple DIs from one country as observers to a CC meeting. The Director replied that this is possible. The President suggested that the concerns raised by the CIPM should be discussed as part of a wider review of document CIPM-D-01.

The President and D. del Campo Maldonado said that the discussion on the *Proposal for rules and criteria for participation in the FORUM-MD* (CIPM2024-III-12-b) should include participation in the Sectorial Task Groups (STGs). C. Denz, Chair of the FORUM-MD, said that it applies rules that were developed for the CCs in CIPM-D-01 for observership but it is a horizontal forum and the aim is to make its membership more inclusive. The nature of the FORUM-MD means that potential observers do not meet many of the criteria outlined in CIPM-D-01. In addition, potential members have to make a presentation. CIPM-D-01 includes wording that is specific to CCs, for example it refers to Presidents, whereas the Forums and STGs have Chairs. It was suggested that CIPM-D-01 should be revised so that it applies to both CCs and horizontal forums. The President said that until CIPM-D-01 has been reviewed, potential observers can write to the Director to request Observer status at meetings of the horizontal forums. D. del Campo Maldonado said that the way the STGs work and their membership model is completely different to the CCs and the FORUM-MD. The STG is following the rules that were drafted in its strategy.

The Director said that document *Proposal for rules and criteria for participation in the FORUM-MD* (CIPM2024-III-12-b) includes suggestions to change the membership criteria in CIPM-D-01 to make it more applicable to the FORUM-MD. The proposed changes were presented. R.J.C. Brown noted that paragraph 4.2 of CIPM-D-01 does not apply to the Consultative Committee for Units (CCU) so it has used a modified interpretation of the rules regarding membership. The President suggested that a task group should be set up to draft a revised version of CIPM-D-01 for presentation at the next session of the CIPM in March 2025. The task group should include the CC Presidents, the Chairs of the FORUM-MD and STG-CENV, the Director and the CC Executive Secretaries.

13. REPORTS FROM THE CONSULTATIVE COMMITTEES

Consultative Committee for Length (CCL)

V. Coleman, President of the CCL, said that it had met on 10–11 October 2024 and a full report will be given at the next session of the CIPM. There had been two applications for membership and one for observership at the meeting. All three applications had met the appropriate criteria in CIPM-D-01. The applications for membership were from

INTI (Argentina) and RISE (Sweden) and the observership application was from SCL (Hong Kong (China)). The CIPM noted that the Consultative Committee for Thermometry (CCT) had received an application for observership from INM (Colombia). It discussed the proposals from both CCs and agreed the following decision.

Decision CIPM/113-30 (2024) The CIPM accepted the following changes to the membership and observership of the Consultative Committees:

CCL:

- INTI (Argentina) as a member
- RISE (Sweden) as a member
- SCL (Hong-Kong, China) as an observer

CCT:

- INM (Colombia) as an observer

V. Coleman recalled that a CCL recommendation from 2007 for the CIPM to adopt a list of standard frequencies had not been presented to the CIPM and therefore not formally ratified. She said that the recommendation from the CCL was that the CIPM should take note of the change so that the list can be updated. The President agreed that this had been an oversight by the CIPM at the time and the CCL can simply go ahead with the update.

Consultative Committee for Ionizing Radiation (CCRI)

J.-T. Janssen, President of the CCRI, presented highlights from the committee in 2024. He said that the CCRI has held five webinars in 2024 and another three are planned by the end of the year. The five webinars attracted 1 000 participants, with between 100-300 per session and 1 600 views on YouTube. The webinars included a workshop on alpha therapy at the BIPM headquarters, which had 60 participants on-site and 300 on-line, including experts from outside the NMI community.

He noted that the new comparator for pure beta- and alpha-emitters, the Extension of the SIR (ESIR), is operational. The first measurements will be with eleven radionuclides, including ^{14}C , and will be made in late October-early November 2024. The choice of radionuclides and the protocol were prepared in full cooperation with KCWG(II) and CCRI(II).

J.-T. Janssen said that 2025 is the 65th anniversary of the BIPM Ionizing Radiation Department and it will use this opportunity to develop a long-term vision together with an update of the CCRI strategy. The proposed Ionizing Radiation Department strategy will be ready to present to the CIPM in March 2025. The timetable for CCRI workshops and meetings in 2025 was provided.

