

International Committee for Weights and Measures (CIPM)

Session II of the 114th meeting
(17-19 June 2025)

Contents

Contents	2
MEMBERS OF THE INTERNATIONAL COMMITTEE FOR WEIGHTS AND MEASURES.....	3
1. Opening of the session and quorum	4
2. Secretary’s report, approval of the agenda and the report of Session I of the 114th meeting. 4	4
3. President’s Report.....	5
4. Confirmation of Director Designate contract and transition plan	6
5. Plans for NMI Directors and State Representatives meeting	6
6. Report of the CIPM Sub-Committee on Governance (SC-G)	7
Rules of Procedure of the CIPM for the selection of the Director of the BIPM.....	7
Rules of Procedure of the CIPM	8
Rules of Procedure of the CGPM	9
7. Director’s Report	12
8. Report of the CIPM Sub-Committee on Finance	15
9. Reports from the Consultative Committees, Forums and Sectorial Task Groups	16
Consultative Committee for Amount of Substance: Metrology in Chemistry and Biology (CCQM)	16
Consultative Committee for Units (CCU)	17
Joint Committee for Traceability in Laboratory Medicine (JCTLM).....	18
Forum on Metrology and Digitalization (FORUM-MD).....	20
CIPM Sectorial Task Group on Climate and Environment (CIPM-STG-CENV)	20
Proposed CIPM Sectorial Task Group on Quantum for Metrology (CIPM-STG-QfM)	20
10. Plans for the 28th meeting of the CGPM (2026)	22
Draft Resolution A <i>On universal adherence to the Metre Convention</i>	22
Draft Resolution B <i>Towards a new definition of the second</i>	23
Draft Resolution C <i>On the continuous nature of UTC</i>	24
Draft Resolution D <i>On the definition of a timescale on the moon</i>	25
Draft Resolution E <i>On the coordination of metrological work to address emerging global challenges</i>	26
Draft Resolution F <i>On the digital transformation of metrology</i>	27
Draft Resolution V <i>The dotation for the period 2028-2031</i>	27
Timelines and practical arrangements for the 28th CGPM.....	27
11. Any other business.....	28

MEMBERS OF THE INTERNATIONAL COMMITTEE FOR WEIGHTS AND MEASURES

as of 17 June 2025

President

W. Louw, South Africa.

Secretary

T. Usuda, Japan.

Members

V.G. Achanta, India.

V. Coleman, Australia.

D. del Campo Maldonado, Spain.

C. Denz, Germany.

N. Dimarcq, France.

H.A. Frøystein, Norway.

J.-T. Janssen, United Kingdom.

H. Laiz, Argentina.

G. Macdonald, Canada.

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

S.-R. Park, Republic of Korea.

J. Qu, China.

M.L. Rastello, Italy.

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

G. Rietveld, the Netherlands.

G.P. Ripper, Brazil.

BIPM Director

M.J.T. Milton

1. Opening of the session and quorum

The International Committee for Weights and Measures (CIPM) held Session II of its 114th meeting on Tuesday 17 June to Thursday 19 June 2025 as an online meeting.

Participants:

V.G. Achanta, 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 International Liaison and Communication Department), V. Gressier (Director of the Ionizing Radiation Department and Executive Secretary of the CCRI), A. Koo (Director Designate of the BIPM), A. Rohrer (Legal Adviser), D. Spelzini (Head of the Finance Office), M. Stock (Director of Physical Metrology Department and Executive Secretary of the CCU), P. Tavella (Director of the Time Department and Executive Secretary of the CCTF), R. Wielgosz (Director of the Chemistry Department and Executive Secretary of the CCQM).

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

The President reflected on the success of the week of celebratory events from 19 to 23 May that marked the 150th anniversary of the signing of the Metre Convention. He thanked the CIPM members for their contributions and congratulated the Director and the staff of the BIPM for organizing the events. He suggested that the CIPM should draft a letter to all staff, thanking them officially for their work in making the week such a success. The Director added that many letters of thanks had been received and that these messages had been passed on to staff; a letter of thanks from the CIPM would be appreciated.

J.-T. Janssen reported that the Director had been appointed an Officer of the Order of the British Empire (OBE) in King Charles III's Birthday Honours List for his services to measurement science.

2. Secretary's report, approval of the agenda and the report of Session I of the 114th meeting

The Secretary recalled that the CIPM bureau had met online in April to draft the agenda for Session II of the 114th meeting and to discuss progress with the recruitment of the next Director of the BIPM. These discussions included the proposed sequence for announcing the result of the recruitment process. The bureau received a report on the preparations for the 150th anniversary, an update from the CIPM Sub-Committee on Governance, and an update on the CIPM Strategy, which was published in May.

The Secretary presented the agenda for approval. He asked if there were any changes or additions. P. Richard asked for an additional item to be added to §6 (Report from the CIPM SC-G) to cover the document on the selection of the Director of the BIPM, which had been presented in March, and has now been finalized. The President said that a report from the Joint Committee for Traceability in Laboratory Medicine (JCTLM) should be added to §9. The Director clarified that §4 (Confirmation of the Director's contract and transition plan) should be the "Director Designate". The agenda was approved with these two additions and one correction.

The Secretary said that the report of Session I had been circulated for approval in April with a deadline for comments of 14 May. All comments have been actioned and the Secretary recommended that the report should be approved without further changes. However, he noted that there had been further communications between C. Denz, H. Laiz and W. Louw, after Session I on the proposed inclusion of membership rules for the Forum on Metrology and Digitalization (FORUM-MD) in document CIPM-D-01, specifically regarding how much interaction the FORUM-MD can have with external bodies. C. Denz added that additional comments had been received from the Director and J. Olthoff on this topic. H. Laiz had commented during these discussions that the mission of the FORUM-MD explicitly states that it should interact with external bodies, for example liaisons and organizations such as the International Organization for Standardization (ISO) that are outside the CIPM. C. Denz said that this should be recorded as it reflects the different mission of this horizontal forum when compared to Consultative Committees. The Secretary said that this information will be recorded in the report of the current Session, rather than amending the report of Session I.

The CIPM approved the report of Session I of the 114th meeting, noting the above comment.

Decision CIPM/114-09

The CIPM accepted the minutes of Session I of the 114th meeting of the CIPM as a true record.

3. President's Report

The President said that the highlights since Session I had been the celebrations of the 150th anniversary and the confirmation that the Director Designate had accepted the position. The 150th anniversary celebrations had been attended by most of the CIPM members and had been well received. The events helped to improve the visibility of the organization and to promote plans for the 28th meeting of the CGPM (2026) such as the proposals for Observer status. He recalled that the *CIPM Strategy 2030+* has been published and thanked those involved in its drafting. He asked if the document can be made more visible on the BIPM website. The President invited comments.

The Director noted that the 150th anniversary events will continue throughout 2025 and commented that the *CIPM Strategy 2030+* is available from the front page of the BIPM website. C. Denz recalled that the *CIPM Strategy 2030+* includes information about the Consultative Committees in the Annex but there is no mention of the Horizontal Forums and Sectorial Task Groups. She suggested that these should be added due to their increasing importance. The President agreed and suggested the addition of an extra page to the annex, to include information on the FORUM-MD and the CIPM Sectorial Task Group on Climate and Environment (CIPM-STG-CENV). He asked C. Denz to draft a short piece of text on the FORUM-

MD and D. del Campo Maldonado on the STG-CENV, in the same style as that used for the CCs, and to send it to him and T. Usuda.

C. Denz asked why there had been no announcement at the 150th anniversary about the appointment of the Director Designate and if it is possible to disseminate the announcement more actively among the Member States and Associates. The President said that the Director Designate, Dr Annette Koo, had been unable to attend the anniversary celebrations so it had been decided that the formal introduction will take place at the NMI Directors and State Representatives meeting in October 2025. An official announcement on the appointment has been made on the BIPM website. The Director added that an additional announcement will be made when the Director Designate arrives at the BIPM headquarters in September.

4. Confirmation of Director Designate contract and transition plan

The President updated the CIPM on progress since Session I in March. The Head of the BIPM Human Resources Office and the Legal Adviser had assisted the CIPM in finalizing and updating the contract for the Director Designate. The contract is in line with the current Regulations, Rules, and Instructions applicable to staff members of the International Bureau of Weights and Measures (RRI). The updated contract and a salary offer were presented to the candidate and have been accepted. The successful candidate for the Director Designate position, Dr Annette Koo, was originally scheduled to start on 29 September, but this has been brought forward to 22 September so that she can attend the 49th meeting of the Joint Committee of the Regional Metrology Organizations and the BIPM (JCRB). The President confirmed that there will be a three-month overlap period between the Director Designate taking up the position and the current Director leaving the BIPM.

