

## PUBLICATIONS SCIENTIFIQUES

1. Universal Units Reflect Their Earthly Origins, Van Camp M., [Richard P.](#), de Viron O, EOS Trans AGU, 100 (1), 18-21, 2019.
2. Maintaining and disseminating the kilogram following its redefinition, Michael Stock, Stuart Davidson, Hao Fang, Martin Milton, Estefania de Mirandes, [Philippe Richard](#), Chris Sutton, published in the Metrologia focus edition: Realization, maintenance and dissemination of the new kilogram, Metrologia, 54 (2017) S99-SS107 ([included in the Metrologia 'Highlights of 2017' collection](#)).
3. Foundation for the redefinition of the kilogram, [Philippe Richard](#), Hao Fang, Richard Davis, published in the Metrologia focus edition: Realization, maintenance and dissemination of the new kilogram, Metrologia, 53 (2016) A6-A11 ([included in the Metrologia 'Highlights of 2016' collection](#)).
4. The redefinition of the SI in 2018 and the present status for the kilogram, [Philippe Richard](#), Proc. XXI IMEKO World Congress "Measurement in Research and Industry", pp 16-21, August 30 - September 4, 2015, Prague, Czech Republic.
5. The proposed new SI and consequences for legal metrology, Roman Schwartz, [Philippe Richard](#), Charles Ehrlich and Yukinobu Miki, OIML Bulletin, Vol. LIV, Number 1 (2013) 5-15.
6. Determination of the Planck constant with the METAS watt balance, Ali Eichenberger, Henri Baumann, Blaise Jeanneret, Beat Jeckelmann, [Philippe Richard](#) and Walter Beer, Metrologia, 48 (2011) 133-141.
7. Final report on the Seventh International Comparison of Absolute Gravimeters (ICAG 2005), Z. Jiang, O. Francis, L. Vitushkin, V. Palinkas, A. Germak, M. Becker, G. D'Agostino, M. Amalvict, R. Bayer, M. Bilker-Koivula, S. Desogus, J. Faller, R. Falk, J. Hinderer, C. Gagnon, T. Jakob, E. Kalish, J. Kostelecky, Chiungwu Lee, J. Liard, Y. Lokshyn, B. Luck, J. Mäkinen, S. Mizushima, N. Le Moigne, C. Origlia, E. R. Pujol, [P. Richard](#), L. Robertsson, D. Ruess, D. Schmerge, Y. Stus, S. Svitlov, S. Thies, C. Ullrich, M. Van Camp, A. Vitushkin, W. Ji and H. Wilmes, Metrologia 48 (2011) 246–260.
8. Evaluation of the local value of the Earth gravity field in the context of the new definition of the kilogram, H. Baumann, E.E. Klingelé, A.L. Eichenberger, [P. Richard](#) and B. Jeckelmann, Metrologia, 46 (2009) 178-186.
9. Redefinition of the kilogram based on a fundamental constant, [P. Richard](#), International School of Physics "Enrico Fermi", Course CXLVI, Metrology and Fundamental Constants, Proceedings of the International School of Physics "Enrico Fermi", Course CLXVI, Metrology and Fundamental Constants, edited by T. W. Hänsch, S. Leschiutta and A. J. Wallard, p. 499-517, IOS Press, 2007.
10. [Philippe Richard](#), Jean-Georges Ulrich, Peter Lau, Horst Bettin, Dietmar Steindl, Anna Peuto, David Armitage, Stephen Downes, Gerard Bairy, Carmen Matilla, André Gosset, Henrik Blichfeld, László Fillinger, Umit Akcadag and Vahit Çiftçi, Final report on the intercomparison EUROMET.M.D-K1 of volume standards by hydrostatic weighing (EUROMET project 339), Metrologia **44** 07003 (Technical Supplement), <http://www.iop.org/EJ/abstract/0026-1394/44/1A/07003>.
11. On the use of lead/tin alloys as target material for the production of spallation neutrons, F. Atchinson, P. Baumann, T. Bryś, M. Daum, A. Egorov, P. Fierlinger, P. Fuchs, R. Henneck, St. Joray, R. Keil, K. Kirch, R. Krutova, G. Kühne, V.T. Lebedev, H. Obermeier, D.N. Orlova, Ch. Perret, A. Pichlmaier, [P. Richard](#), A. Serebrov, S. Thies, Nucl. Instrum. Meth. Phys. Res. A, 539 (2005) p. 646-653.
12. Results of the International Comparison of Absolute Gravimeters in Walferdange (Luxembourg) of November 2003, O. Francis, T. van Dam, M. Almavict, M. Andrade de Sousa, M. Bilker, R. Billson, G. D'Agostino, S. Desogus, R. Falk, A. Germak, O. Gitlein, D. Johnson, F. Klopping, J. Kostelecky, B. Luck, J. Mäkinen, D. McLaughlin, E. Nunez, C. Origlia, V. Palinkas, [P. Richard](#), E. Rodrigues, D. Ruess, D. Schmerge, S. Thies, L-Timmen, M. Van Camp, D. van Westrum, H. Wilmes. Gravity, Geoid and Space Missions (GGSM 2004, IAG International Symposium, Porto, Portugal, 30 August – 3 September 2004), International Association of Geodesy Symposia, Volume 129, Eds. C. Jekeli, L. Bastos, J. Fernandes, pp 272-275, 2005.