He presented the results of the survey on the ionizing radiation services offered by the BIPM headquarters. The results of the survey will be used in the development of the strategy. Nineteen NMIs responded to the question on what new dosimetry services the BIPM should develop. The majority of respondents would prefer to see the existing services maintained. Other responses requested new comparisons in the areas of high energy electrons, protons/hadrons and other x-ray energies. Fifteen NMIs responded to the question “do you consider calibration services at the BIPM to be essential for your institute and, if so, what are the reasons why you would prefer calibration at the BIPM rather than from another institution.” The ten respondents without primary standards said that calibration services are essential, with better uncertainties being the main reason to use BIPM services.

J.-T. Janssen presented the proposed strategy for radionuclides, noting that the existing SIR is 50 years old and a new SIR 2.0 is under development. When it is complete the two versions will operate in parallel, with the KCRVs being transferred by 2030. The SIR Transfert Instrument (SIRTI) for measuring short-lived radionuclides continues to be developed by implementation of digital electronics. To expand capabilities in the radionuclide community, the RMOs are developing their own copy of the SIRTI to be linked to the BIPM SIRTI and, when they are complete, CBKT activities will be organized by the BIPM. He noted that there are a number

of retirements scheduled in the department over the coming years and this may provide an opportunity to consider changes in the strategy.

In the dosimetry area the BIPM faces a decision on whether to replace the ^{60}Co source. A five-year extension can be requested, which would delay the decision until 2032. It would however be necessary to decide in 2025 whether to purchase another ^{60}Co source or if other options should be pursued, such as finding an offsite source. The BIPM has a contract with DOSEO (at the CEA-Saclay campus, France) at a cost that will rise to 100 k euros annually in the coming years due to increased use of their Linac facility. In addition, the Ionizing Radiation Department carries out its work on ^{137}Cs through an agreement with the International Atomic Energy Agency (IAEA). The BIPM's work on brachytherapy could be terminated at the end of 2027. With all these considerations, the department may pursue the option of making more use of the IAEA's facilities in Vienna (Austria): traceability to ^{60}Co could be achieved via the IAEA facility and the activities carried out at DOSEO could also be transferred to the IAEA site. This would require either sharing of staff between the BIPM and IAEA or considering having staff permanently at the IAEA in the longer term. The implications of providing services in partnership with another international organization will need to be considered carefully, particularly if this would be a better solution for the ionizing radiation community and if it would secure long-term capabilities.

The President thanked J.-T. Janssen and commented that the CIPM appreciated that the Ionizing Radiation Department had taken the initiative to consider the future with these recommendations. The Director said that J.-T. Janssen and V. Gressier had put a lot of work into developing the future strategy for the department. He added that potential sharing of staff and facilities with the IAEA would need a new type of contract that would allow flexibility to best deliver the programme. J.-T. Janssen noted that the IAEA is positive about the proposal. The Director said that the facilities in question at the IAEA are underused and there would be no charge for using them. J.-T. Janssen will discuss the proposal with the scientists that are most involved in the work at the NMIs to obtain feedback on how they would respond to this change in working practices. The President added that a partnership with the IAEA would help to alleviate any future problems with obtaining licenses for nuclear sources.

Consultative Committee for Units (CCU)

R.J.C. Brown, President of the CCU, gave a summary of his background as this was his first presentation to the CIPM. He recalled that he had been asked to chair the 26th meeting of the CCU held on 9–10 April 2024 and has subsequently been appointed as the President. The CCU meeting resulted in eight actions, all of which have been completed.

The CCU Working Group on Strategy (CCU-WG-S) has been reconstituted with new members holding positions of responsibility within the CCU or in relevant CCs. The WG-S has reviewed the application for membership by SASO (Saudi Arabia) and the CCU strategy document.