5. Plans for NMI Directors and State Representatives meeting

The President informed the CIPM that the meeting will be held on 16-17 October 2025 and that these meetings are organized by one of the RMOs: this year it is the turn of EURAMET. He said that because the 2025 meeting is being held in the year before the 28th meeting of the CGPM (2026), the agenda will include information on topics that the CIPM plans to present at the CGPM. The President suggested that the NMI Directors associated with EURAMET should be asked to work with the CIPM to develop the programme to ensure that these topics are addressed. H.A. Frøystein and D. del Campo Maldonado (the Chair of EURAMET) agreed to assist with the development of the meeting. It was noted that although the meeting will be organized by EURAMET, it is fully inclusive and all RMOs will participate.

The Director said that the 17th Conference of the International Organization of Legal Metrology (OIML) and the 60th Meeting of the International Committee of Legal Metrology (CIML) will take place from 12-15 October 2025. This is likely to affect the number of participants that will attend the meeting in person. The Director reminded the CIPM that the agenda for the meeting is usually ready in May or at the latest, in June, so a draft will be required very quickly. The President asked H.A. Frøystein to produce a draft agenda within two weeks.

The President proposed setting aside some time on the afternoon of Friday 17 October, during the State Representatives meeting, to reflect on the accomplishments of the Director over the last 13 years. He asked for volunteers to assist him with drafting the text.

6. Report of the CIPM Sub-Committee on Governance (SC-G)

P. Richard, Chair of the SC-G, presented an update on activities since March 2025. He said that CIPM approval is required for the *Rules of Procedure of the CIPM for the selection of the Director of the BIPM* and the *Rules of Procedure of the CIPM (Version 1.4)*. In addition, the *Rules of Procedure of the CGPM* are being circulated to Member States for consultation. This follows the decision in March not to pursue the By-Laws.

Rules of Procedure of the CIPM for the selection of the Director of the BIPM

P. Richard recalled that the first version of this document had been discussed by the CIPM at Session I in March 2025, where it was agreed that the document would be finalized after the selection of the next Director had been completed. This allowed the Chair of the SC-G and the Head of the BIPM Human Resources Office to revise the document to follow the process that had been applied. The final document had been made available to the CIPM in advance of Session II. He commented that the document needs to be approved before the Director Designate starts on 22 September as it covers actions including resignation and reappointment at the end of the term. He asked for comments.

It was asked if a provision should be included in the document to cover the possibility of a CIPM member applying for the position of Director. The President suggested that this could be dealt with in the *Code of Conduct of the CIPM*. P. Richard added that it may be better to deal with such an eventuality in §VI “*Conflict of interest and grounds for recusal*” of the document; if a CIPM member is a candidate, there would be an obvious conflict of interest. He added that this would be an unusual scenario and could be addressed on an *ad hoc* basis.

The President added that this would also apply if a CIPM member applied for any position at the BIPM, not just the Directorship, so it may be better to address such an eventuality outside of the *Rules of Procedure of the CIPM for the selection of the Director of the BIPM*. He noted that a line could still be added to §VI, but the issue could be officially addressed elsewhere, for example in the *Code of Conduct of the CIPM*. H.A. Frøystein suggested that the document under discussion could simply be amended by adding “and the CIPM” to clause 17 so that it would read “*The following categories of conflicts of interests may occur within the SC and the CIPM.*”

The President suggested that the document could be adopted, including a few minor changes suggested by the CIPM, and then reviewed by the CIPM in March 2026. The Director said that he broadly supported the *Rules of Procedure of the CIPM for the selection of the Director of the BIPM*, but the final sentence in the document in clause 40 could have limitless consequences. He suggested that the CIPM should reflect on the document and revised wording could be suggested for the final sentence in consultation with P. Richard and the Head of the BIPM Human Resources Office. The CIPM could be asked for approval when the revisions are available. He commented that he would vote against the document as it stands. The President agreed that the revised final sentence should be discussed with the bureau in consultation with the Director, P. Richard and the Head of HR.

The revised document was circulated to the CIPM after the session, and input from the consultation was added before the next session.

The CIPM approved the Rules of Procedure of the CIPM for the selection of the Director of the BIPM, including the revised sentence, during an *in camera* session held the following day and from which the BIPM Director was excluded.

Decision CIPM/114-10

Recalling Decision CIPM/114-5 (2025), the CIPM approved edition 1.0 of the Rules of Procedure of the CIPM for the selection of the Director of the BIPM.

The CIPM requested the BIPM headquarters staff to publish the document and to update the Compendium accordingly.

Rules of Procedure of the CIPM

P. Richard said that the SC-G has suggested amendments to the *Rules of Procedure of the CIPM* (CIPM RoP) and has submitted version 1.4 to the CIPM for approval. Version 1.3 was approved on 16 October 2024 according to Decision CIPM/113-28 (2024). Since 2024 a number of changes and minor updates have been proposed. These include:

- Text updates following the recent work of the SC-G on the *Rules of Procedure of the CGPM*.
- Decision CIPM/114-07 (2025) on the suspension of a Member State is now reflected in the CIPM RoP.
- Clarification of the election of CC Presidents and other chairs, for example Sectorial Task Groups and Forums.

He noted that the amendments had been made in consultation with the CIPM and invited questions and comments. C. Denz suggested that Rule 11.1 could be amended to include Sectorial Task Groups and Forums. The Director cautioned against being too specific in Rule 11.1 with regard to the bodies that the CIPM can establish. By listing specific bodies, this may exclude other types of groups that have not yet been created and which are not specifically listed. He suggested it would be better to have a wide-ranging, general list, which would allow other types of body to be established without having to amend the rule. P. Richard and the President agreed that generalizing the list will prevent problems in the future.

The Director asked for Rule 12.2 to be changed from “*The CIPM shall review the management system*” to “*The CIPM shall review the quality management system*”.

The CIPM approved version 1.4 of the Rules of Procedure of the CIPM.

Decision CIPM/114-11

Recalling Decisions CIPM/110-08 (2021), CIPM/110-25 (2021), CIPM/112-32 (2023) and CIPM/113-28 (2024), the CIPM approved edition 1.4 of the CIPM Rules of Procedure.

The CIPM requested the BIPM headquarters staff to publish the amended CIPM Rules of Procedure and to update the Compendium accordingly.

Rules of Procedure of the CGPM

P. Richard presented the steps taken since March 2025 regarding the *Rules of Procedure of the CGPM* (RoP of the CGPM) and the next steps. He recalled that in March the CIPM had agreed to propose that the By-Laws be replaced by CGPM Decisions, which would be recorded in the *Compendium of main rules and practices applicable to the BIPM*. The *Compendium* therefore becomes the central governance instrument of the BIPM.

He reported that the SC-G had prepared a version of the RoP of the CGPM for consultation by the CIPM. The CIPM members, the CEC chair and the BIPM legal advisor were consulted on this draft between 10-30 April 2025. Following this exercise, a detailed consultation report was submitted to the CIPM on 2 June. The SC-G has prepared a new draft of the RoP of the CGPM along with a Commentary, which were based on the CIPM consultation report. The next step is for the CIPM to approve this draft, so that it can be ready for consultation by Member States.

P. Richard said that the Member States consultation exercise will start in mid-June for three months. Member States will be informed about the results of the consultation at the meeting of the Member States Representatives in October 2025 or during a dedicated online meeting. The latter is considered to be more appropriate as the target audience can be defined more clearly. Following this meeting, the SC-G will prepare some draft decisions for consideration at the 28th meeting of the CGPM (2026).

P. Richard commented that the main issue raised by the consultation exercise was the proposal for a Standing Commission to replace the Committee for CIPM Election (CEC). This change was proposed by an external lawyer for two reasons. Firstly, the CEC has the possibility to elect new members provisionally in a similar way to the CIPM. The proposal for the Standing Commission is to have more members and not to allow provisional elections. Secondly, the CEC prepares CIPM elections according to the 2014 procedure, which is for the election of all members. The Standing Commission would prepare elections of the CIPM according to the Metre Convention and as described in the RoP of the CGPM (Rule 5). He noted that there had been a discrepancy in the commentary relating to the role of the Standing Commission. This has been simplified so that the Commentary is fully aligned with the text in the RoP of the CGPM, specifically that there is no additional role for the Standing Commission. He stressed that the Standing Commission is more of an issue for the Member States rather than the CIPM, however the view of the CIPM is important. The President pointed out that he could not recall that the Member States reached any consensus on such a commission. It was an idea of individual members of the Working Group of Member State Representatives, that was then proposed in the report of the Co-Chairs.

The CIPM discussed why there is a need for a Standing Commission. P. Richard and the Director clarified that the CGPM only exists during the period it is convoked by the CIPM. There is no official voice for the Member States between meetings of the CGPM. The proposed Standing Commission, established as a recommendatory body, could play such a role. In the discussion that followed, it was pointed out that in accordance with the Metre Convention, the CIPM fulfils this role as it is elected by the CGPM. P. Richard agreed that although this is the case, there would be a conflict of interest if the CIPM were to organize its own election, this is why a Standing Commission is needed. Several members pointed out that this is already carried out by the CEC. The Director added that the CIPM is elected by Member States at the CGPM to supervise the organization. This is not the same as representing the

Member States; this would require all 64 voices. In addition, there is an occasional need to consult the representatives from Member States for practical advice between meetings of the CGPM and the proposed Standing Commission would fulfil this requirement. This advice could include issues such as statehood and eligibility of papers for conferences that occur before meetings of the CGPM.

