International Workshop on Standards and Measurements for Alpha Emitting Nuclides in Therapeutic Nuclear Medicine

22-23 February 2024

Dr. Vincent Gressier, CCRI Executive secretary;
Dr. Brian Zimmerman, Chair CCRI Radionuclide Therapy and Quantitative Imaging Working Group;
Dr. Jan Rušnák, Coordinator, EURAMET AlphaMet Project

Welcome

This two-day workshop intended to:

- **bring together** practitioners from the radionuclide metrology, nuclear medicine, and medical physics communities
- **discuss issues and needs** for accurate measurements and standards for alpha-emitting radionuclides being used or investigated for therapeutic nuclear medicine applications.
- **output of workshop** will be a summary White Paper (perhaps publication) including recommendations for all communities, with emphasis on metrology

Organizers:

- CCRI Radionuclide Therapy and Quantitative Imaging Working Group (CCRI-RTWG)
- EURAMET AlphaMet project.

The BIPM – an international organisation

Established in 1875 when 17 States signed the Metre Convention, now with 64 Member States and 36 associates.

CGPM – Conférence Générale des Poids et Mesures

Decision-making body, meets every 4 years

Attended by political and scientific representatives from Member States and Associate States

Member States vote on resolutions, Associate States are observers

CIPM – Comité International des Poids et Mesures

18 members, elected by the CGPM

Coordinates actions to promote world-wide uniformity of measurement

Oversees the BIPM, including CBKT opportunities and secondments

Advised by Consultative Committees

BIPM – Bureau International des Poids and Mesures

70 people

International coordination and liaison

Technical coordination – laboratories

Capacity building

Consultative Committees (CCs)

CCAUV – Acoustics, US & Vibration

CCEM – Electricity & Magnetism

CCL – Length

CCM – Mass and related

CCPR – Photometry & Radiometry

CCQM – Amount of substance

CCRI – Ionizing Radiation

CCT – Thermometry

CCTF – Time & Frequency

CCU - Units

Structure

National Metrology Institutes (NMIs)

- One per Member or Associate State
- Appointed by government
- Holds national standards (primary or secondary)

Designated Institutes (DIs)

- Holds national standards for a particular field
- One per field of measurement
- Appointed by NMI

Secondary Standard Dosimetry Laboratories

- Members of a separate network – the IAEA/WHO SSDL network
- May also be a DI or NMI

251 Institutes participating in the CIPM MRA

- 97 National Metrology Institutes + 3 Ministries
  - *64 Member States*
  - *36 Associates*
- 4 International organizations *(ESA, IAEA, JRC, WMO)*
- plus 150 Designated Institutes

Regional Metrology Organizations (RMOs)

