

# EUROMET Length, Annual Report 02/03



## Length bulletin

edited by Gerard Kotte (NMI-VSL), containing general contributions, reports on EUROMET projects and the points of contact. To be downloaded from:

## Length web site

<http://www.npl.co.uk/euromet/length/>, proven to be very useful and widely used (also by EUROMET external people); containing all documents/reports about all activities

## Interregional contacts

no particular interregional contacts apart from those at the WGDM meeting (CCL working group on dimensional metrology)  
planned: WGDM meeting 2./3. August in San Diego, regional chairmen's meeting before CCL in September.

# Meetings

14. - 15. October 2002, in Maribor, hosted by SMIS  
27 participants (26 countries, BIPM)

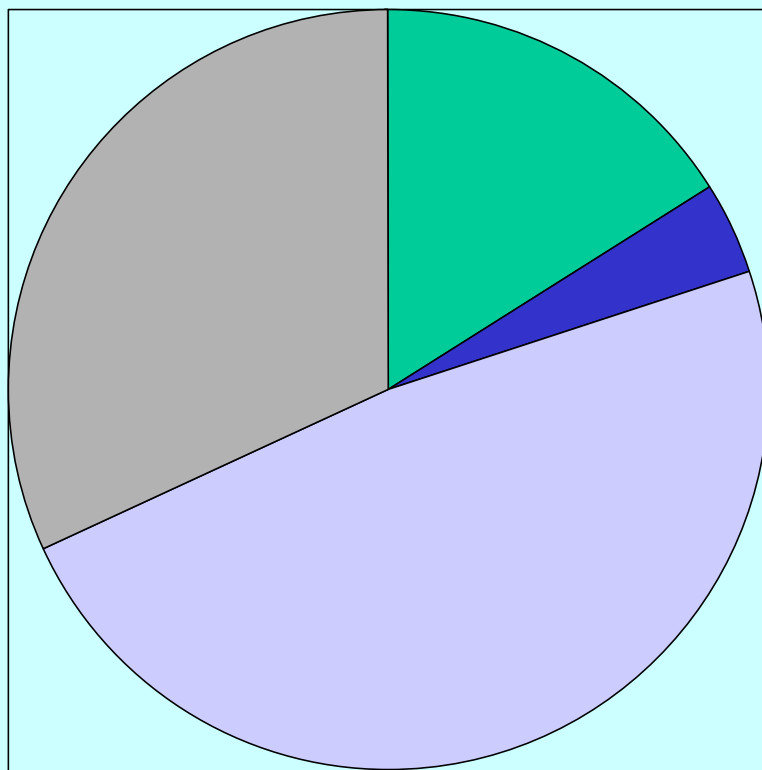
- Projects: presentation of 4 intermediate and 3 final reports
- EUROMET Key Comparisons and Supplementary Comparison
- review of CMCs of new countries, updating process of CMCs
- linking CIPM and RMO comparison reference values
- combined with  
***Workshop on recent technical developments at length laboratories***

## Next meeting

13. - 14. October 2003, in Dublin, hosted by Enterprise Ireland,  
again combined with ***Workshop***