G. Macdonald expressed a concern that if the Standing Commission only includes eleven members it will not represent all the Member States, it is simply a subset. The rationale for establishing the Standing Commission in order to avoid conflicts of interest regarding the election of the CIPM is important, but the proposed Commission does not fit all the purposes that have been discussed because the membership is too small. G. Macdonald added that the consultation exercise with the Member States will provide the CIPM with guidance on how to proceed. P. Richard said that there is currently no unanimity within the CIPM on the role and name of the proposed Standing Commission. The President clarified that most members were not satisfied with the current proposal.

The discussion focused on the role of the proposed Standing Commission. The members commented that it should be made clear that the purpose of the Standing Commission is the election of the CIPM and that there should be no overlap with the work of the CIPM. There was general agreement among the members that if the mission and role of the proposed body is the election of the CIPM, the name CEC is more appropriate and should be retained. J. Olthoff suggested that the wording of Rule 5 in the draft RoP of the CGPM could be changed to make it clear that the proposed Standing Commission has no autonomous authority. It is under the explicit direction of the CIPM and can be used by the CIPM when an election is required to fill a vacant seat on the committee. It would be a “tool” of the CIPM that can be used between meetings of the CGPM if required. The President recalled that the proposed change to a Standing Commission was suggested for legal reasons, and most IOs used such a name to indicate the status of a committee or commission between their general assemblies. He added that some of the concerns raised by the CIPM could be dealt with by removing the word “recommendatory” from the first paragraph in Rule 5 of the draft RoP of the CGPM. He summarized by saying that the document can be sent to the Member States for consultation and that the CIPM agreed that the main proposal is for the establishment of a standing body that will have the same role as the CEC.

As a way forward, P. Richard proposed that the Member States consultation exercise could go ahead with “Standing Commission” as the name of the body and with the role restricted to the election of the CIPM.

P. Richard presented the proposed timeline for implementation of the Standing Commission, if the CGPM approves it. The present CEC, elected in 2022, will manage the 2026 CIPM election according to the 2014 procedure (election of all members). This is based on a positive response being received from the Member States’ consultation for the RoP of the CGPM. This would allow the RoP to be approved at the 28th meeting of the CGPM (2026) and it would enter into force the day after the General Conference. He added that the proposed RoP are too complex to be approved and immediately implemented during the conference and a special procedure would be required. A new CEC elected in 2026, under the existing rules, for the period 2026 to 2030 will manage the 2030 CIPM election according to the RoP of the CGPM (new procedure). The Standing Commission elected in 2030 will manage the 2034 CIPM election according to the RoP of the CGPM.

In summary, P. Richard said that he will remove the word “recommendatory” from the first paragraph in Rule 5 of the draft RoP of the CGPM. He will send a covering letter with the RoP to the Member States, in copy to the NMI Directors. A draft of the letter was made available to the CIPM in advance of the meeting. A previous letter, which explained the decision not to go ahead with the By-Laws, will be included with the draft RoP of the CGPM, as an annex. The Secretary and Director recalled the earlier discussion and stressed that the meeting of State Representatives and NMI Directors on 16-17 October should be aimed mainly at the NMI Directors to offset the problems of a clash with the CIML meeting, to which many State representatives may have committed. A dedicated online meeting should be organized in October 2025 for Member State representatives to discuss the findings of the consultation exercise for the RoP of the CGPM.

P. Richard informed the CIPM that approval of the RoP of the CGPM could only go ahead at the 28th meeting of the CGPM (2026) if there was broad support during the consultation of Member States. As the RoP of the CGPM would enter into force after the 28th CGPM (if approved), he reminded members that the election of the CIPM in 2026 will be handled by the CEC in the same way as in 2022. He reminded the CIPM that all members (including those elected provisionally) and new candidates will have to prepare their application files in good time. The President said that CIPM members should inform the Secretary as soon as possible if they intend to retire and will not be seeking re-election.

P. Richard gave an update on the discussions held with the four Member States that had reservations about issues relating to naming, structure and role in the draft decisions proposed for the 28th CGPM. A CIPM member noted that they knew of some concerns by one of the four Member States over the naming of the BIPM but the State would not block the process to approve the RoP. P. Richard replied that addressing concerns over nomenclature and definitions had been the objective of the By-Laws but some State representatives had expressed significant reservations and it was decided not to pursue this option. It is not now possible to say that the definitions are missing from the RoP of the CGPM if it has been decided not to continue with the By-Laws. A way forward is needed and the possibility exists that if the RoP of the CGPM are not approved, this governance issue will not be resolved despite a considerable amount of work.

The CIPM returned to the issue of the RoP of the CGPM at the end of the second day of its meeting. The President thanked P. Richard for incorporating the changes that had been suggested into the document and re-circulating it among the members. He said that the priority now should be to go ahead with the Member States consultation; the CIPM will then return to the document in October to produce a final version that takes into account the views of the Member States. P. Richard clarified that he had not changed Rule 5.1 but Rule 5.2 has been changed to “*on the proposal of Member States to the Secretary of the International Committee*” from “*on the proposal of the Secretary of the international committee, we shall appoint eleven delegates for the commission*”. The commentary will be updated to reflect the discussions. The President reiterated that Rule 5 still refers to the CEC, the situation is simply being made official. The proposed changes to the name of the CEC will not affect the Metre Convention, the proposals are being made in response to legal advice.

P. Richard added that he had also made the changes to the CIPM RoP, specifically that the list of bodies mentioned in Rule 11.1 had been summarized as “subsidiary entities”, with a footnote to describe what this may include.

The CIPM approved the launch of the Member States consultation unanimously based on the revised version of the RoP of the CGPM and the Commentary following the CIPM consultation.

7. Director's Report

The Director presented his report of activities at the BIPM since March 2025. He said that there were currently recruitments underway for a Liaison Officer (Digital) and a Chemist. The number of complementary staff at the BIPM, including secondments, interns and students, will be at the level of ten full-time equivalents (FTEs) for 2025. This represents a return to the level achieved in 2019 before the period of confinement. The level of ten FTEs is made up from the contributions of 38 different individuals and the associated costs are included in the budget. He noted that an example of how the complementary staff contracts are progressing is that the contribution of salaries paid by their home institute is increasing. Complementary staff are highly motivated and bring fresh ideas to the laboratories. In return, they take the skills they have learned back to their NMIs.

He informed the CIPM that the Joint Committee for Guides in Metrology (JCGM) will hold a webinar on 2 July to allow the two JCGM Working Groups to present their proposal for a new definition of measurement uncertainty. The webinar achieved 1 000 registrations within two weeks of its launch, and will be livestreamed via YouTube and LinkedIn to allow additional participation. The webinar will include polls and a question and answer session.

The Director gave an update on progress towards the plan to publish *Metrologia* using an open-access model as recommended in Decision CIPM/113-29 (2024). He has signed a contract with IOP Publishing that agrees that *Metrologia* will become fully open access from 1 January 2026. The details of the implementation of the contract are being finalized. He recalled that the CIPM recommended, in the same decision, the creation of a separate entity for the publication of comparison reports outside of *Metrologia*. A project is under way to establish part of the BIPM website where this can be achieved. This will be closely linked to the KCDB. A contract has been signed with the website developers to set this up and the new location for publishing comparison reports will be launched on 1 January 2026. The BIPM will develop a transition plan to move the historical comparison reports into the same area of the website. In response to a question, the Director confirmed that the repository could be used to publish pilot study reports in the future, if requested by the Consultative Committees.

The Director updated the CIPM on liaison activities and noted that the BIPM is negotiating a new cooperation agreement with the United Nations Educational, Scientific and Cultural Organization (UNESCO) to replace the agreements signed in 1949 and 1952. The revised agreement will cover all the areas where the two organizations currently cooperate, for example on World Metrology Day. The BIPM is discussing a "Thematic Session" of the World Trade Organization's Technical Barriers to Trade (WTO TBT) Committee on 11 November 2025 on the topic of metrology. This Thematic Session will mark the 150th anniversary of the signing of the Metre Convention. This initiative is being supported by V. Coleman and colleagues at the NMIA (Australia).

The Director reported that the Secretary General of the International Union of Pure and Applied Chemistry (IUPAC), Zoltan Mester, signed the *Joint Statement of Intent on the digital transformation in the international scientific and quality infrastructure* during the Consultative Committee for Amount of Substance: Metrology in Chemistry and Biology (CCQM) meeting in

April 2025. In addition, the BIPM and International Commission on Illumination (CIE) are ready to sign a Memorandum of Understanding (MoU).