13. Le kilogramme, la constante de Planck et le soulèvement de l'Ardenne, M. Van Camp, T. Camelbeeck, [P. Richard](#), Ciel et Terre, vol. 120, No 1 (2004) p. 5-11.
14. EUREF'04: Realization of a Swiss Combined Geodetic Network (CH-CGN), E. Brockmann, B. Bürki, W. Gurtner, Ch. Hirt, U. Marti, A. Müller, A. Schlatter, [P. Richard](#), D. Schneider and A. Wiget, The EUREF 2004 Symposium of the IAG Commission 1 - Reference Frames, Subcommittee 1-3a Europe (EUREF), 2-5 June 2004, Bratislava, Slovakia.
15. Towards a new kilogram definition based on a fundamental constant, W. Schwitz, B. Jeckelmann, [P. Richard](#), C.R. Physique 5 (2004), p. 881-892.
16. Tracing Planck's constant to the kilogram by electromechanical methods, A. Eichenberger, B. Jeckelmann, [P. Richard](#), Metrologia, 2003, 40, p. 356-365.
17. Comparison of the FG5#101, #202, #206 and #209 absolute gravimeters at four different European sites, M. van Camp, M. Hendrickx, [P. Richard](#), S. Thies, J. Hinderer, M. Almavict, B. Luck, R. Falk, Proceedings of the Workshop IMG-2002, Instrumentation and Metrology in Gravimetry. Cahier du Centre Européen de géodynamique et de Séismologie, 22, pp 65-73, 2003.
18. The FG5 absolute gravimeter: metrology and Geophysics, M. Van Camp, T. Camelbeeck, [P. Richard](#), Physicalia Magazine (Journal of the Belgian Physical Society), 25 (3), pp 161-174, 2003.
19. Volume magnetic susceptibility of gold-platinum alloys: possible materials to make mass standards for the watt balance experiment, Z. Silvestri, R.S. Davis, G. Genevès, A. Gosset, T. Madec, P. Pinot, [P. Richard](#), Metrologia, 2003, 40, p. 172-176.
20. Status of the METAS watt balance experiment, W. Beer, A.L. Eichenberger, B. Jeanneret, B. Jeckelmann, A.R. Pourzand, [P. Richard](#), J.P. Schwarz, IEEE Trans. Instrum. Meas., Vol. 52, p. 626-630, 2003.
21. Uncertainty evaluation of mass values determined by electronic balances in analytical chemistry: a new method to correct for air buoyancy, S. Wunderli, G. Fortunato, A. Reichmuth, [P. Richard](#), Anal. Bioanal. Chem., Vol. 376, p. 384-6391, 2003.
22. Comparison of the FG5#101, 202, 206 and 209 absolute gravimeters at four different European sites, M. Van Camp, M. Hendrickx, [P. Richard](#), S. Thies, J. Hinderer, M. Almavict, B. Luck and R. Falk, Cahiers du Centre Européen de Géodynamique et de Séismologie, Vol 21, 2003, p. 65-73.
23. Density determination using the Mettler-Toledo M\_ONE mass comparator, A. Reichmuth and [P. Richard](#), South Yorkshire International Weighing Conference 2003, 17<sup>th</sup>-18<sup>th</sup> June 2003, Sheffield, United Kingdom.
24. Results of the Sixth International Comparison of Absolute Gravimeters, ICAG-2001, L. Vitushkin, M. Becker, Z. Jiang, O. Francis, T.M. van Dam, J. Faller, J.-M. Chartier, M. Amalvict, S. Bonvalot, N. Debeglia, S. Desogus, M. Diamant, F. Dupont, R. Falk, G. Gabalda, C.G.L. Gagnon, T. Gattacceca, A. Germak, J. Hinderer, O. Jamet, G. Jeffries, R. Käker, A. Kopaev, J. Liard, A. Lindau, L. Longuevergne, B. Lick, E.N. Maderal, J. Mäkinen, B. Meurers, S. Mizushima, J. Mrlina, D. Newell, C. Origlia, E.R. Pujol, A. Reinhold, [P. Richard](#), I.A. Robinson, D. Ruess, S. Thies, M. Van Camp, M. Van Ruymbeke, M.F. de Villalta Compagni and S. Williams, Metrologia, 2002, 39 (5), p. 407-424.
25. High-Capacity Mass Dissemination with Four-Place Mass Comparator, A. Reichmuth, and [P. Richard](#), Proc. NCSL Internat. Annual Workshop and Symposium, San Diego (USA), Aug 5-8, 2002 (*best paper award*).
26. The METAS 1 kg vacuum mass comparator-adsorption layer measurements on gold-coated copper buoyancy artifacts, W. Beer, W. Fasel, E. Moll, [P. Richard](#), U. Schneiter, R. Thalmann, and J. Egger, Metrologia, 2002 39 (3), p. 263-268.
27. The Watt Balance: a route towards a new definition of the kilogram based on natural constants, W. Beer, A.L. Eichenberger, B. Jeanneret, B. Jeckelmann, A. Pourzand, [P. Richard](#), and J. Schwarz, Conference of the URSI society, Kleinheubach, Germany, sept. 2001.
28. The Swiss Watt balance: First Measurements, W. Beer, A.L. Eichenberger, B. Jeanneret, B. Jeckelmann, [P. Richard](#), H. Schneiter, J. Schwarz, and A.R. Pourzand, IMEKO TC3,