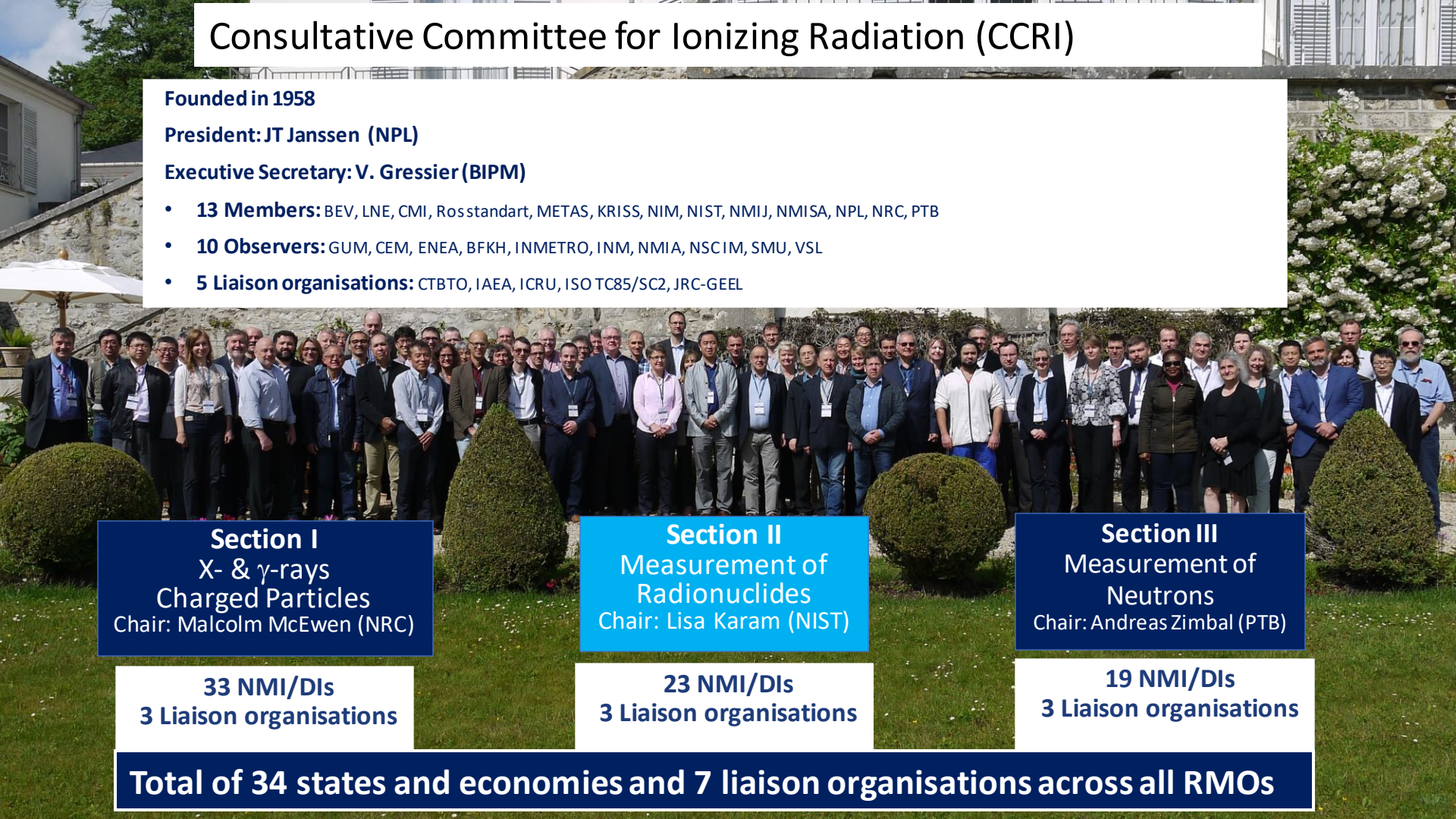
Consultative Committee for Ionizing Radiation (CCRI)

Founded in 1958

President: JT Janssen (NPL)

Executive Secretary: V. Gressier (BIPM)

- **13 Members:** BEV, LNE, CMI, Rosstandart, METAS, KRISS, NIM, NIST, NMIJ, NMISA, NPL, NRC, PTB
- **10 Observers:** GUM, CEM, ENEA, BFKH, INMETRO, INM, NMIA, NSCIM, SMU, VSL
- **5 Liaison organisations:** CTBTO, IAEA, ICRU, ISO TC85/SC2, JRC-GEEL



Section I
X- & γ-rays
Charged Particles
Chair: Malcolm McEwen (NRC)

33 NMI/DIs
3 Liaison organisations

Section II
Measurement of Radionuclides
Chair: Lisa Karam (NIST)