Other topics include monitoring the consequences of the merger between the International Laboratory Accreditation Cooperation (ILAC) and International Accreditation Forum (IAF) in 2026 to form the Global Accreditation Cooperation. The BIPM has an agreement with ILAC that will remain valid with the Global Accreditation Cooperation.

The Director gave an update on activities by the Executive and Meetings Office in 2025. He said that there had been 6 602 registrations for meetings from January to the end of May and that the balance between on-line and on-site meetings is relatively stable at 57 % versus 43 %. He noted that informal evidence suggests that the national balance of participants between on-line and on-site is different. A study of registration data is under way to determine if on-site meetings are becoming dominated by participants who travel the shortest distances or have large travel budgets.

The Director concluded by recalling that he had attended the recent COOMET and EURAMET meetings and that he had received a visit from Jinyoung Jeong, Second Secretary at the Embassy of the Republic of Korea in Paris on 25 March 2025.

Update on the 150th anniversary events

The Director reminded the CIPM that the objectives of the anniversary events had been to celebrate the achievements of 150 years of metrology by the BIPM; to present a new vision and strategy for the BIPM for 2030 and beyond as developed by the CIPM; and to promote metrology to the widest possible global audience.

He recalled that the VIP reception at the BIPM headquarters on 19 May had been attended by 125 people including five ambassadors and representatives of many of the French authorities in the local region. The symposium at the UNESCO headquarters on 20 May “*150 Years of the Metre Convention: Science, Innovation and Global Impact*” had 617 participants and the two-day scientific conference “*From units to the universe - future revolutions in metrology*” held in Versailles on 21-22 May was attended by 450 people. A staff event at the BIPM headquarters on 23 May was attended by 150 past and present staff members and their families.

The anniversary book « *Le Bureau International des Poids et Mesures : 150 ans de mesures pour le monde* », written by C. Fellag Ariouet and published by Gallimard, has been a great success and has sold out in many of its outlets.

The BIPM has received many letters of thanks for the events and a number of gifts. Notable among the gifts were a commemorative plate from the Japanese ambassador to France. The plate incorporated nanoparticle technology developed by NMIJ/AIST. A commemorative plate was also received from the President of KRISS (Republic of Korea). Sales of the commemorative limited edition vases, produced by the *Manufacture de Sèvres*, are ongoing, with nine having been paid for and delivered.

The Director said that events organized in Sèvres to celebrate the anniversary included an exhibition in the Town Hall that ran from April to May, a display of large-format photographs by Raphaël Dellaporta outside the Town Hall and an exhibition in the *Médiathèque*. A special event was held at the French Academy of Sciences on 12 June 2025 as part of the series *Des clés pour comprendre*. The event was open to the public and was attended by 120 people.

He returned to the objectives of the anniversary, particularly the promotion of metrology to the widest possible global audience. Notable highlights of the achievement of this objective include an interview on the television channel France 24 with Henry Rotich, the director of Metrology and Testing at KEBS (Kenya); a full page feature in *Le Figaro* on the LNE (France); an anniversary-themed illumination on the roof of the *La Mole Antonelliana*, Turin (Italy) organized by INRIM; and an offer by UNESCO to involve “metrology” in their education outreach activities.

Finance

The Director said that publication of the Financial Report 2024 in English and French was completed on 16 June and he commented that there had been no meetings of the CIPM Sub-Committee on Finance (FSC) since the meeting of the CIPM in March. The BIPM currently has 64 Member States and 37 Associates, and during 2024 the only change was the reinstatement of Cuba in October.

He recalled that revenue followed the forecast in 2024, with a 1.5 % increase in the dotation and total contributions and subscriptions grew by 1.8 %. Other income rose due to the repayment of arrears by Cuba, in the context of its reinstatement, and from improved access to fixed interest accounts at the bank *Société Generale*.

The BIPM overspent against the budget in two areas in 2024: laboratory investments, agreed by the FSC, to allow the installation of a helium liquefaction system; and on contract service suppliers due to the absence of a gardener on long-term sick leave.

The Director said that total operating expenses increased slightly in 2024 due to salary inflation of 5.3 % but this was partly offset by electricity costs, which were high, but had been less than the budget. Capital expenditure was high as this was the first year of the Work Programme 2024-2027: initial years are subject to a higher investment loading to ensure facilities are in place to fully deliver the activities agreed in the work programme. The main items of capital expenditure in 2024 were a mass spectrometer for the Chemistry Department, a helium liquefier for the Physical Metrology Department and an update to the data storage equipment in the IT Service. Operating expenditure on non-staff items was slightly down in 2024 due to the aforementioned reduction in electricity costs. There was no significant change in laboratory, building and general expenses.

Revenue versus budgeted expenditure showed an increase in 2024 due to the 1.5 % rise in the dotation. Expenses went up largely due to staff costs and planned investments. Revenue was in excess of budgeted expenditure. The net result for 2024 showed a loss of 3.639 million euros. This was expected and reflects the transfer of 3 million euros into the BIPM Pension Fund. The amount of reserves and unreserved cash in 2024 remained strongly positive.

The Director said that one of the most important measures of the state of the BIPM Pension Fund is the valuation of the pension liability. This is dependent on the discount rate chosen by the actuaries to reflect market conditions. The ratio of assets to liabilities (the “funding level”) was 30 % in 2024, compared to only 15 % in 2014. The BIPM’s ongoing commitment to improve the funding level enables the auditor to sign off the accounts with the understanding that the pension fund is funded on a sustainable basis.

The Director gave a summary of the process for signing off the accounts and noted that for 2024 there was no statement from the auditor about the impact of global events. The auditor had asked about the potential for default of a payment by a major Member State, to which

the Director had responded that the BIPM has a prudent policy of maintaining a high level of reserves. This was taken by the auditor as adequate justification for not recording a risk of default of payment as a significant global event. A note was added to the Pension Fund financial statement about ongoing Member State support being required to sustain the pension fund. He said that this is included every year.

He presented an update on the BIPM financial performance for the year-to-date 2025. Income is at a similar level to previous years, despite one of the largest Member States having not yet paid its contribution. In terms of outstanding contributions and subscriptions, the historic outstanding payments by Iran have almost been resolved and the payment for 2022 is expected in the near future. If this goes ahead, all of the Member States will be able to participate in the 28th meeting of the CGPM. Only five Member States have outstanding contributions of more than one year. Three Associates: Bangladesh, Ghana, and Zambia have outstanding subscriptions from 2023 and may be suspended at the end of 2025. BIPM expenditure in the year to 31 May 2025 is according to plan. He concluded by informing the CIPM that the BIPM Finance Office and the Legal Adviser had undertaken a significant amount of work in the year to date to implement the investment strategy agreed for the Pension Fund which had been presented to the CIPM in March 2025.

The Director concluded his presentation by asking the CIPM for approval of the audited financial statements of the BIPM and of the BIPM Pension and Provident Fund for 2024 and presented a draft decision for consideration after the report by the Chair of the CIPM Sub-Committee on Finance (FSC).

8. Report of the CIPM Sub-Committee on Finance

P. Richard, Chair of the FSC, commented on the Financial Report and summarized the recent activities of the committee. He recalled that H.A. Frøystein became an *ex-officio* member of the FSC as of March 2025, following his appointment as Chair of the Pension Fund Advisory Board (PFAB). G. Macdonald, who had stepped down as the PFAB Chair, was invited to become an ordinary member of the FSC. She accepted the invitation and P. Richard noted that this change will need to be reflected on the BIPM website.

P. Richard said that the Financial Report 2024 was available in French and English. He thanked the Director, D. Spelzini (Head of the BIPM Finance Office) and her team for overseeing the very good financial performance in 2024 and KPMG for the preparation and completion of the external audit. He noted that there has been excellent collaboration between the Director, the Chair of the FSC and the Finance Office during 2024, with regular meetings held to provide financial updates. He concluded by stating that the FSC supports the audited financial statements of the BIPM and of the BIPM Pension and Provident Fund for 2024 and recommended approval by the CIPM.

The President thanked the Director, the FSC and the BIPM Finance Office and asked for any comments on the draft decision. There were no comments, and the following decision was approved unanimously.

Decision CIPM/114-12

The CIPM confirmed its approval of the audited financial statements of the BIPM and of the BIPM Pension and Provident Fund.

The CIPM granted the BIPM Director quietus for the 2024 exercise.

9. Reports from the Consultative Committees, Forums and Sectorial Task Groups

Consultative Committee for Amount of Substance: Metrology in Chemistry and Biology (CCQM)

S.-R. Park, President of the CCQM, said that its last plenary meeting had taken place at the BIPM headquarters on 10-11 April 2025. There were 110 participants, with less in-person attendees than usual, especially from South America. He noted that reduced in-person attendance from South America may have been driven by high travel costs. The plenary session marked the 30th anniversary of CCQM meetings. There were 590 participants in the meetings of the ten Working Groups, which were held immediately before the plenary meeting. The meeting days had to be extended to accommodate all of the Working Groups. A total of 16 new CCQM key comparisons were approved at the meeting and an update of the *mise en pratique (MeP)* for the definition of the mole was agreed.

