

# Guest Editorial

The 2012 CPEM was held at Gaylord National Resort at National Harbor just outside of Washington, D.C., from 1–6 July 2012. Experts working in the field of metrology and its applications gathered to present and discuss the concerns and recent advances in areas of metrology and their applications to real-world situations.

The authors of the 368 presentations (about 55% in poster sessions) given at the meeting were invited to submit an extended paper for publication in the CPEM 2012 issue of the IEEE TRANSACTIONS ON INSTRUMENTATION AND MEASUREMENT. The paper submission process took place from June 18th to July 3rd, 2012.

All papers were submitted electronically using the Allen-Track System, Allen Press Publishing, Lawrence, KS, as for the last conference. Approximately 120 extended papers were submitted and subjected to peer reviews by two or three experts in the field. The reviewers were asked to evaluate the papers, considering their technical and scientific originality, comprehensibility, and so on. In the end, 75 papers were accepted for publication.

For CPEM 2012, the submission process itself seemed to work quite well. There were very few requests from the authors for assistance from the editors. I believe that most of the attendees have become proficient with the intricacies of the Allen-Track system.

I attempted to aid the selection of reviewers for each extended paper by printing out forms for each session listing the papers and authors included in that session with spaces to add reviewers. I believe that this was a help to the selection process, but as has been the case in the past, there are always a number of papers that required the editors to locate some of the reviewers. Also as has happened in the past, there were problems of late reviews, reviewers declining their assignments, and in some cases, the necessity of assigning a third reviewer to reconcile diametrically opposing recommendations.

In the editorial work, I was helped immensely by an Associate Guest Editor, Thomas Lipe, from the National Institute of Standards and Technology (NIST), Gaithersburg, MD, Regis Landim from Instituto Nacional de Metrologia, Qualidade e Tecnologia (INMETRO), Brazil, and Lucas Di Lillo from Instituto Nacional de Tecnología Industrial (INTI), Argentina. Lucas Di Lillo and Regis Landim will be Co-Guest Editors for CPEM 2014 in Rio de Janeiro, Brazil. Thomas Lipe and I processed approximately two-thirds of the papers, while Lucas and Regis split the remaining third. I hope their experience at CPEM 2012 will aid them in the process for CPEM 2014.

Dealing with so many papers in such a short period would not have been possible without the help of many individuals. First of all, we would like to express our appreciation to all authors who submitted papers, particularly to those who

were prompt in revising their papers according to suggestions from the reviewers and editors. The reviewers are also to be commended for willingly carrying out their tasks in such a tight time schedule.

We would like to also thank the session chairs for spending time finding reviewers for all the papers submitted in their sessions. This remains a critical step in the preparation of the Special Issue. The CPEM 2012 session chairs are listed as follows.

Djamel Allal	LNE, France
Rejean Arseneau	NRC, Canada
Svetlana Avramov-Zamurovic	U.S. Naval Academy
Samuel Benz	NIST, U.S.A.
Luciano Brunetti	INRiM, Italy
Ilya Budovsky	NMIA, Australia
Rene Carranza	CENAM, Mexico
Laurie Christian	MSL, New Zealand
Thomas Crowley	NIST, U.S.A.
Marla Dowell	NIST, U.S.A.
Murray Early	MSL, New Zealand
Ali Eichenberger	METAS, Switzerland
Chris Eio	NPL, U.K.
Randolph Elmquist	NIST, U.S.A.
Luc Erard	LNE, France
Peter S. Filipinski	NRC, Canada
Nick Fletcher	BIPM, France
Paul Hale	NIST, U.S.A.
Jari Hallstrom	MIKES, Finland
Angel Moreno Hernandez	CENAM, Mexico
Felipe Hernandez-Marquez	CENAM, Mexico
Feng-Lei Hong	AIST, Japan
David Howe	NIST, U.S.A.
David Humphreys	NPL, U.K.
David Inglis	NRC, Canada
Masanori Ishii	AIST, Japan
Michael Janezic	NIST, U.S.A.
Jan-Theodoor Janssen	NPL, U.K.
Blaise Jeanneret	METAS, Switzerland
Beat Jeckelmann	METAS, Switzerland
Rolf Judaschke	PTB, Germany
Jin-Seob Kang	KRIS, Korea
Alexander Katkov	VNIIM, Russia
Jeong-Hwan Kim	KRIS, Korea
Kyu-Tae Kim	KRIS, Korea
Joseph Kinard	NIST, U.S.A.
Andrew Koffman	NIST, U.S.A.
Gregory Kyriazis	INMETRO, Brazil
Héctor Laiz	INTI, Argentina
Regis Landim	INMETRO, Brazil
Lucas Di Lillo	INTI, Argentina
J. Mauricio López R.	CENAM, Mexico
Zuliang Lu	NIM, China
Alan Madej	NRC, Canada