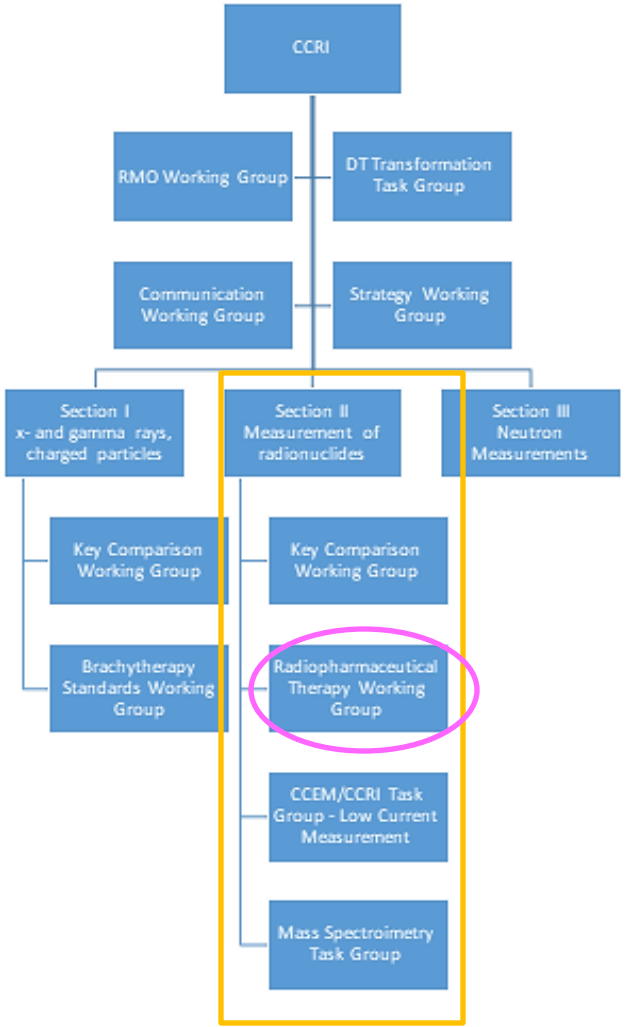
23 NMI/DIs
3 Liaison organisations

Section III
Measurement of Neutrons
Chair: Andreas Zimbal (PTB)

19 NMI/DIs
3 Liaison organisations

Total of 34 states and economies and 7 liaison organisations across all RMOs

CCRI(II)



CCRI(II): Metrology of the (radio-)activity

Chair: **Lisa Karam (NIST)**, vice chair: **Haoran Liu (NIM)**

Meet every 2 years (2023, 2025)

KCWG(II): Key Comparison WG of section 2

Chair: **Ryan Fitzgerald (NIST)**

Assisting CCRI(II) on comparisons

RTWG: Radiopharmaceutical Therapy WG

Chair: **Brian Zimmerman (NIST)**

- Brings together Metrologists, Nuclear Medicine specialists
- Address measurement issues in image-guided radionuclide-based therapies
- Aim to develop and share best practice (including guidance documents)

MSTG: Mass Spectrometry TG

Chair: **Ben Russel (NPL)**

Study of the possibilities of the development of the use of mass spectrometry to support radionuclide metrology

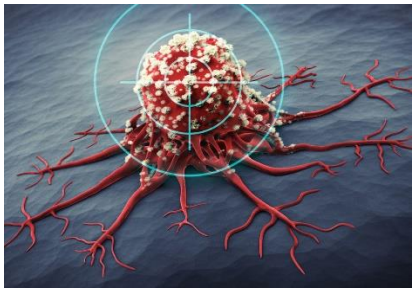
EURAMET - Metrology for emerging targeted alpha therapies (AlphaMet)