S.-R. Park said that the leadership of the Working Groups is currently stable, with appointment/reappointment of Working Chairs and Vice-Chairs foreseen in April 2027. He informed the Secretary that he will be retiring from the CIPM at the 28th meeting of the CGPM (2026).

He said that the work of the CCQM Task Groups had been reviewed and thanked experts from the other Consultative Committees for their collaborations. The work of the CCQM Task Group on Infectious Disease Diagnostics and Metrology for Pandemic Preparedness (CCQM-TG-PANDEMIC) had led to the CCQM-P232 (NAWG) “Fire drill exercise”, designed for the rapid development of reference methods for Avian Flu, and the results are awaited. The CCQM Task Group on Metrology for Li-ion batteries (CCQM-TG-LI-ION) and CCQM Task Group on Nano- and Microplastics Measurements and Standards (CCQM-TG-NMMS) face challenges in areas such as defining the measurand. Both TGs are developing Terms of Reference to address these challenges. Four more Task Groups are under development to actively engage in critical measurement issues in chemistry and biology. These TGs will cover digitalization, gene delivery systems, sample shipment issues and measurement of graphene. The latter will require interaction with the Consultative Committee for Electricity and Magnetism (CCEM).

S.-R. Park presented an overview of recent and planned CCQM workshops. He thanked the BIPM staff for their assistance in organizing these workshops.

He commented that the CCQM is updating its Strategy Document 2021-2030. The CCQM Executive Secretary and Working Chairs have coordinated the task. The strategy has been updated to address future scientific, economic and social challenges as well as giving details of work accomplished against the strategic goals. The document will be published in September 2025.

S.-R. Park mentioned that the CCQM has reservations about the new definition of measurement uncertainty proposed by the two Working Groups of the JCGM. The concerns are centred on use of the word “doubt”, which does not convey the notion that measurement uncertainty is a “well-defined limit of our knowledge of a value coming from measurement” and may lead people to question the validity of a measurement. It was also noted that a major change in definition requires consultation with the broader measurement community to assess both intended and unintended consequences of the change.

He reported that the CCQM has experienced occasional but critical difficulties with the transport of samples for key comparisons. This is a serious problem for samples that are not stable and which must be kept below a certain temperature when being delivered to participants in key comparisons. He said that a CCQM TG is being set up to review the problem. He suggested that the CIPM could consider approaching the matter at a higher level, possibly with the World Customs Organization (WCO).

He concluded his presentation by informing the CIPM that INM Colombia has applied for CCQM membership. An *ad hoc* CCQM group will review the application.

The President thanked S.-R. Park and invited questions. D. del Campo Maldonado asked if the update to the *MeP* of the mole had been significant and what it had involved. S.-R. Park said that the change had been minor and asked R.J.C. Brown, in his capacity as President of the Consultative Committee for Units (CCU), to elaborate. R.J.C. Brown said that the update had involved revising the language in the *MeP* document, which had been published just after the redefinition of the mole in 2019. Version 3.01 of the ninth edition of the SI Brochure contains some changes to the language regarding elementary entity that were incorporated into the updated *MeP*. There were also some improvements in the way the mole can be realized by electrolysis and the *MeP* was updated to reflect the new value of the dalton from the latest CODATA adjustment. He acknowledged that R. Davis, the retired Director of the former Mass Department, had been very helpful in updating the *MeP*.

D. del Campo Maldonado commented that the difficulties with shipment of key comparison samples is also a problem for other Consultative Committees.

The Director replied that he has raised this issue with the Secretary General of the WCO who noted that there is a treaty in place to cover the transfer of scientific equipment between signatories States. However, to make progress under this treaty, individual governments must nominate an institute to work within the scope of the treaty. Efforts are needed by the NMIs and their respective governments to use this arrangement and to confirm whether it can be effective. R. Wielgosz said that the treaty covers the temporary export of scientific instruments, which would work for the temporary transfer of artefacts but may not cover permanent export of reference samples. He added that some NMIs are very experienced in shipping reference materials whereas others are less experienced. The proposed Task Group on shipment issues will study the options and seek to share best practice.

Consultative Committee for Units (CCU)

R.J.C. Brown, President of the CCU, presented an overview of the committee’s mission and structure. He recalled that the CCU Working Group on Strategy (CCU-WG-S) had met in February 2025, where the current activities in the CCU and its Task Groups were reviewed and approved. The meeting also received updates from the Consultative Committee for Time and Frequency (CCTF) on the redefinition of the second and from the Forum on Metrology and

Digitalization (FORUM-MD) on relevant issues on units. The WG-S agreed that the next plenary meeting of the CCU will be in the first half of 2027.

R.J.C. Brown said that Version 3.02 of the 9th Edition of the SI Brochure is being finalized. It includes updates to the value of the dalton and the list of binary prefixes. A few minor changes have been made to improve consistency in the brochure but there have been no changes in meaning. He noted that, in future, in association with the CCU Executive Secretary, the marginal notes and footnotes in the SI brochure may be deleted, rationalized or integrated into the text to aid digitalization. A proposal will be presented to the CIPM in due course.

The CCU-TG-KTSIB met in November 2024 and subsequently commented on proposals to update the treatment of non-SI units in the SI Brochure. The preferred approach is to move to a slightly expanded category of ‘non-SI units’ rather than the smaller list of ‘non SI-units accepted for use with the SI’. This approach has four benefits: it recognizes the continued use of non-SI units in some applications; it better serves stakeholders who want an authoritative source of conversion factors for important and internationally recognized units; it clarifies the SI’s relationship with non-SI units; and it removes confusion about the meaning of ‘accepted for use with the SI’. A proposed new page for ‘non-SI units’ in the SI Brochure was presented.

R.J.C. Brown said that the CCU Task Group on Fundamental Concepts in Metrology (CCU-TG-FCM), chaired by L. Mari, is considering a mathematical model of quantities, which is relevant to the work of JCGM-WG2:VIM and the digitalization communities. The CCU-TG-FCM meets regularly with detailed discussions currently ongoing within a smaller focus group.

He finished his presentation by noting that the CCU gives advice to the CIPM and stakeholders on units of measurement, for example by providing input to the FORUM-MD *ad hoc* Task Group on SI-digital Framework (FORUM-MD-TG-SIDF). In addition, the CCU continues to prepare documents to promote and explain the SI.

The President thanked R.J.C. Brown and invited questions. He was asked how the CCU decided on which non-SI units to include in the Brochure, particularly because of the number of potential units. R.J.C. Brown replied that the CCU considered whether such units were within one of four categories. These are: long-standing units of time and angle; historical names for decimal multiples and sub-multiples of SI units; internationally recognized units related to the SI by non-decimal conversion factors; and units used in specialized technical disciplines. The President added that the final proposal will be submitted to the CIPM for approval. H. Laiz stressed the importance of having an authoritative reference for conversion of non-SI units to SI units. He recalled that this had been mentioned during “The FAIR digital revolution” session at Versailles on 21 May 2025. He added that this could be considered during development of the SI Reference Point. R.J.C. Brown agreed. The President recalled that changes to the SI Brochure are now accompanied by a preface of the SI Brochure signed by the CIPM President, BIPM Director and CCU President.

Joint Committee for Traceability in Laboratory Medicine (JCTLM)

R. Wielgosz, in his capacity as Executive Secretary of the JCTLM, presented an update on its activities, recalling that its work is aimed at the laboratory medicine, diagnostics and *in vitro* diagnostics (IVD) industries. He gave an overview of its history, work and the regulatory requirements for traceability in laboratory medicine.

The vision of the JCTLM is to have all IVD medical device manufacturers, regulators and laboratory medicine professionals world-wide use and refer to the JCTLM database when claiming accuracy of diagnostic results. He recalled that Version 2.0 of the JCTLM Database for higher-order reference materials, methods and services went live on 3 October 2022. It is estimated that there are around 2 000 analytes that are measured in medical laboratories world-wide: the JCTLM database cover 270 of these analytes. These 270 analytes represent 72 % of analyses by frequency in France in 2024 and 62 % of analyses by frequency in Switzerland in 2022; they therefore represent a significant subset of all analytes.

R. Wielgosz presented an overview of the finances of the JCTLM, particularly the costs of operating the secretariat at the BIPM headquarters. Annual operating costs (BIPM staff costs) are 120 000 euros and the annual JCTLM database maintenance costs are 10 000 euros. The database has a lifespan of about 10 years and development costs of the current database were 210 000 euros. Income consists of 70 000 euros from the BIPM annual staff budget and an annual donation of 50 000 euros from the International Federation of Clinical Chemistry and Laboratory Medicine (IFCC), one of the Executive Committee Member Organizations. This donation is subject to an updated agreement every three years. An additional 10 000 euros comes from the BIPM Chemistry Department budget annually. A total of 130 000 euros required for database development came from the BIPM investment budget and third-party donations accounted for an additional 70 000 euros, with the remainder funded by a surplus of 10 000 euros from JCTLM meeting fees in 2023.