# Active projects

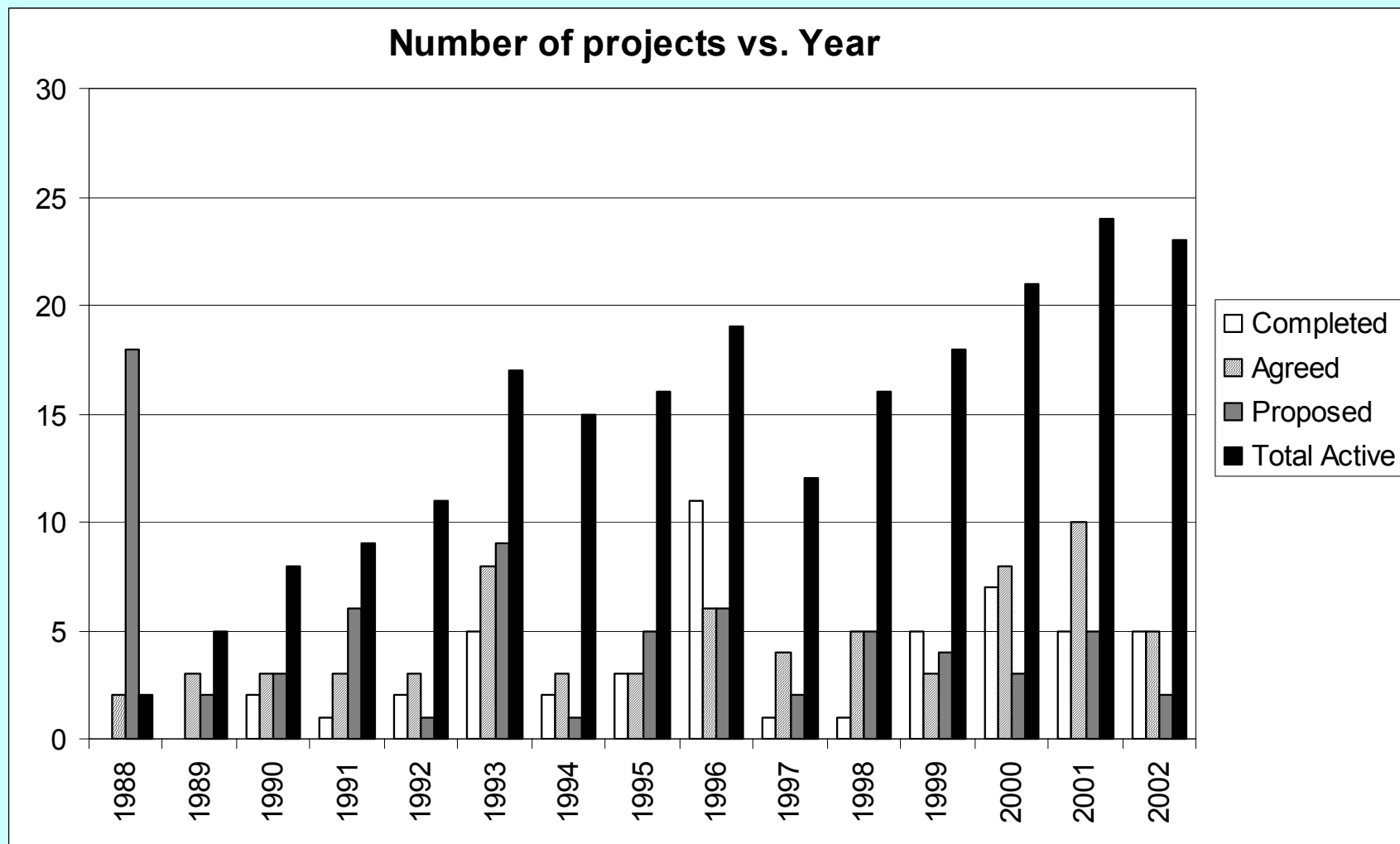
25 active projects, 5 were completed, 7 were proposed