AlphaMet
Metrology for Emerging Targeted Alpha Therapies

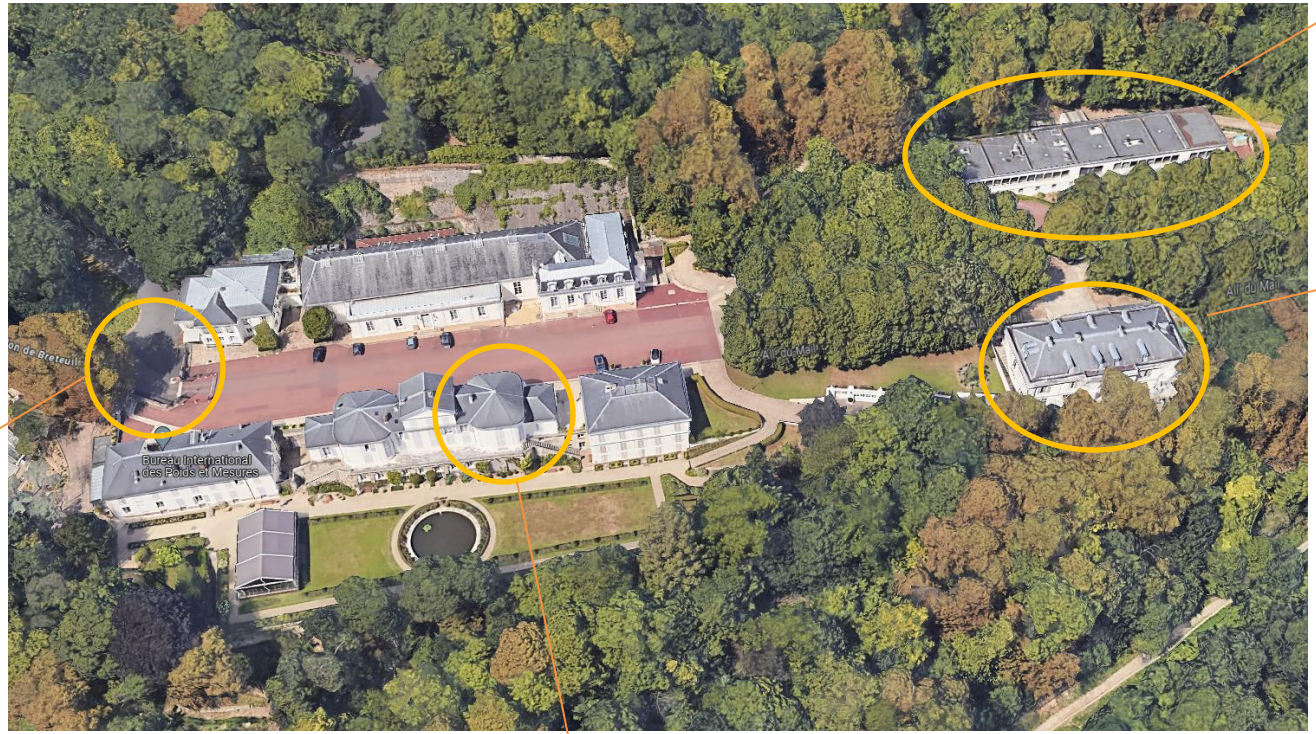
- European Metrology partnership to develop a metrological network to help implement targeted alpha therapy across European health institutes

- Partners:
  - **NMIs and DIs**: CIEMAT (Spain), CMI (Czechia), ENEA-INMRI (Italy), LNE-LNHB (France), NPL (United Kingdom), POLATOM (Poland), SCK-CEN/LNK (Belgium)
  - **Other participants**: Asociación Instituto de Investigación Sanitaria Biobizkaia (Spain), Bundesamt für Strahlenschutz (Germany), Centre hospitalier universitaire vaudois (Switzerland), Göteborgs Universitet (Sweden), Groupement Internet Public ARRONAX (France), Katholieke Universiteit Leuven (Belgium), Klinikum der Universität München (Germany), Royal Surrey County Hospital NHS Foundation Trust (United Kingdom), Servicio Vasco de Salud Osakidetza (Spain), Universitätsklinikum Würzburg - Klinikum der bayerischen Julius - Maximilians - Universität (Germany)

- Coordinator: Jan Rusnak (CMI)



Welcome at the BIPM!



Marie Curie Building (Chemistry and IR labs)

We are here!

Main Gate

Coffee breaks and lunches

QR code for agenda and list of participants

There is a QR code displayed in the meeting room that you scan to download on your phone the agenda of the Workshop as well as the list of participants on site.

Please try it and let us know your thoughts on this digital way to access those documents.

Addendum to the agenda

Thurday 22 – 17 h30: BIPM Radionuclide laboratory tour

- please complete the circulating sheet if you are interested, to organize the visit

Thursday 22 evening - free!