He said that the JCTLM has developed a strategy to ensure that it has a sustainable financial system to fund its activities. The view of the JCTLM community, particularly the IFCC, is that the costs of operating the JCTLM should be shared more widely. In order to achieve this, the JCTLM has proposed the introduction of a tiered membership structure to raise funds. The current membership model does not involve fees and the membership is made up of four Executive Committee organizations, 12 national and regional members, and 53 Stakeholder members, of which 19 are IVD manufacturers. The future tiered membership structure will involve fees for some categories. The structure is in development with implementation planned for 1 January 2027. The IFCC funding model provides a model for this and was presented.

R. Wielgosz concluded with a presentation on artificial intelligence (AI) and the JCTLM database. A project is under way to make data in the database usable by large language models (LLMs), such as ChatGPT. The JCTLM is also investigating the use of an AI assistance tool for database nominations and reviews. This work is included in the ToR of the newly-created CCQM Task Group on Data Digitalization (CCQM-TG-DD).

The President thanked Dr Wielgosz and invited questions and comments. The Director congratulated the JCTLM on the new funding model. He said that the JCTLM is the BIPM's only sector-specific activity. This topic was mentioned in 2014 during the review of the CIPM MRA, specifically whether the KCDB could be more sector-specific. He commented that this is possible, but a partnership would have to be set up with a specific sector and this would require resources. He noted that the BIPM is investigating access to all of its databases by large language models. He presented figures for access to the KCDB through the KCDB application programming interface (API) in May 2025. A total of 61 % of the calls to the API were made by Microsoft Azure Cloud. This demonstrates that the LLM behind this web crawler is accessing data on the KCDB. This is critical for the future impact of the BIPM's data and it is vital that these web crawlers interpret the data correctly.

Forum on Metrology and Digitalization (FORUM-MD)

C. Denz, Chair of the FORUM-MD, said that there had not been a meeting since the last session of the CIPM in March so there was nothing substantial to report. She thanked the BIPM for organizing the panel discussion on “The FAIR digital revolution” at Versailles on 21 May 2025. The next meetings of the FORUM-MD Task Groups will be held in July and the next plenary meeting will be in March 2026.

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

D. del Campo Maldonado, Chair of the CIPM-STG-CENV, reported that the STG had not met since the last session of the CIPM. A meeting will be held with the new membership of the STG in late September to start preparing the next stakeholder meeting. The STG is planning to organize a webinar, in collaboration with the RMOs, to run in parallel with the United Nations Climate Change Conference (COP 30) in Brazil in November 2025. She noted that it would be useful to have the cooperation of INMETRO (Brazil) and asked G. Ripper for his support to identify colleagues from the NMI that could be involved in the webinar.

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

J.-T. Janssen recalled that the G7 nations had issued a joint statement at their summit in Canada in June 2025 that supported collaboration in quantum technologies between trusted national measurement institutes, including through the collaborative initiative, NMI-Q, to drive forward essential measurements and testing work among “like-minded” partners. He thanked the Canadian delegation for working to have this included in the G7 statement.

He said that he had drafted a proposal for a Sectorial Task Group on “Quantum for Metrology” (CIPM-STG-QfM) in collaboration with J. Qu, which had been available to the CIPM in advance of the meeting. The document includes Terms of Reference (ToR) on the specific tasks of cross-CC activities that do not encroach on their core work. It will focus on how to use “quantum in metrology” in general terms.

The President thanked J.-T. Janssen and noted that this topic had been discussed at previous sessions of the CIPM. J.-T. Janssen was asked if the proposed CIPM-STG-QfM would be seeking members from CCs and NMIs. He replied that the membership was still under discussion, but both could be considered, particularly as there are NMIs that are not part of the CC network, but which may be developing relevant standards. The President added that the membership structure could be similar to the CIPM-STG-CENV. Several CIPM members had serious reservations about the proposed ToR for the CIPM-STG-QfM referring to the NMI-Q, which is not overseen by the CIPM.

P. Richard cautioned that the need for an STG in the quantum area should be examined carefully to avoid a proliferation of new STGs. He said that the CIPM should discuss its strategy for sectorial activities and should consider introducing indicators to monitor the effectiveness of STGs and Forums. There is a danger that sectorial groups can be set up without a clear strategy. He added that the added value of an STG in quantum for metrology remains unclear, apart from making the area more visible. He also commented that the quantum field covers many diverse technical areas, such as quantum optics, electrical quantum standards and optical clocks. These areas have very different user communities and are dealt with in the

existing Consultative Committee structure. The objectives of setting up a stand-alone STG are therefore not met. He also asked about the planned link between the proposed STG and activities in international standardization. For example, the Technical Committees *IEC/ISO JTC 3 – Quantum technologies* and the *CEN and CENELEC Joint Technical Committee 22 (CEN-CLC/JTC 22)*, which is dedicated to the development of standards for quantum technologies, are not mentioned in the document that had been made available to the CIPM. He agreed with the earlier comments and asked why there is a need for two entities (NMI-Q and the proposed STG) working in the same area that will lead to unnecessary duplication of effort and resources for NMI participants. He said that the proposal document was unclear about the governance structure of the STG, such as the membership, length of term for the Chair and monitoring the effectiveness of the STG. He suggested that these points need clarification and creation of the proposed STG should be deferred and discussed again in October 2025.

The CIPM discussed the issue further and there was some support for a cross-cutting group in the area of “quantum for metrology”, but there were several calls for NMI-Q to be kept out of the discussion. J. Olthoff suggested that NMI-Q could be kept out of the remit of the STG by restricting the scope to *“The STG-QfM will not focus on the standardization and validation of applications based on quantum technology which do not directly relate to metrology applications.”*

It was proposed that a call for interest in the proposed STG could be sent out now to establish a preparatory group to consider strategic issues such as future membership. This proposed group could include representatives from the CCs and discuss the ToR. G. Macdonald recalled that the CIPM had previously discussed setting up a discussion group among the CCs to consider issues such the common cross-cutting themes in quantum for metrology and asked if these should be included in the ToR.

The Director commented that the proposal document for the CIPM-STG-QfM includes three bulleted lists. It is unclear which list would be used as the ToR for the group. The ToR are important when the activities of a new group have been endorsed by the CIPM and are promoted on the BIPM website. He added that some of the questions raised by the CIPM may be answered when the ToR have been formulated and made available. P. Richard supported the suggestion that ToR are important and added that the cross-cutting role among the CCs may be served more efficiently by a CIPM Task Group, rather than a Sectorial Task Group.

The President summarized the discussions and reminded the CIPM that the membership rules for STGs and Forums are under development. The CIPM can discuss the rules for the existing STG, Forum and proposed STG at its next meeting in October. He added that a CIPM Task Group on quantum could be set up now for preliminary discussions with the CCs. The discussions in October can include the planned ToR and a proposal on how to proceed to the possible establishment of a cross-cutting group on “quantum for metrology” in the future. He endorsed the comment by J. Olthoff on the need to keep references to NMI-Q out of the scope of the proposed group.

J.-T. Janssen said that he agreed with the proposal to start with a CIPM Task Group to come to a consensus on the ToR before broadening discussions to membership and how to set up a horizontal group. He added that the comments from the CIPM on how to formulate the ToR will be taken into account. J. Qu, the co-author of the proposal for the CIPM-STG-QfM, added

that he will collaborate with J.-T. Janssen to improve the proposal, based on the outcomes of these discussions.

The President asked the CIPM if they agreed to establish a CIPM Task Group on Quantum for Metrology to develop the ToR ready for submission to the CIPM in October and to gather input from the CCs. He clarified that the intention is not to restrict membership of the Task Group to the CCs. The Task Group will approach the CCs first and then the wider community in the future. The following decision was agreed, with J. Qu as Chair of the CIPM Task Group and J.-T. Janssen as Vice Chair.

Decision CIPM/114-13

The CIPM decided to establish a CIPM Task Group on Quantum Technologies for Metrology to draft the objectives and terms of reference for an envisaged horizontal activity. The CIPM appointed J. Qu as Chair of the CIPM Task Group, and J.-T. Janssen as Vice-Chair; V.G. Achanta, V. Coleman, C. Denz, N. Dimarcq, H.A. Frøystein, G. Macdonald, D. del Campo Maldonado, M. Milton, M.L. Rastello, G. Rietveld and T. Usuda agreed to be members.

The President said that he will continue to work on the ToR and principles for membership of Forums and STGs and will present a proposal to the CIPM in July or August 2025. The discussions on membership of the proposed new cross-cutting group on Quantum for Metrology will be taken into account. The final proposals on membership will be presented to the CIPM in October.

