

3rd International Conference on Mechanical Metrology (CIMMEC 2014)

Journal of Physics: Conference Series Volume 648

Gramado, Brazil
14 – 16 October 2014

Editor:

Rodrigo Costa-Felix

ISBN: 978-1-5108-1475-2
ISSN: 1742-6588

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2014) by the Institute of Physics
All rights reserved. The material featured in this book is subject to
IOP copyright protection, unless otherwise indicated.

Printed by Curran Associates, Inc. (2016)

For permission requests, please contact the Institute of Physics
at the address below.

Institute of Physics
Dirac House, Temple Back
Bristol BS1 6BE UK

Phone: 44 1 17 929 7481
Fax: 44 1 17 920 0979

techtracking@iop.org

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2634
Email: curran@proceedings.com
Web: www.proceedings.com

Table of contents

Volume 648

**3rd International Congress on Mechanical Metrology (CIMMEC2014)
14–16 October 2015, Gramado, Rio Grande do Sul, Brazil**

Preface
011001

[3rd International Congress on Mechanical Metrology \(CIMMEC2014\)](#) OPEN ACCESS

011002

[Peer review statement](#) OPEN ACCESS

Papers

012001

[Assuring the quality of results of test hardness IRHD: IPT's case study](#) OPEN ACCESS T
Yojo, M J A C Miranda, C B Oliveira and C Matteucci pg. 1

012002

[Investigation of the causes for the measurement differences between the natural gas measurement systems of a gas distribution company and of a consumer](#) OPEN ACCESS
Kazuto Kawakita and Rubens Silva Telles pg. 8

012003

[Magnetic system for the quality control of specimens for Charpy impact test](#) OPEN
ACCESS R V Martin and M A P Castanho pg. 17

012004

[Determination of the uncertainty of microhardness in the evaluation of hardfacing obtained by welding](#) OPEN ACCESS A Cruz-Crespo, J E S Leal, A Piratelli-Filho, T O Mendez and R V Arencibia pg. 23

012005

[Impact of Pitot tube calibration on the uncertainty of water flow rate measurement](#) OPEN
ACCESS Icaro de Oliveira Buscarini, Andre Costa Barsaglini, Paulo Jose Saiz Jabardo,
Nilson Massami Taira and Gilder Nader pg. 33

012006

[Automated gauge block pair length difference calibration and associated uncertainty sources](#) OPEN ACCESS W Oliveira Jr and R S França pg. 43

012007

[Uncertainty of angular displacement measurement with a MEMS gyroscope integrated in a smartphone](#) OPEN ACCESS Maurício de Campos Porath and Ricardo Dolci pg. 49

012008

[Vertical positioning surveillance by magnetostrictive transducer](#) OPEN ACCESS A S Carvalho, C Lopes, O O Pinto, C D Nunes, M F Borges and T R Strohaecker pg. 59

012009

[Machine for development impact tests in sports seats and similar](#) OPEN ACCESS R M Gonçalves pg. 66

012010

[Laser Triangulation Profilometer for Inner Surface Inspection of 100 millimeters \(4"\) Nominal Diameter](#) OPEN ACCESS P Buschinelli, T Pinto, F Silva, J Santos and A Albertazzi pg. 75

012011

[New Approach for Non-Contact Measurement Using Vision Probe](#) OPEN ACCESS P B Costa, F O Baldner, J F S Gomes, W S Barros and F R Leta pg. 88

012012

[Mathematical modeling of piezoresistive elements](#) OPEN ACCESS M Geremias, R C Moreira, L A Rasia and A Moi pg. 94

012013

[An imaging grating diffractometer for traceable calibration of grating pitch in the range 20 \$\mu\text{m}\$ to 350 nm](#) OPEN ACCESS D A Brasil, J A P Alves and J R Pekelsky pg. 104

012014

[Cox methodology applied to interlaboratory comparison program for flow measurement](#)
OPEN ACCESS N M Taira, O S Yoshida and M R Avelino pg. 111

012015

[DFA concepts applied in development of accessories for calibration](#) OPEN ACCESS A P
Silva and R Suterio pg. 121

012016

[Flow meter calibration by volumetric method and by weighing method using an innovative system](#) OPEN ACCESS V Y Aibe, M H G Aquino, E C C Farias and P C
Gabriel pg. 128

012017

[Dispersion analysis of accelerometer shock calibrations by comparison using a new exciter developed at Inmetro](#) OPEN ACCESS Giancarlo B Micheli, Gustavo P Ripper,
Ronaldo S Dias and Cauê D Ferreira pg. 132

012018

[A proposal for dynamic calibration of brake tester](#) OPEN ACCESS Paulo L S Ferreira,
Paulo R G Couto, Luiz C Cabral, Ronaldo G Reis and Marcos Zillner pg. 138

012019

[Estimate of the inertial torque in rotating shafts - a metrological approach to signal processing](#) OPEN ACCESS R Oliveira, R Claudino, R Kalid, T Fröhlich, L Gusmão and
H Lepikson pg. 151

012020

[A theoretical and experimental study of the deformation of the piston-cylinder unit of a metrological pressure balance](#) OPEN ACCESS L Soares Júnior, F I da Silva Júnior and P
Lamary pg. 162

012021

[Horizontal scale calibration of theodolites and total station using a gauge index table](#)
OPEN ACCESS L H B Vieira, W L O Filho and W S Barros pg. 171

012022

[Experimental evaluation of a facility for jet induced flow analysis](#) OPEN ACCESS M H Farias, A M Santos and Y B Zanirath pg. 180

012023

[Study for the requalification of Inmetro's Primary Hardness Standardization Machine for Vickers HV3 scale](#) OPEN ACCESS J T Filho, R Q Fratari, C R S Azeredo and S P Oliveira pg. 188

012024

[Systematics for checking geometric errors in CNC lathes](#) OPEN ACCESS R P Araújo and T L Rolim pg. 196

012025

[Analysis of drift correction in different simulated weighing schemes](#) OPEN ACCESS A Beatrice, A Rebelo, D Quintão, F L Cacaís and V M Loayza pg. 204