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CALL FOR PAPERS for the Special Session on

LARGE-SCALE TRACEABILITY OF DIGITAL MEMS SENSOR AND SENSOR NETWORK: STATISTICAL METHODS AND IN-LINE CONTROL SYSTEMS

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ABSTRACT

Traceability and calibration methods on large-scale of digital sensors, based on MEMS/NEMS technology, is a metrological challenge, due to the huge quantities of digital MEMS actually produced. Technical performance and reliability of digital sensors are continuously increasing, while costs drive down, therefore industry moves from testing and calibrating every device, towards statistical sampling to reduce manufacturing costs while delivering statistically acceptable levels of performance and reliability. Manufacturers see value in a traceability chain to the national laboratories, however, the currently used reference devices and testing protocols are not always compatible with their requirements. As a consequence, the possibility to provide traceability and acceptable levels of reliability to digital MEMS sensors on large-scale, based on statistical approaches, sampling methods, production quality survey and the realization of traceable systems, for in-line control on the manufacturer's production line, are an actual priority for industry, as well as a needed requirement for end-users in actual applications.

ORGANIZERS

Alessandro Schiavi is a researcher at the National Institute of Metrological Research (INRIM, Italy), within the Applied Metrology and Engineering Division. MSc degree in Physics, he is responsible for Vibrations, primary and secondary standard calibration. He is nominated expert within the Consultative Committee for Acoustics, Ultrasound and Vibration (CCAUV) of BIPM; member of the Technical Committee for Acoustics, Ultrasound and Vibration (TC-AUV) of EURAMET; member of the Technical Committee 22 of IMEKO (IMEKO TC22 "Vibration Measurement"). He is Contract Professor at Politecnico di Torino: Noise control Engineering. Participating into national and international joint research projects (EMRP, EMPIR, PRIN, Industrial); his main research fields are vibration fundamental metrology, environmental and mechanical vibrations, structural acoustics, mechanical and physical properties of materials.

Andrea Prato is post-doc researcher at the National Institute of Metrological Research (INRIM, Italy), within the Applied Metrology and Engineering Division. PhD in Metrology and MSc degree in Physics, his main metrology and research areas are Force, Hardness, Gravimetry, Vibrations, Acoustics and mechanical properties of materials. He participated into national and international joint research projects (EMPIR, PRIN, Industrial) and is Adjunct Professor at Politecnico di Torino for the courses "Experimental statistics and mechanical measurement" and "Sound Engineering".

Gianfranco Genta received the MSc Degree in "Mathematical Engineering" from Politecnico di Torino, Italy, in 2005 and the PhD Degree in "Metrology: Measuring Science and Technique" from Politecnico di Torino in 2010. He is currently Assistant Professor in Tenure-track (RTD-B) at the Department of Management and Production Engineering (DIGEP) of the Politecnico di Torino, where he teaches "Experimental Statistics and Mechanical Measurement" and "Quality and measurements management lab". He is Research Affiliate of CIRP (The International Academy for Production Engineering) and Fellow of A.I.Te.M. (Associazione Italiana Tecnologie Manifatturiere). He is author and coauthor of more than 50 publications on international journals and conference proceedings. His current research focuses on Industrial Metrology, Quality Engineering and Technological Surface Characterisation.