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

The President presented a list of proposals for resolutions at the 28th meeting of the CGPM:

- Draft Resolution A *On universal adherence to the Metre Convention*
- Draft Resolution B *Towards a new definition of the second*
- Draft Resolution C *On the continuous nature of UTC*
- Draft Resolution D *On the definition of a timescale on the moon*
- Draft Resolution E *On the coordination of metrological work to address emerging global challenges*
- Draft Resolution F *On the digital transformation of metrology*
- Draft Resolution V *The dotation for the period 2028-2031.*

The Director commented that the drafts should be ready for review by the CIPM in October and the final versions are required for January 2026 so that they can be sent out with the Convocation, nine months before the 28th CGPM in October 2026. He added that the final versions of all draft resolutions will undergo a thorough legal review and editorial check before being translated into French. The translation stage provides an additional check to ensure that the English version is clearly drafted. The current list designates each draft resolution by a letter. This ensures that there is no confusion between the drafts and the final resolutions, which are numbered. The Director said that the order of the draft resolutions in the list is not fixed and may change.

Draft Resolution A *On universal adherence to the Metre Convention*

V. Coleman thanked A. Cypionka, R. Guliyeva and the Director for their work on drafting the resolution. She said that an outstanding question was whether the term ‘Observer State’ or

‘Observer Economy’ was preferred. The group that developed the draft resolution preferred Observer States, as the target of this initiative are the States that do not yet adhere to the Metre Convention.

The President thanked V. Coleman and said that the resolution has been reviewed by the CIPM bureau and they prefer Observer States as this may dissuade economies, which are parts of existing States, to apply for Observer status as autonomous entities. He invited questions and comments.

The CIPM noted that two of the bullet points in the ‘decides’ section refer to States or economies. The references to economies should be removed if the CIPM decides that the draft resolution is aimed at States. The Director added that any possibility that economies might become Observers would be highly contentious for some Member States and that any reference to economies would need to be checked carefully.

The President summed up the discussions by saying that the consensus is for the use of Observer States and references to economies should be removed. He suggested that the resolution should refer to “observer status for States and organizations.”

Draft Resolution B *Towards a new definition of the second*

N. Dimarcq summarized the work that had been completed by the CCTF since 2020 towards agreeing a new definition for the second. He noted that the text of a draft resolution had not yet been formulated. The draft resolution will include a shortlist of possibilities for the new definition. To assist with this, a categorization of the candidate species and transitions will be given with respect to their maturity as possible optical frequency standards (OFS) for a definition. The CCTF Task Force on updating the roadmap for the redefinition of second is carrying out a detailed analysis of two options: Option 1 (a single transition) and Option 2 (an ensemble of transitions). Experts from around the world are being included in the discussion.

He presented the reasons why it will not be possible to take a major decision regarding a new definition of the second at the 28th CGPM in October 2026. This is because there is currently no consensus on the choice between Options 1 and 2. Even if a decision to proceed with Option 1 seems simpler, the consensus on the choice of the species has not been reached.

N. Dimarcq presented the schedule for the redefinition of the second, through to the 29th meeting of the CGPM (2030), where the final decision is expected. He concluded by saying that a lot of work has already been done and significant progress has been made since the first version of the roadmap towards the redefinition was published in 2016. The momentum has been maintained thanks to the support of the CCTF Task Force, its subgroups and the NMIs. It is essential to ensure that the new definition will bring a real improvement with respect to the current definition using caesium.

The President thanked N. Dimarcq and invited questions. The Director asked if the draft resolution being developed for 2026 will mention any species or if it will simply articulate the general situation. N. Dimarcq replied that the updated roadmap will include a shortlist of possibilities for the redefinition, identifying the species. If it is not possible to provide this shortlist in 2026, he doubted if it would be possible to come to a convergence in 2028 and it will give the impression that the time and frequency community is not ready for the redefinition. He added that this is therefore an essential step in 2026 in order to send out a positive message regarding the redefinition. The shortlist currently consists of two or three

species for Option 1 and one ensemble of species for Option 2. He believed Option 2 would not be ready before 2030.

The CIPM asked if the CCTF Task Force has considered what the wider time and frequency community wants from the redefinition. N. Dimarcq replied that one of its first tasks had been to identify the needs of users and these requirements were taken into account in the analysis of Options 1 and 2. He added that unlike continuous UTC, there is no urgent need from the user community for a redefinition. H.A. Frøystein asked what support is required from the CIPM. N. Dimarcq replied that it must maintain the engagement of the NMIs to contribute to the work required for the redefinition and a commitment from the NMIs to improve the fulfilment of the mandatory criteria defined by the CCTF.

Draft Resolution C *On the continuous nature of UTC*

N. Dimarcq recalled Resolution 4 of the 27th CGPM (2022) *On the use and future development of UTC* and presented the motivation for implementing UTC as a continuous timescale. He said that Draft Resolution C will include a value of the new limit for UTC-UT1. In order to ensure a continuous UTC over one century, two options are under consideration, ± 100 seconds with a continuity of about one century and ± 1 hour with a continuity of about one millennium. The resolution should also state the chosen date for implementation.

He stressed that the metrology and time and frequency community needs to be prepared to defend against opposition to the choice of an implementation date during the 28th CGPM. He warned that because of the requirement by industry for an early implementation date, there is a danger of UTC being bypassed as the international reference time scale if there is any delay. The CCTF will base its choice of the date on scientific and technical data, but he acknowledged that there is a geopolitical aspect to the decision.

He reported that the CCTF Task Group devoted to continuous UTC has worked with Earth rotation specialists to evaluate the probability of a negative leap second, and the impact it may have on critical digital infrastructures. Liaison statements have been received from the International Telecommunication Union – Telecommunication (ITU-T) and industrial groups that have tested if commercial equipment can handle negative leap seconds and hence ensure the resilience of critical national infrastructures. They have found that most of the commercial equipment is not able to correctly handle a negative leap second and have requested a change to UTC as soon as possible to avoid a potential negative impact.

The Director acknowledged the considerable amount of work carried out by P. Tavella and G. Tagliaferro at the Joint BIPM-International Earth Rotation and Reference Systems Service (IERS) workshops on Earth rotation modelling on 13 and 27 March 2025. These workshops brought together experts from CCTF, BIPM and Earth rotation. The outcomes were presented as probability charts for the occurrence of a negative leap second. G. Tagliaferro produced these charts, which combined all the data on Earth rotation into a single concise summary and have been invaluable. This work underlines why active scientists are needed at the BIPM headquarters to support decision-making on complex metrology issues.

The President asked if a draft resolution is available. N. Dimarcq confirmed that it has not yet been drafted; the first draft will be prepared for the CCTF meeting in September 2025 ready for presentation to the CIPM in October.

The Director recalled that the views of Member States on the issue of continuous UTC are well known as are the views of industrial users of UTC. If the BIPM were to remove a leap

second, many users of UTC would seek an alternative timing system and NMIs would no longer have a role in the provision of the world time scale. He added that there is not really a political dimension to the decision as the views of Member States are very clear. The only political aspect is that it is prudent to continue to work with all countries at the conference to find a solution. If a considerable majority of Member States vote in favour of the introduction of continuous UTC, and an end to the insertion of leap seconds, then this is the advice that the BIPM should follow. The voting on this draft resolution does not require unanimity, although a strong consensus is highly desirable.

The President summarized the discussions by stating that the CIPM strongly encourages the CCTF to draft a resolution that will propose a date for the implementation of continuous UTC. N. Dimarcq agreed that the draft resolution for presentation at the 28th CGPM (2026) must include a precise date and a value for the new limit for UTC-UT1.

Draft Resolution D *On the definition of a timescale on the moon*

N. Dimarcq said that the CCTF and BIPM have been asked by space agencies, the International Astronomical Union (IAU) and the International Committee on Global Navigation Satellite Systems (ICG) to contribute to the definition of a lunar reference frame and timing standards. A draft resolution on a potential lunar timescale will be prepared by the CCTF in September 2025, with a preferred lunar time definition and its traceability to UTC. The consequences for the BIPM Work Programme, after the CGPM has adopted the resolution, need to be taken into account.

He presented the activities undertaken by the CCTF towards this goal. He remarked that the draft resolution cannot choose the reference time that space agencies should select, but the resolution will note that any time scale on the Moon, or Mars, should be connected to UTC. The theoretical behaviour versus UTC in the frame of general relativity is under detailed study, including a map of the effect due to the gravitational field on the Moon. Three possible options for the definition of Moon time have been identified and are under evaluation: barycentre of the Moon, Moon surface, or same frequency on average as UTC. The practical aspects of a Lunar time scale realization and the possibility of measurement versus UTC are being discussed with space agencies in the framework of their lunar projects. In order to support the work, the European Space Agency is proposing to provide a part-time student to carry out simulations at the BIPM to better understand the lunar timescale.