R.J.C. Brown recalled that the CIPM had approved the 9th edition of the SI Brochure: version 3.01, which was published in late August 2024. This version gives better recognition of the complexity and nuance of units for angle, a better description of the types of quantity with the unit one and simplifies and removes some duplication. R.J.C. Brown and M. Stock have drafted a paper for *Metrologia* to explain the rationale behind the changes in version 3.01. He urged the CC Presidents to review their *mises-en-pratique* to check if they are affected by the changes, particularly the description of the types of quantity with the unit one. The preface to version 3.01 includes a note that the CCU President and Executive Secretary will continue to implement such editorial changes that improve the text of the SI brochure without affecting its meaning. He highlighted the changes that had been made to sections 2.3.4 and 5.4.7.

Two further editorial updates to the SI brochure will be required in late 2024 or early 2025. Version 3.02 will update the value in SI units of the dalton in Table 8. This will reflect the latest CODATA adjustment. A marginal note will be needed in section 3 to add the new binary prefixes for the robi and the quebi.

R.J.C. Brown said that the CCU is thinking ahead to the 10th edition of the SI brochure. Topics under consideration include how to deal with non-SI units in the future and to define what is meant by “accepted for use with the SI”. The CCU Task group on Key Topics in the SI Brochure (CCU-TG-KTSIB) will discuss these topics at its first meeting in November 2024. The CCU President and Executive Secretary will review and make proposals regarding the marginal notes and footnotes. These will be deleted, rationalized, or integrated into the text, to aid digitalization. In addition, the CCU will continue to liaise with the CCTF to represent a redefined SI second in the SI Brochure.

The CCU Task Group on Fundamental Concepts in Metrology (CCU-TG-FCM) has been created from the former Working Group. The TG-FCM is chaired by L. Mari (IEC) and is considering a draft mathematical model to characterize metrological concepts. Its outputs will be relevant to the JCGM-WG2:VIM and digitalization communities.

Consultative Committee for Time and Frequency (CCTF)

N. Dimarcq, President of the CCTF, gave a presentation “Envisaged resolutions from the CCTF at the CGPM (2026)”. The three proposed CCTF resolutions come under the headings: roadmap towards the redefinition of the second, continuous Coordinated Universal Time (UTC) and lunar reference time.

N. Dimarcq recalled that to be ready for a redefinition of the second in 2030, the metrology community needs a consensus in 2026 on: which definition option and which radiation(s) to choose; and a clear, achievable and verifiable roadmap to satisfy mandatory criteria by 2029. He gave an update on the fulfilment level of mandatory criteria in the *Roadmap towards the redefinition of the second* and noted that this will be updated at the CCTF meeting in November 2024. He also presented a table of achievements for ten species and transitions with respect to criteria targets on optical frequency standards. ^{87}Sr with a transition frequency of 429 THz and ^{171}Yb at 518 THz were the candidate species that were most advanced as of August 2024. He noted that the discussions on the choice of ion or ensemble of ions are ongoing and any of the candidates could be selected depending on the outcome of the research. The ultimate choice will be affected by factors such as whether a selected ion is available for use in all regions.

Resolution 5 of the 27th CGPM (2022) *On the future redefinition of the second* encouraged the CIPM to bring proposals to the 28th meeting of the CGPM (2026) for the choice of the preferred species, or ensemble of species for a new definition of the second, and for the further steps that must be taken for a new definition to be adopted at the 29th CGPM (2030). It is expected that a short list of possibilities for a new definition of the second as well as a roadmap to converge on a preferred possibility in 2027–2028 will be ready by 2026. In addition, a detailed and realistic action plan to fulfil criteria will be available and a commitment from the NMIs on the required actions. The CCTF will make the final choice of the species or ensemble of species at its meetings in 2027–2028 and at the same time will provide assurance that the mandatory criteria for the redefinition will be fulfilled before 2030. This will allow the redefinition of the second to proceed at the 29th CGPM (2030).

N. Dimarcq recalled CGPM Resolution 4 (2022) *On the use and future development of UTC*, which decided that the maximum value for the difference (UT1-UTC) will be increased in, or before, 2035. He added that decisions are needed on the extended tolerance for UTC – UT1 and the date of implementation of the new limit. The extended tolerance for UTC – UT1 has three options: one minute (or a few minutes); one hour (connected to daylight saving time); or no limit. The latter option would pass the decision to align UTC to UT1 to future generations and could give the impression that the metrology community is not in control of the system. In terms of the date of implementation of the new limit, which is proposed as being in or before 2035, the International Telecommunication Union (ITU) and some countries recommend 2035 in order to have enough time to update technological systems. Certain other countries and user communities are pushing for the change. The risk of a negative leap second could persuade the time and frequency community to make a change before 2035.

