CGPM

Introduction to Draft Resolution B:

On the future definition of the second

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Contents

- Updated Roadmap towards the redefinition of the second
- Steps towards the redefinition
- Draft Resolution B



Roadmap towards the redefinition of the second

Prepared by the CCTF Task Force on the redefinition (> 35 persons from all RMOs)

Adressing key topics:

- Options for the new definition
- Criteria to be fulfilled before the redefinition
- Education and communication

Initial version endorsed by the 27th CGPM (2022)

Draft Resolution B of the 28th CGPM (2026) based on the 2025 update version

→ Target for the redefinition: 29th CGPM (2030)

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Communication and Education

Activity:

- Construct the education and communication plan related to the Redefinition Roadmap

- Organize events (workshops, special sessions in conferences) and produce / valorize materials (FAQ, videos, articles) to develop the awareness and the understanding of the different aspects of the redefinition (choice of the option, realization of the future definition, criteria fulfilment)

→ Dedicated webpage on BIPM website: https://www.bipm.org/en/redefinition-second

Steps towards the redefinition of the second



Steps towards the redefinition of the second

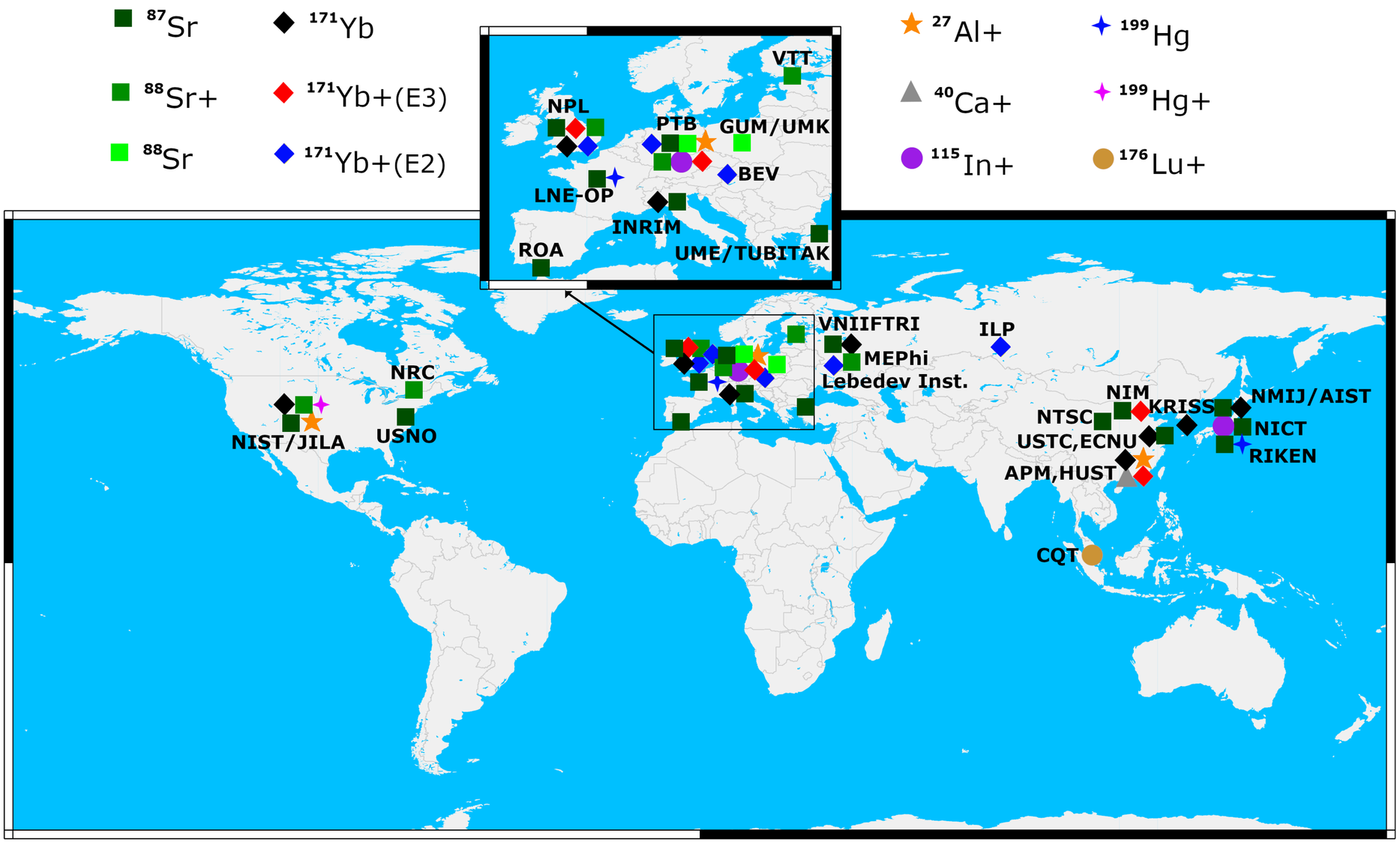


Preferred new definition

Fulfilment of criteria

encouraged the CIPM to bring proposals to the 28th meeting of the CGPM (2026) for the choice of the preferred species, or ensemble of species for a new definition of the second,

Optical Frequency Standards (OFS) developments



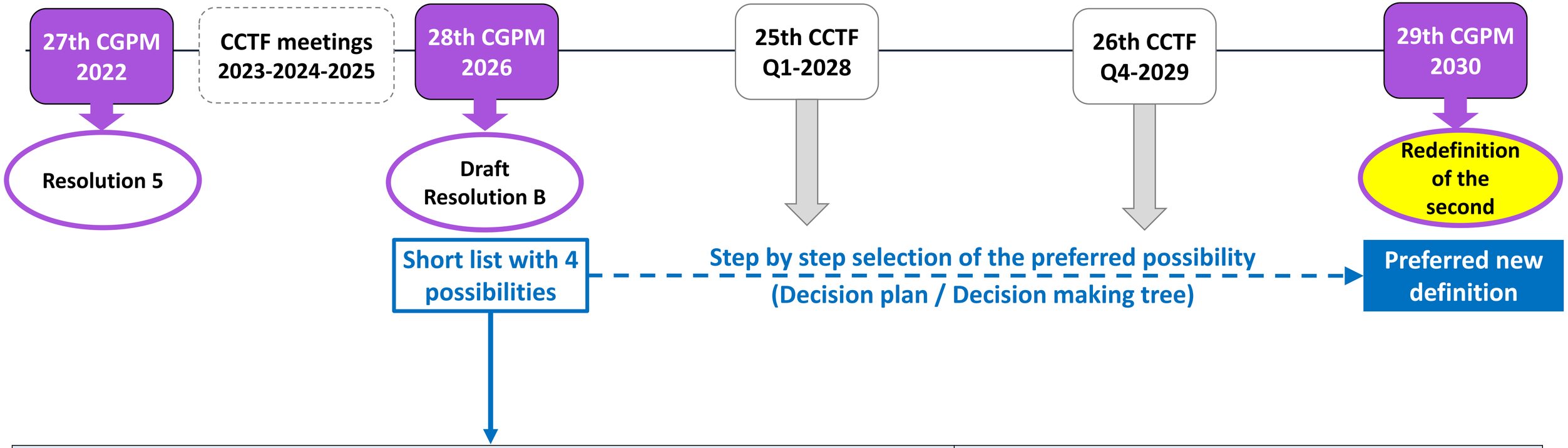
> 50 OFS in operation or under development
in ~ 20 institutes

+ Other planned or envisaged developments

+ Industrial developments

Thanks to L. Tisserand (BIPM Time depart.) for the map

Steps towards the redefinition of the second



Option 1 (single species)			Option 2 (ensemble of species)
^{87}Sr	^{171}Yb	^{171}Yb+ (E3)	^{87}Sr, ^{171}Yb, ^{171}Yb+ (E3), ^{40}Ca+, ^{88}Sr+, ^{27}Al+, (Cs?)
~25 systems in ~15 institutes	**~13 systems in ~8 institutes**	**~7 systems in ~4 institutes**	**~61 systems in ~20 institutes**
EURAMET: 9 systems in 6 institutes APMP: 9 systems in 6 institutes SIM: 4 systems in 2 institutes COOMET: 3 systems in 1 institute	EURAMET: 3 systems in 2 institutes APMP: 5 systems in 4 institutes SIM: 3 systems in 1 institute COOMET: 2 systems in 1 institute	EURAMET: 5 systems in 2 institutes APMP: 2 systems in 2 institutes	EURAMET: 21 systems in 7 institutes APMP: 22 systems in 8 institutes SIM: 12 systems in 3 institutes COOMET: 6 systems in 2 institutes