- 17<sup>th</sup> International Conference on Force, Mass and Torque Measurements, Istanbul, Turkey, 2001.
29. Intercomparison of Magnetic Properties of Mass Standards, R.S. Davis, M. Gläser, R. Heierli, M. Malina, L.R. Pendrill and P. Richard, 10<sup>th</sup> International Metrology Congress, St-Louis France, 2001.
  30. The OFMET Watt balance: progress report, W. Beer, A.L. Eichenberger, B. Jeanneret, B. Jeckelmann, P. Richard, H. Schneiter, A.R. Pourzand, A. Courteville, and R. Dänliker, IEEE Trans. Instrum. Meas., Vol. 50, No. 2, pp. 583-586, 2001.
  31. A Proposal for a New Moving-Coil Experiment, W. Beer, B. Jeanneret, P. Richard, A. Courteville, Y. Salvadé and R. Dänliker, IEEE Trans. Instrum. Meas., 48 (2), (1999), p. 192-195.
  32. Highly accurate volume determination based on a 1-kg silicon sphere, P. Richard, W. Beer, H. Schneiter and R. Nater, IMEKO-XV World Congress, Vol. 3 (TC-3), ed. H. Imai, Osaka, Japan, (1999), p. 99-104.
  33. Combination of Scratch-test and Acoustic Microscopy Imaging for the Study of Coating Adhesion, J. Thomas, P. Richard, D. Landolt and G. Gremaud, Surface and Coating Technology, 91 (1997) 83-90.
  34. Etude de l'adhésion de films minces par microscopie acoustique, P. Richard, Thèse de doctorat N° 1547, Ecole Polytechnique Fédérale de Lausanne, 1996, 224 pages.
  35. Influence of planar macrodefects on the anisotropy of magnetic-flux penetration in  $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$ , E. Cuche, M. V. Indenbom, M.-O. André, P. Richard, W. Benoit and T. Wolf, Physica C, 256, (1996), p. 324-330.
  36. Thin Film Adhesion Investigation with the Acoustic Microscope, P. Richard, G. Gremaud and A. Kulik, IEEE Ultrasonics International Symposium, ed. M. Levy, S. C. Schneider and B. R. McAvoy, Cannes, France (1994), p. 1425-1428.
  37.  $V(z)$  of Continuous Wave Reflection Scanning Acoustic Microscope, S. Sathish, G. Gremaud, A. Kulik and P. Richard, J. Acoust. Soc. Am., 96 (5, Pt. 1), (1994), p. 2769-2775.
  38. Characterization of thin films using generalized Lamb waves dispersion relations, P. Richard, O. Behrend, G. Gremaud and A. Kulik, J. Phys. Colloq., 3, (1993), p. 2173-2176.
  39. Physical Acoustics Applications of the Scanning Acoustic Microscope, G. Gremaud, A. Kulik, P. Richard and O. Behrend, Material Science Forum, 119-121 (1993), p. 425-430.
  40. Dynamic Non-invasive Measurements of Arterial Diameter and Wall Thickness, Y. Tardy, D. Hayoz, J.-P. Mignot, P. Richard, H. R. Brunner and J.-J. Meister, J. Hypertens., suppl 6 (10), (1992), p. S105-S109.
  41. Continuous Wave Transmission Measuring Scanning Acoustic Microscope, A. Kulik, P. Richard, S. Sathish and G. Gremaud, Acoustical Imaging, ed. H. Ermert and H.-P. Harjes, Bochum, Germany (1991), p. 697-701.