N. Dimarcq said that there is a need for a common Lunar reference time for upcoming space exploration projects. There are many space agencies around the world, as well as other organizations, involved in planned missions

to the Moon and other bodies in the solar system. The time and frequency community is considering how to deal with this complex task. He highlighted the work being undertaken by the International Astronomical Union (IAU), International Association of Geodesy (IAG), International Telecommunication Union – Radiocommunication (ITU-R), International Committee on GNSS (ICG) and the Interagency Operations Advisory Group (IOAG). He noted that there is good cooperation between these groups. The CCTF and BIPM are setting up a Task Group to gather NMIs from countries and continents that are involved in Moon missions and a workshop will be organized with IOs and space organizations. The IAU General Assembly 2024 adopted two relevant resolutions.

- Resolution II: Defines a standard Lunar Celestial Reference System and associated coordinate time.
- Resolution III: Encourages the establishment of a lunar reference time scale by international agreement.

Resolution III considers that UTC, as established by the BIPM based on international collaboration and coordination, has been a successful world-wide reference time scale for operational systems in the near-Earth environment. It recommends the relationships between the possible versions of a lunar reference time scale and other time scales, in particular a lunar coordinate time and UTC, are pursued in collaborative agreement among the relevant international organizations.

The work plan of the ICG Working Group-L (Lunar PNT) includes a recommendation for lunar time systems to coordinate with appropriate IOs and ICG Working Group D (Reference Frames, Timing and Applications) to support standardization of lunar time with traceability to UTC. The Working Group must coordinate, as needed, with other ICG Working Groups and with external IOs, such as the BIPM. N. Dimarcq presented the initial ideas for the content of a resolution on a Lunar reference time for presentation to the 28th CGPM (2026).

The President thanked N. Dimarcq and invited questions. M. Milton questioned Option 2 for the redefinition of the second, which includes an ensemble of transitions. He recalled that there are currently only two candidate species that are sufficiently advanced and asked if the ensemble of transitions is the best option to pursue. N. Dimarcq replied that Option 1 is for a single transition and there is a need to continue the work with other species that are showing a good potential. Option 2 remains viable and there are 6-7 species that have potential, although ultimately, not all of them will be viable. N. Dimarcq was asked how many transportable optical clocks are available as outlined in the *Roadmap towards the redefinition of the second*. He replied that one is operational and four to five others are under development in the NMIs. He expressed a concern that the larger NMIs may decide that they are not ready for a redefinition in 2030; this will be raised at the meeting of State Representatives and NMI Directors on 17-18 October. In response to a question, N. Dimarcq confirmed that a decision on the allowable gap between UT1 and UTC will be made in 2026.

14. REPORTS FROM HORIZONTAL AND JOINT ACTIVITIES

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

J. Olthoff presented the *Report to the CIPM from the JCRB*. He noted that the JCRB had held its 48th meeting at the BIPM headquarters on 24–25 September 2024. He said that the meeting demonstrated that the RMOs are vibrant and active in ensuring the quality systems of the NMIs. Full details of the meeting are given in the report, including actions and resolutions.

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

D. del Campo Maldonado, Chair of the CIPM-STG-CENV, presented the *Report on the activities of the STG-CENV*. The CIPM-STG-CENV held its first stakeholder meeting at the BIPM headquarters on 16–18 September 2024. Full details of the meeting, including conclusions and proposals are given in the report. The document *Summary outputs of the first CIPM-STG-CENV stakeholder's meeting* was also presented. She emphasized that

it would be useful for each biennial stakeholder meeting to provide an update on metrology activities that were on-going at various levels and indicating where NMIs play a role, notably within: CIPM CCs and their WGs/TGs; regional projects and groups; national projects and groups; and groups and projects organized by International Organizations.

