

Metrologia: Focus on Realization, Maintenance and Dissemination of the Kilogram

Guest Editors: Horst Bettin
& Stephan Schlamming

Editor:
Janet Miles



Status

- ◆ **Guest Editors: Horst Bettin, Stephan Schlamminger**
- ◆ Papers being published in logical order agreed by the Guest Editors
- ◆ First papers accepted in May 2016
- ◆ First 9 papers published together in September 2016 (vol. 53 no. 5)
- ◆ Available online at:
[http://iopscience.iop.org/journal/0026-1394/page/Focus on Realization Maintenance and Dissemination of the Kilogram](http://iopscience.iop.org/journal/0026-1394/page/Focus%20on%20Realization%20Maintenance%20and%20Dissemination%20of%20the%20Kilogram)
- ◆ 1 more paper submitted recently - currently under review
- ◆ 3 more expected (on surface studies, the Pilot Study, and the ensemble of masses)

Papers

◆ **Published:**

- Foreword
- Foundation for the redefinition of the kilogram
- A brief history of the unit of mass: continuity of successive definitions of the kilogram
- Realization of the kilogram by the XRCD method
- The watt or Kibble balance: a technique for implementing the new SI definition of the unit of mass
- Precise determination of the ratio h/m_u : a way to link microscopic mass to the new kilogram
- Bridging classical and quantum mechanics

Contd.

Papers (contd.)

- Milligram mass metrology using an electrostatic force balance
- Air-vacuum transfer; establishing traceability to the new kilogram
- ◆ **Submitted:**
 - Dissemination of the kilogram at the highest level following its redefinition
- ◆ **Expected:**
 - Surface science of mass artefacts
 - Final Report of the Pilot Study
 - The BIPM ensemble of reference mass standards

Summary

- ◆ Some of the papers have already been downloaded more than 1000 times.
- ◆ **Focus Issue of significant interest!**
- ◆ Looking forward to seeing the remaining papers.

- ◆ Can include on the web page a list of related papers.
- ◆ Propose to produce a printed copy in due course, bringing together the complete set of papers.

Thanks to all who have participated in this project

- ◆ **Guest Editors:** Horst Bettin, Stephan Schlamminger
- ◆ **Authors:** Patrick Abbott, Pauline Barat, Peter Becker, James Berry, Horst Bettin, François Biraben, Michael Borys, Ingo Busch, Leon Chao, Pierre Cladé, Stuart Davidson, Richard Davis, Hao Fang, Kenichi Fujii, Richard Green, Saída Guellati-Khelifa, Darine Haddad, Lucile Julien, Andrew Koffman, John Kramar, Zeina Kubarych, Naoki Kuramoto, Shisong Li, Andrea Malengo, Kilian Marti, Enrico Massa, Martin Milton, Estefania de Mirandes, Alexander Moses, David Newell, François Nez, Arnold Nicolaus, Lars Nielsen, Axel Pramann, Jon Pratt, Philippe Richard, Olaf Rienitz, Ian Robinson, Stephan Schlamminger, Frank Seifert, Gordon Shaw, Richard Steiner, Julian Stirling, Michael Stock, Chris Sutton, Carl Williams
- ◆ **And all the anonymous referees!**