Steps towards the redefinition of the second

27th CGPM 2022

CCTF meetings 2023-2024-2025

28th CGPM 2026

25th CCTF Q1-2028

26th CCTF Q4-2029

29th CGPM 2030

Resolution 5

Draft Resolution B

Redefinition of the second

Short list with 4 possibilities

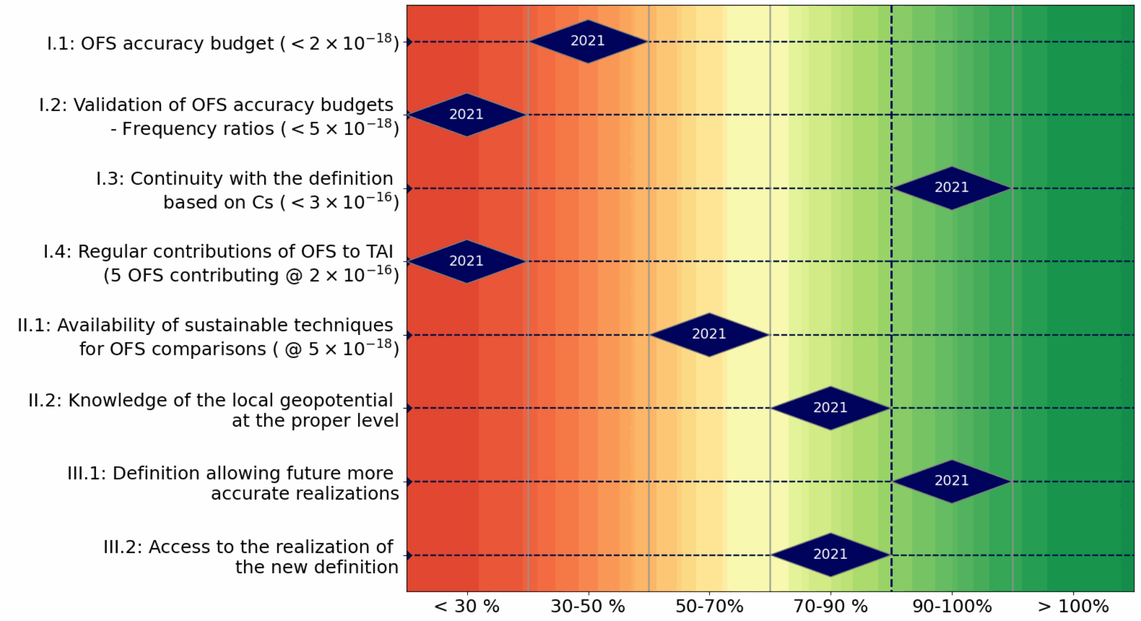
Step by step selection of the preferred possibility
(Decision plan / Decision making tree)

Preferred new definition

2 criteria far from fulfilment

Progress of mitigation action plan
Improvement of criteria fulfilment

Fulfilment of criteria



Draft Resolution B: On the future definition of the second

The CGPM, at its 28th meeting,

requests the CIPM

- to continue to promote the importance of **achieving the objectives agreed in the roadmap for the definition of the second**,
- to encourage all parties to **continue to work toward a consensus on the new definition** of the second,
- to work towards a **proposal for the new definition of the second to be presented at the 29th meeting of the CGPM (2030)** and a proposal for the date of its implementation,

Towards the choice of the new definition

and **encourages Member States**

to **support activities aimed at fulfilling the mandatory criteria**, by the provision of the human and financial resources needed to ensure the improved realization and dissemination of the unit of time and of time scales.

Towards the fulfilment of criteria

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Thank you
for your attention