The CIPM-STG-CENV decided that it should maintain a small coordinating core group as an appropriate structure to achieve its goals. Additionally, it recommended an update to the structure of the core group to include representatives from the metrology community covering CCs and RMOs with active programmes in the area, IOs with measurement programmes within the scope of the task group and experts with competencies in the fields covered by the group. In terms of IOs, alongside plans to include the World Meteorological Organization (WMO) and the Global Climate Observing System (GCOS), it would be necessary to incorporate representatives from other IOs and programmes responsible for observations including the oceanographic community, such as the Global Ocean Observing System (GOOS), and the satellite community, including the Committee on Earth Observation Satellites (CEOS), and the greenhouse gas (GHG) emissions community including the UNEP International Methane Emissions Observatory (IMEO) programme.

D. del Campo Maldonado noted that the activities of the CIPM-STG-CENV for 2023–2026 need to be updated. The work of reviewing recommendations is progressing, but it had underestimated the amount of work involved in preparing documentation for the BIPM to present at COP meetings. The decision by the IPCC to grant observer status to the BIPM has opened new opportunities. In addition, the interaction between the BIPM and the WMO needs to be reviewed to ensure there is strong cooperation in all areas. She asked the CIPM to approve the proposals for membership of the CIPM-STG-CENV.

The President thanked D. del Campo Maldonado and acknowledged the report for noting. He said that the CIPM notes and endorses to the membership proposals in the report. He asked if there were any questions or comments.

H. Laiz commented that one of the future activities of the CIPM-STG-CENV is to propose new activities for the CCs. He added that this will have a significant effect on their workload. D. del Campo Maldonado replied that individual CCs will have to decide on the work they will undertake. H. Laiz asked if the CCs should be represented in the STG-CENV. D. del Campo Maldonado recalled that the intention is for CCs that are active in areas relevant to the STG-CENV to become involved. R. Wielgosz said that the CCs have been proactive in setting up Task Groups in the environmental area. The CCQM already operates three to four, the CCT has a TG and the CCRI is looking into a TG on ^{14}C . In addition, there are NMIs that are particularly active in specific environmental areas and, in such cases, a direct NMI activity may be preferable to a TG within a CC. He cited the example of accurately measuring flow rates, which are important to monitoring GHG emissions. A number of NMIs are coming together to carry out this activity, so there may not be a need for an activity within a CC.

Forum on Metrology and Digitalization (FORUM-MD)

C. Denz, Chair of the FORUM-MD, presented the *Report from the FORUM-MD*. The report was to be presented at the meeting of State Representatives and NMI Directors on 17-18 October. The background to the creation of the FORUM-MD was given. The FORUM-MD has six active Task Groups and three Working Groups and a list of the current membership and participating institutions was given. C. Denz noted that the horizontal nature of the Forum allows inclusive participation and invitation of experts. A Workshop on Metrological Traceability was organized in partnership with IMEKO Technical Committees TC6 (Digitalization), TC8 (Traceability in Metrology), and TC21 (Mathematical Tools for Measurements) on 28 August 2024. An online FORUM-MD Workshop on Metrology for Complex Sensor Networks will be held on 11–12 February 2025. In summary, the FORUM-MD has had a successful start, with experts from different areas of metrology addressing the most urgent and important metrology questions in digitalization. It complements the activities in the CCs and RMOs and covers all aspects of metrology with respect to digital challenges.

The President thanked C. Denz and invited questions and comments. The CIPM commented that the relationship between the FORUM-MD and the activities in the BIPM Work Programme was not clear. C. Denz replied that the FORUM-MD *ad hoc* Task Group on SI-digital Framework (FORUM-MD-TG-SIDF) monitors the relevant work at the BIPM headquarters and coordinates these activities with the other Task Groups.

BIPM Workshop on Accelerating the adoption of Quantum Technologies through Measurements and Standards

J.-T. Janssen, Chair of the Workshop's organizing committee, recalled that the workshop had been held on 21–22 March 2024. He said that it was clear from the workshop that there is an industrial need to address measurements and standards for quantum technologies. The NMIs are uniquely positioned to carry out this work and have significant experience in quantum metrology and collaboration with industry in this area. An international framework is needed to advance the work, which should be aligned with the CIPM and BIPM.