- 4 Traceability
- 1 Consultation
- 12 Cooperation
- 8 Comparisons

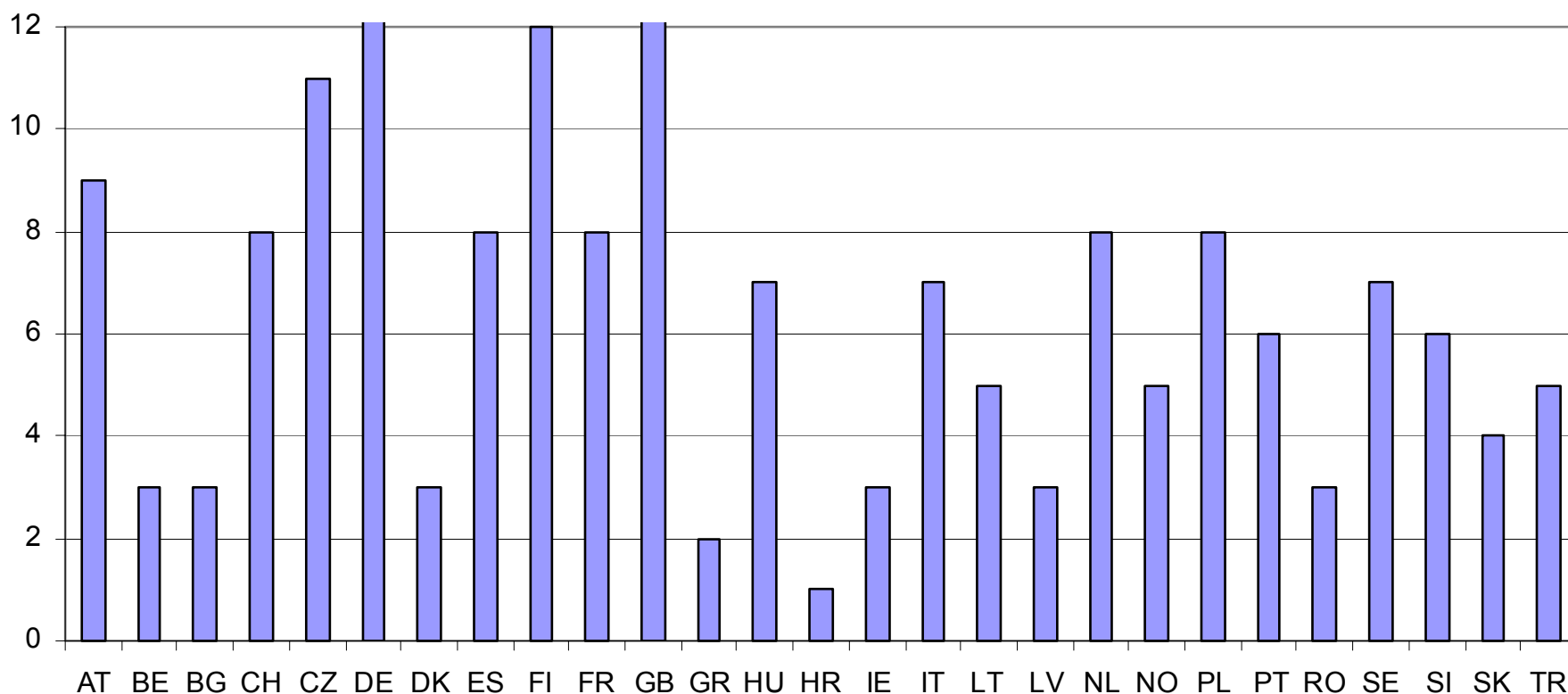
8 projects related to the MRA:  
- 3 EUROMET Key Comparisons  
- 5 Supplementary Comparisons

# Project statistics



# Project statistics

Involvement of the EUROMET members in the projects active in 2002/2003



# EUROMET initiative on Nanometrology

Initiative on dimensional metrology related to the needs of nanotechnology

MEMSTAND, project funded by FFP5, piloted by NPL:

**Seminar 24.-26. February 2003, Barcelona**

Metrology day:   - needs of industry  
                          - role and collaboration of European institutes

FP6 proposal, **NANOMET, Network of excellence on Nanometrology**,  
with 10 EUROMET NMIs as core group; leadership: PTB

- scope of the call limited to *Handling and control instrumentation at the level of single atoms or molecules*
- proposal was not retained, possibly to be submitted at the next call

Future of EUROMET project?

# CMCs

- All EUROMET Length CMCs have been reviewed by the EUROMET review committee and were accepted after the inter-regional review by the other RMOs. Meanwhile they are published on the KCDB.
- Interregional review of COOMET CMCs by EUROMET: still waiting for reply on open questions (documented on JCRB review log book).
- April 2003: 3<sup>rd</sup> EUROMET submission, containing withdrawals, amendments, new CMCs and CMCs from new countries (Lithuania, Latvia, Bulgaria, Yugoslavia, Roumania); intra-regional review started. Goal: ready for inter-regional review in August (WGDM meeting).
- CMCs from other regions (SIM, APMP) expected

# Challenges in Dimensional Metrology

- dimensional metrology for nanotechnology: - ...?
- dimensional metrology for micro-electronics: - photo masks
- small objects of mm and  $\mu\text{m}$  size:
  - micro optics, aspheres
  - micro mechanics, MEMS
  - high aspect ratios
- reduced tolerances for normal sized objects:
  - connectors
  - super smooth and flat mirrors
- non-contact measurements:
  - optical CMMs
  - vision systems
  - scanning systems in product.
- large scale metrology:
  - air crafts, ships...
  - telescope mirrors, VLBI
- metrology to shop floor and production (in situ, packaging, assembly...)