N. Dimarcq commented that there are still two open questions that may need to be addressed in the draft resolution as they will affect the future BIPM Work Programme. Firstly, should the BIPM publish the difference between Lunar time and UTC when it becomes available. Secondly, the different space agencies will realize their own lunar time but they have proposed that a single organization should evaluate a “coordinated” realization of Lunar time, similar to UTC and UTC(k). The space agencies have proposed that the BIPM should carry out this task.

The President thanked N. Dimarcq and invited questions. H. Laiz commented that although it is important for the BIPM to be involved in the development of a lunar timescale only six countries have ongoing projects for lunar exploration. P. Tavella replied that one of the participants in lunar exploration is the European Union, which has 27 members, and together with the six countries mentioned (USA, Japan, India, Republic of Korea, China and the Russian Federation), they cover a large number of BIPM Member States.

Draft Resolution E *On the coordination of metrological work to address emerging global challenges*

The President recalled that Resolution 1 of the 27th CGPM (2022) *On the report prepared by the International Committee for Weights and Measures on the “Evolving Needs in Metrology”* encouraged the CIPM ‘to consult widely on its proposal for a new vision for the BIPM to be presented at the 28th meeting of the CGPM (2026).’ He noted that Draft Resolution E *On the coordination of metrological work to address emerging global challenges* provides a good basis for the first two topics in the CIPM Strategy 2030+ of responding to evolving needs for metrology, and addressing key scientific challenges to advance the global measurement system, but that it could possibly be broadened.

D. del Campo Maldonado recalled that the motivation behind Draft Resolution E was to draft a resolution on the evolving needs of metrology and to encourage Member States to support NMIs in their work on the horizontal groups. She presented the text of the resolution and the rationale for some of the content in relation to the CIPM-STG-CENV.

J. Olthoff expressed his concern that the text of Draft Resolution E could imply that the CIPM intends to establish more horizontal groups and that this is the preferred option without it being part of the strategy. He said this was a contentious issue, particularly considering the earlier discussions on the proposed CIPM-STG-QfM. He suggested alternative wording such as “the CIPM supports global issues” but without dictating how this should be achieved.

D. del Campo Maldonado clarified that the draft resolution does not recommend that horizontal groups are the only way forward. She noted that the resolution is clear that the resources of the BIPM are finite and horizontal structures are only suggested for areas where there is no existing coordination. It provides a potential strategy for the future without mentioning specific topics to pursue. P. Richard was of the opinion that Draft Resolution E was too general. He suggested that it could be made more comprehensive by including information about what the BIPM have achieved with respect to the five main themes that were identified for the development of the CIPM Strategy 2030+.

The Director said that CGPM Resolutions can be considered as “milestones” in the progress of the BIPM. The resolutions provide reference points for the implementation of the preferred direction of the CGPM as well as allowing the CGPM to signal which activities in each four-year cycle it considers to be of particular significance. He noted that Resolution 1 at previous meetings of the CGPM has been of a general nature. Draft Resolution E could reflect this by highlighting achievements and changing the text in the “encourages” section to focus on the continuation of these successful activities. He recalled D. del Campo Maldonado’s reservations regarding the establishment of more horizontal groups and the BIPM’s resources being finite. He clarified the situation by noting that the number of meetings at the BIPM headquarters is increasing and the number of weeks without meetings is decreasing. The options for additional groups to hold annual meetings is becoming limited. The resource aspects of creating more groups would need to be added to future work programmes, costed and presented to Member States.

The President thanked the CIPM for their comments on Draft Resolution E and said that he will work with D. del Campo Maldonado and the Director to convert it into a more general preliminary draft resolution. A new draft will be presented to the CIPM in October. J. Olthoff cautioned that the draft resolution should not suggest that any new vision is more important

than the existing core work of the BIPM. It should be made clear that any new vision is an extension or evolution of the role of the BIPM that has existed for 150 years. The President replied that the proposed resolution may refer to the “consolidated plans for the future” rather than a new vision. C. Denz proposed that the Draft Resolutions should include information about how any metrological topic mentioned has a benefit to economies, industries and society. The target audience for the draft resolutions are the State representatives at the CGPM, so the benefits of each activity should be made explicit. V. Coleman referred to the comment by the Director about highlighting activities of particular significance in the draft resolutions and suggested that the Young Metrologists initiative had been a major success and should be included. She also suggested including case studies in the draft resolutions to emphasize benefits to economies, industries and society.

Draft Resolution F *On the digital transformation of metrology*

C. Denz asked for clarification as to whether Draft Resolution F is intended to cover only the work of the FORUM-MD or if it should also address the broader spectrum of upcoming topics in digitalization to give an outline of the CIPM’s plans in the coming years. The President agreed that this information should be included.

Draft Resolution V *The dotation for the period 2028-2031*

The Director said that although a preliminary version of the draft resolution on the dotation will be sent with the Convocation in January, the final version will be made available to the CGPM in the weeks leading up to the conference. The dotation resolution is developed after completion of the long-term planning process, which starts in October. It has to take into account the costs of the Work Programme and how the Member States will prioritize this. A crucial step in finalization of the draft resolution is what the Member States will be able to offer in terms of future funding. These discussions are likely to continue until the week of the conference.

Timelines and practical arrangements for the 28th CGPM

The Director gave his report on the timelines and plans for the 28th meeting of the CGPM. He said that the Palais des Congrès in Versailles has been reserved for the week beginning 12 October 2026 and the conference will be organized over three days following the decision of the CIPM. The BIPM has invited Prof. Françoise Combes, President of the Academy of Science, to be the President of the CGPM.

He presented a draft programme for the three days of the conference. He proposed that the Dotation Committee should be established on the morning of the first day, with its first meeting held on the same afternoon. He said that the details of the programme could not be confirmed until it was known whether time would be needed for an extended discussion on the Rules of Procedure for the CGPM. For example, there may not be sufficient time for the Presidents of the Consultative Committees to each provide an update. He said that the details of the programme could be finalized by the CIPM in October.

The Director concluded by presenting the timeline for preparation of the Work Programme (2028-2031), the long-term financial plan and the dotation “bid”. The Management Team is currently preparing a draft Strategy for the BIPM (2026), which will be sent out for consultation in August. This will be a key input into the development of the Work Programme (2028-2031).

The President said that the CIPM bureau will continue to work with the Director to further develop the timings for the CGPM for presentation to the CIPM in October. P. Richard agreed with

the proposal for either a session for short 5-minute updates from CC Presidents or an additional closed meeting of Member States to discuss the RoP and Dotation on the afternoon of Day 2. He asked when a decision will be taken as to which of the two options will be followed. The Director suggested that the CIPM will have a better understanding of whether the RoP and Dotation may require extra discussions at the CGPM about two months before the General Conference. Two or three online meetings will be held to present these topics to representatives of Member States and by mid-2026 it should be clear. The Director confirmed that a preliminary meeting with Member State representatives will be held at the BIPM headquarters on the day before the start of the CGPM (for example Monday 12 October 2026). This preliminary meeting should have a broad agenda covering all issues addressed by the CGPM, including the dotation. He recalled that these preliminary meetings had been a very important part of the process of developing consensus ahead of previous meetings of the CGPM.

11. Any other business

The Secretary presented the list of draft decisions and said that he will circulate the document for comment after the meeting. He added that a decision will be drafted to formally recognize the success of the 150th anniversary of the signing of the Metre Convention on behalf of the CIPM. The following decision was drafted after the meeting.

Decision CIPM/114-14

The CIPM noted with great satisfaction the successful completion of the celebrations of the 150th anniversary of the Metre Convention, including the commemorative ceremony.

The CIPM expressed its sincere appreciation to the Director and the staff of the BIPM for their outstanding dedication and efforts in organizing and delivering these historic events, and for the contribution of the speakers and other International Organizations, which have served to highlight the continuing relevance and global importance of the Metre Convention and the work of the BIPM.

The Director updated the CIPM with some news from the BIPM Capacity Building and Knowledge Transfer Programme (CBKT). A Technical Exchange meeting with TC Chairs from all RMOs had been held on 19 June. The meeting had 91 participants and demonstrates that the TC Chairs are committed to the work of the CIPM MRA in the regions.

P. Richard asked what the next activity will be for the CIPM Sub-Committee on Strategy now that the CIPM Strategy 2030+ has been published. He suggested that new activities could be initiated according to the items in the existing mission of the Sub-Committee, alternatively the mission could be revised. He suggested that the Chair of the Sub-Committee could either present a proposal for the next actions or how to update the mission at the next session of the CIPM in October. The President proposed that in the first instance, the Sub-Committee could assist with developing the general draft resolution *On the coordination of metrological work to address emerging global challenges*. It could also work towards improving promotion of the Strategy.

The President closed the meeting and thanked all those who had participated for their input and constructive discussions. He said that the next Session will be held in person at the BIPM headquarters on 13-15 October, followed by the meeting of NMI Directors and Member State representatives.



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