The workshop concluded that the CIPM and BIPM have a clear mandate to oversee SI-based metrology, including quantum metrology. He commented that the emerging quantum industry requires measurements that are developed in a commercially-relevant timeframe. The workshop steering committee recommended the establishment of a quantum-focused, NMI-led, organization to promote global innovation and adoption of quantum technologies through international collaborations that provide the technical basis for harmonization of measurement methods, leading to best practices and standards. This new organization could address the metrology-for-quantum gap by leveraging the expertise of NMIs and DIs, and working closely with the BIPM, industry bodies and standards development organizations. He presented the benefits of the proposed governance and the preliminary organizational structure.

The President thanked J.-T. Janssen and noted that in the context of future strategy development, the CIPM may decide to set up a cross-cutting forum on quantum for metrology. J.-T. Janssen said that the CC's have a long history of using quantum for metrology very successfully. The CIPM expressed concerns over how links with the CIPM and BIPM would be maintained, the scope of the call for participation and how it would be prevented from becoming an independent group of NMIs with reduced participation by the CIPM and BIPM. J.-T. Janssen replied that the call for participation will be to all NMIs and will come from within the community. He will provide the link to the BIPM and CIPM as the Chair. The CIPM also asked if the group will be a legal entity and how it will link to existing groups that work in quantum technologies. J.-T. Janssen said that there are some problems concerning openness as certain governments may not be open regarding all developments with quantum technology, and this limited openness means that it cannot operate directly under the auspices of the BIPM and CIPM.

J. Olthoff asked for clarification regarding the outcomes of the workshop. He said that the apparent conclusion of the workshop was that although there is a role for the CIPM and BIPM in quantum metrology, they will not have a central role and the work will be carried out among the NMIs. J.-T. Janssen replied that the CIPM and BIPM would be used to disseminate the results of the quantum measurements and standards work. J. Olthoff added that the proposed group is being formed outside of the control of the CIPM and BIPM. The community needs to be very clear about what is being formed and the CIPM needs to know what its involvement will be and whether or not it should be involved. H.A. Frøystein commented that the CIPM cannot stop groups from forming new organizations; the issue should be whether there is something the CIPM can do in relation to this broader topic. The Director added that the workshop had suggested that the outputs would be standards and pre-normative standards. Some of these outputs would therefore be directed towards ISO and IEC. He reminded the CIPM that the BIPM is not a standardization organization, so a group of NMIs that want to develop standards do not need to operate under the umbrella of the BIPM and CIPM. J.-T. Janssen finished by saying that existing work on quantum metrology should continue within the CCs.

Joint Statement signatories meeting

The President recalled that the last online meeting of the signatories to the *Joint Statement of Intent on the digital transformation in the international scientific and quality infrastructure* had received updates from each of the signatory organizations. He noted that it had been difficult to get agenda items but the signatories had agreed that it was a good idea to continue with the meetings to maintain contacts. The next meeting will be held in 18 months, after the 150th anniversary celebrations.

15. PLANS FOR THE 150TH ANNIVERSARY IN 2025

The Director updated the CIPM on the plans for the 150th anniversary of the signing of the Metre Convention on 20 May 2025. He said that the objectives are to celebrate the achievements of the last 150 years, to promote metrology to a wider audience and to showcase the future vision and strategy. A series of graphics have been produced, which will be used throughout the anniversary year. The theme for World Metrology Day 2025 is “Measurements for all times, for all people”.

The main event for the week-long celebrations will be held at the UNESCO headquarters on 20 May. A formal proposal for the event, with four sessions, has been submitted to UNESCO. The Director presented the proposed content of the sessions and further details are available in the report of Session I of the 113th meeting of the CIPM. The event will be followed by a reception at the Ministry of Foreign Affairs at the Quai d’Orsay, which is where the Metre Convention was signed.

The Director said that a two-day conference “From units to the universe – future revolutions in metrology” will be held at the *Palais des Congrès de Versailles* on 21–22 May. He gave an update of the schedule for the sessions, which was outlined in the report of Session I of the 113th meeting of the CIPM. He presented the list of confirmed speakers. It was noted that 2025 is the “International Year of Quantum” and this will be featured in the sessions.

