

# Report of TC length Highlights

**A. Lassila, MIKES FI**

# Outline

- EMRP call 2012
- EURAMET TC-L KCs



# TC-L had Good success in EMRP 2012 Call

Accepted Length and *Length related JRPs*

## Metrology for industry

Large volume metrology in industry

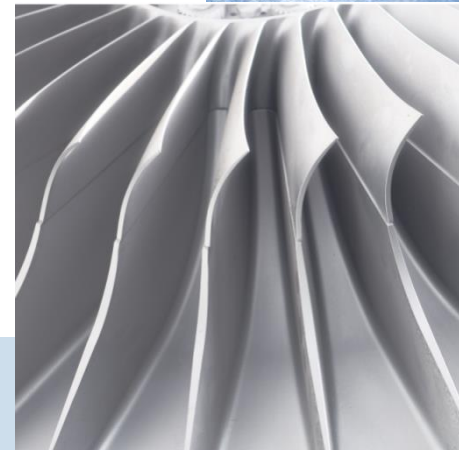
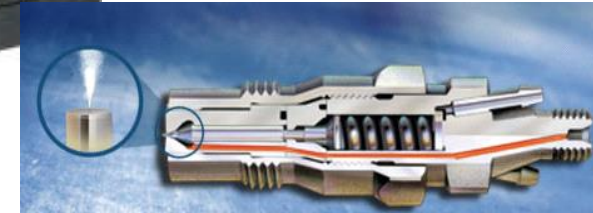
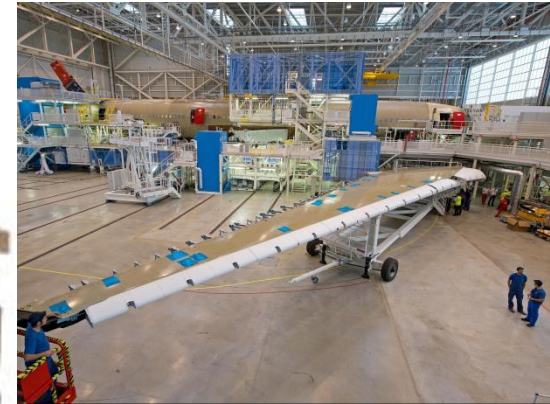
Metrology for movement and positioning in six degrees of freedom

Multi-sensor metrology for microparts in innovative industrial products

Traceable in-process dimensional measurement

*Novel electronic devices based on control of strain at the nanoscale*

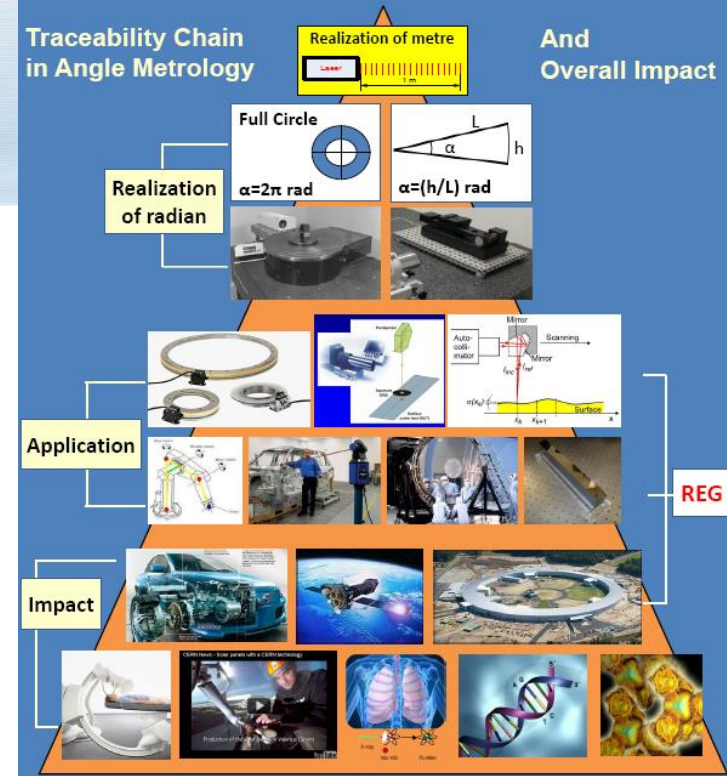
*Metrology to enable high temperature erosion testing*





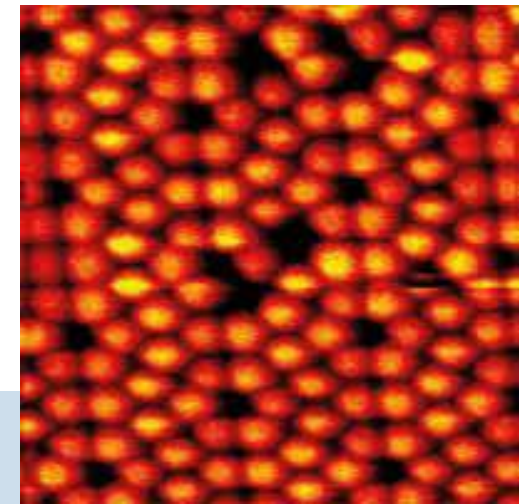
## SI broader scope

### Angle metrology



### Metrology for long distance surveying

### Crystalline and self-assembled structures as length standards





# Passed length JRPs had

- NMIs or DIs from 15 EMRP countries (total 22)
  - Good coverage of EMRP NMIs
- ~30 University of Research Institute partners
  - Including NIST, KRISS, NMIJ and CERN
- ~45 Industrial collaborators or partners

Industrial partners from:

- advanced materials
- aerospace
- automotive
- big science
- consumer electronics
- land survey
- machine industry
- manufacturing
- ultra precision manufacturing
- measurement instruments
- medical industry
- nanotechnology, nanotools
- photonics industry
- semiconductor industry
- vacuum technology



# MRA key comparisons

## First round of EURAMET KCs finished

- CCL decided 1997 to have 6 key comparisons for MRA needs
- Now 2013 original set of KCs by EURAMET is finished



## Summary of progress of original set of EURAMET TC-L Key Comparisons

Identifier	Comparison initiated	Start of artefact circulation	End of artefact circulation	CCL approval given	Duration /a	Time for circulation /a	Time for analysis & approval /a
EURAMET.L-K1, gauge blocks	1997	1998	2000	2005	8	2	5
EURAMET.L-K2, long GBs	1999	2002	2005	2006	6	3	1
EURAMET.L-K3.1, angle	2005	2008	2008	2010	5	1	2
EURAMET.L-K4.2005, diameter	2003	2005	2007	2010	7	3	2
EURAMET.L-K5.2004, step gauge	2003	2004	2006	2012	8	3	5
EURAMET.L-K6, ball plate	2002	2004	2005	2013	10	2	7

- Time for analysis is biggest reason for long durations
- Pilots need to have support & prioritisation guidance from their managers



# Thank you for your attention!