Antti Manninen	MIKES, Finland
James Miall	NPL, U.K.
Peter Mohr	NIST, U.S.A.
Tom Nelson	NIST, U.S.A.
Luis Palafox	PTB, Germany
Po Gyu Park	KRISS, Korea
François Piquemal	LNE, France
Umberto Pogliano	INRiM, Italy
Wilfrid Poirier	LNE, France
Gert Rietveld	VSL, The Netherlands
Ian Robinson	NPL, U.K.
Alain Rufenacht	NIST, U.S.A.
Karl-Erik Rydler	SP Technical Research Institute of Sweden
Hansjorg Scherer	PTB, Germany
Stephan Schlamminger	NIST, U.S.A.
Yueyan Shan	NMC, Singapore
Haiming Shao	NIM, China
Yozo Shimada	AIST, Japan
Martin Šíra	CMI, Czech Republic
Eddy So	NRC, Canada
Michael Stock	BIPM, France
Yi-hua Tang	NIST, U.S.A.
Alejandra Tonina	INTI, Argentina
Michal Ulvr	CMI, Czech Republic
Thomas Wallis	NIST, U.S.A.
Yicheng Wang	NIST, U.S.A.

I would like to thank Tae-Weon Kang and Wan-Seop Kim of KRISS for providing the advice and instruction that George Jones received while acting as Associate Guest Editor for CPEM 2010 and which proved valuable in the present task as Guest Editor. We also thank Dean Jarrett,

Helen Fernando, James Randa, and the many National Institute of Standards (NIST) staff members for their indescribable support. We would like to thank Alessandro Ferrero, the Editor-in-Chief of the IEEE TRANSACTIONS ON INSTRUMENTATION AND MEASUREMENT, for the many valuable discussions and suggestions regarding the review process, which will help us improve the process in the future.

We also thank Reta Wehmeier and Cam Ingelin, the Transactions Administrators, for their exceptional work and consistent patience as we assembled this issue.

Finally, we are grateful to Regis Landim of INMETRO, and Lucas Di Lillo of INTI, the Associate Guest Editors for the CPEM 2012 issue, for their assistance and suggestions during the submission process. I wish both of them and their Associate Guest Editor success at CPEM 2014. We are sure that the CPEM 2014 issue is now in good hands.

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**George R. Jones**, received the B.S. degree from Wake Forest University, Winston-Salem, NC, in 1976 and the Ph.D. degree in physics from the University of Virginia, Charlottesville, in 1983.

Since January 1983, he has been with the National Institute of Standards and Technology (NIST), Gaithersburg, MD. Initially, he worked with E. R. Williams on the gyromagnetic ratio of the proton. Subsequently, he helped develop new measurement standards to be used to characterize flat-panel displays for original equipment manufacturers and end users. Since 1997, he has been involved with the Metrology of the Ohm group. His areas of research involved the temperature and pressure characterization of precision 1- $\Omega$  resistors, writing the control software for the cryogenic current comparators used in the NIST resistance laboratory, and most recently, the grapheme project at NIST.



**Thomas Lipe**, Lipe received the B.S. degree in physics from East Carolina University in 1980 and the M.S. degree in physics, from the Catholic University of America in 1994.

He joined the staff of the National Institute of Standards and Technology (NIST), formerly NBS, in 1983 to design and construct an automated system for measuring thermal converters. He is currently a Physicist and Project Leader in the NIST Quantum Measurement Division. His current research interests include fabrication of new thermal sensors, quantum-based electrical standards, and the use of cryogenic standards for ac-dc difference metrology.

Mr. Lipe was a co-recipient of the U.S. Department of Commerce Gold Medal in 2007, and is a frequent NVLAP assessor.



**Regis Landim**, was born in Rio de Janeiro, Brazil, on April 6, 1970. He received the B.S. degree in electrical engineering from the Universidade Federal de Pernambuco (1996) and the Ph.D. degree in electrical engineering from the Universidade Federal de Minas Gerais (2000), in Brazil.

In 2002, he joined the National Institute of Metrology, Quality and Technology (INMETRO), where, since 2012, he has been the Head of Quantum Electrical Metrology Laboratory. From 2006 to 2007, he collaborated with the National Institute of Standards and Technology, Boulder, CO, as a Guest Researcher in Josephson Systems. His current research interests include ac and dc Josephson voltage standards and its applications in metrology, ac-dc transfer standards, and power and energy metrology. He is responsible for the dissemination of the Brazil legal volt and ampère and for maintaining internationally consistent and traceable voltage and current standards tied to the SI units.



**Lucas Di Lillo** was born in Argentina in 1970. He received the degree in Physics from the University of Buenos Aires, Argentina, in 2001.

In 1994, he joined the Instituto Nacional de Tecnología Industrial (INTI), Argentina, where he worked in the Dielectric Laboratory. From 2000 to 2008, he was in charge of the AC-DC Transfer and Power Laboratory at INTI. He has been a Guest Scientist at the Physikalisch -Technische Bundesanstalt, Germany in 2005. He has been the head of the Electricity Division at INTI since September 2008.