The Director recalled that the BIPM has signed a contract with the publisher *Gallimard* to publish a book to mark the anniversary. The book will cover the history of the BIPM in 150 photographs. Other celebrations during 2025 will include the issuing of a celebratory stamp by *La Poste*. A souvenir medal will be produced for people that attend the meetings. It will feature the new design for the macaron, as shown on the World Metrology Day 2025 poster. The Director said that in 1872 the Metre Commission met to begin drafting the Metre Convention. At the time, the President of France presented the countries involved with a commemorative vase, produced at the *Manufacture de Sèvres*. A total of 55 vases were produced but few are believed to still be in the possession of the NMIs. The BIPM has worked with the *Manufacture de Sèvres* to produce a limited edition of seventeen vases, which will be offered for sale to the NMIs in 2025.

The BIPM has launched a dedicated events website, which includes a call for people to submit posters. The posters can be for one of nine different themes and can be submitted via the website. The posters will be judged by a panel of nine BIPM staff and nine CIPM members. The best posters will be published on the website and a winning subset will be presented at one of the sessions during the celebrations.

The Director finished by recalling that there will be a VIP reception in the BIPM headquarters’ garden on 19 May 2025 and a garden party for staff on 23 May.

16. COMMENTS FROM THE VISIT OF CIPM MEMBERS TO THE LABORATORIES AND ILC DEPARTMENT

The CIPM said that the laboratory tours on 14 October 2025 had been excellent. They had highlighted new developments in the departments and that the BIPM headquarters is offering efficient services to its Member States. The CIPM welcomed the fact that new BIPM staff and secondees had been given the opportunity to

present their work to the CIPM and the diverse range of nationalities represented at the BIPM was commended. In addition, the small groups of CIPM members had allowed more interaction with the BIPM staff. The presentation by the ILC Department had been well received.

P. Richard suggested that in future the CIPM could visit one laboratory at each of its meetings to gain a deeper understanding of its work, rather than visiting all the labs each time. The CIPM could be split into four smaller groups for each laboratory visit to maximize the interaction with staff.

17. MEETINGS

2025

Session I of the 114th meeting of the CIPM (in person)	18–19 March
CIPM laboratory visits (optional)	20 March
150th anniversary	20–22 May
Session II of the 114th meeting of the CIPM (online)	16–19 June
Session III of the 114th meeting of the CIPM (in person)	13–15 October
NMI Directors and State Representatives (online)	16–17 October

2026

Session I of the 115th meeting of the CIPM (in person)	16–20 March
Session II of the 115th meeting of the CIPM (online)	15–19 June

18. DEPOSITORY OF THE METRIC PROTOTYPES

The visit to the depository of the metric prototypes at the Pavillon de Breteuil took place at 17:35 on 14 October 2024 in the presence of the President of the CIPM, the Director and a Representative from the National Archives. (see Appendix 1).

19. ANY OTHER BUSINESS

The President said that Dr Tony Aalbers had died. He was the former Chair of the CCRI RMO Working Group on IR CMCs (CCRI-RMOWG) and had a long association with the CCRI and the ionizing radiation sector.

The President thanked the attendees and closed the meeting.

Appendix 1

Visite du dépôt des prototypes métriques

Procès-Verbal

Le 14 octobre 2024 à 17 heures 35 en présence du Président du Comité international des poids et mesures, du représentant du conservateur des Archives nationales et du directeur du Bureau international des poids et mesures, il a été procédé à la visite du dépôt des prototypes métriques internationaux du Pavillon de Breteuil.

On avait réuni les trois clefs qui ouvrent le dépôt : celle confiée au directeur du Bureau international des poids et mesures, celle déposée aux Archives nationales et celle enfin dont le Président du Comité international des poids et mesures a la garde.

Les deux portes de fer du caveau ayant été ouvertes ainsi que le coffre-fort, on a constaté dans ce dernier la présence des prototypes et de leurs témoins.

On a relevé les indications suivantes sur les instruments de mesure placés dans le caveau :

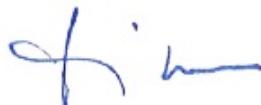
température actuelle	:	21,7 °C
température maximale	:	21,8 °C
température minimale	:	21,6 °C
état hygrométrique	:	61 %

On a alors refermé le coffre-fort ainsi que les portes du caveau.

Le Directeur
du BIPM

Pour le Conservateur
des Archives Nationales

Le Président
du CIPM



M.J.T. MILTON

M.-F. LIMON-BONNET

W. LOUW