## CONFÉRENCES ET SÉMINAIRES

1. On the redefinition of the kilogram, [Invited talk and keynote](#), International Symposium on Metrology Standard hosted by the National Metrology Institute of Japan, February 17, 2016, Tokyo, Japan.
2. The redefinition of the SI in 2018 and the present status for the kilogram, [Keynote speaker](#), XXI IMEKO World Congress "Measurement in Research and Industry", August 30 - September 4, 2015, Prague, Czech Republic.
3. The CCM roadmap for a redefinition of the kilogram in 2018, 2015 NCSL International Workshop & Symposium, "Measurement Science and the Quality of Life", July 21 - 23, Grapewine, Texas, USA.
4. The present situation with the CCM roadmap for a redefinition of the kilogram in 2018, Seminar on the redefinition of the kilogram, July 15, 2015, Xi'An, China.
5. Revision of the International System of Units (SI) and consequences for the kilogram, PTB Kolloquium, 20 January 2015, Braunschweig, Germany.

6. The Watt Balance Route and the CCM Perspectives, 80 years of Italian Metrology in Turin, 4 – 6 December 2014, Torino, Italy.
7. Redefinition of the kilogram in 2018, Conference on precision electromagnetic measurements, CPEM 2014, 25 – 29.08.2014, Rio de Janeiro, Brazil.
8. The new definition of the kilogram, NIM seminar, Beijing, China, 21<sup>st</sup> April 2014.
9. METAS – Switzerland and the new definition of the kilogram, Weighing Instrument Seminar, 18<sup>th</sup> April 2014, Dongguan, China.
10. The new definition of the kilogram, What is at stake? Emirates Metrology Institute, 26<sup>th</sup> March 2014, Abu Dhabi, United Arab Emirates.
11. The new definition of the kilogram, What is at stake? Dubai Central Laboratory, 25<sup>th</sup> March 2014, Dubai, United Arab Emirates.
12. Le prototype international du kilogramme bientôt au musée? Université des aînés de Berne, 7 novembre 2013, Berne.
13. Les enjeux de la nouvelle définition du kilogramme, Séminaire METAS, 26 juin 2013.
14. Redefinition of the kilogram based on a fundamental constant, International School of Physics "Enrico Fermi", Course CXLVI, Metrology and Fundamental Constants, 18 – 28 July 2006, Varenna, Italy.
15. A brief status report of the state of the world's Watt balances, CCM Ad-Hoc Working group on the changes to the SI, 9 July 2006, Torino, Italy.
16. Absolute gravimetry in Switzerland, 24 April 2004, Swisstopo, Wabern.
17. The Watt balance experiments for the determination of the Planck constant, and monitoring the kilogram, BIPM Metrology Summerschool, 21 July – 1 August 2003, Sèvres, France.
18. On the way to a possible new definition of the kilogram, CECIP Annual meeting, 30 May 2003, METAS.
19. On the way to a possible new definition of the kilogram – state in 2002, 8<sup>th</sup> Meeting of CCM, 23 May 2002, Sèvres, France.
20. The Swiss Watt balance: First Measurements, IMEKO TC3, 17th International Conference on Force, Mass and Torque Measurements, 17 – 21 September 2001, Istanbul, Turkey.
21. Ausgewählte Projekte des EAM, insbesondere die Watt-Waage, B. Vaucher und P. Richard, 10. DKD-Fachausschuss Masse, Mettler-Toledo, 12. Juli 1999, Greifensee.
22. Highly accurate volume determination based on a 1-kg silicon sphere, XV IMEKO World Congress, TC-3, 13 – 18 June 1999, Osaka, Japan.