

International Workshop on Analysis of Dynamic Measurements

Goal

The purpose of the workshop is to improve methods for analyzing dynamic measurements. The focus is on how the most relevant information of dynamic calibrations is extracted, refined and transferred or presented for maximum usefulness. All possible applications of dynamic analysis of measurements are addressed, mechanical, electrical as well as hybrid systems etc. The intention of the meeting is to provide a forum for exchanging ideas and initiating collaborations. Presentations by the attendees introduce particular methods, questions and applications for discussion. Beyond scientific and technical content, we encourage discussions of aspects such as the customer perspective, future joint projects and publications as well as applications etc.

Agenda

In perspective of the wide scope of the topic and the large palette of applications, the meeting relies upon active participation of the attendees. The relevance to industry, research at universities and society of today is important. In previous meetings there has been a bias toward mechanical applications (acceleration, force and pressure) and traditional calibration. To improve the balance and illustrate the wide applicability of dynamic analysis in metrology, electrical applications (oscilloscope, network analyzers, telecommunication, power system etc.) and also measurements with complex systems, signals or measures of interest and environments/contexts are particularly welcome.

Organization

In this workshop metrologists and scientists from National Metrology Institutes, universities and industry meet to exchange ideas and discuss joint research activities in the field of dynamic measurements. The meetings are informal in nature and consist of a mixture of presentations and round-table discussions. Workshops/-meetings in this series have been held regularly every year since 2006: London (2006, NPL), Berlin (2007, PTB), London (2008, NPL), at the IMEKO World congress in Lisbon (2009) and Borås (2010, SP).

Background and motivation for the project/workshop

With the introduction of powerful computers and fast accurate analogue-to-digital converters, a multitude of possibilities to enhance and improve the analysis of dynamic measurements has emerged. It is worth emphasizing that with custom-designed software which encapsulates the complexity of calculation and runs given 'tasks' automatically, dynamic analysis is no longer limited to experts. This increases the amount of possible customers tremendously. Entire objects as well as their environments and not only sensors (i.e. vehicles and electrical power systems) are typically not 'calibrated'. Nevertheless, finding such models can be addressed within the framework of calibration. There is also no limitation to calibration in laboratories, or even by calibration experts – development of self-calibration methods is important in many applications.

The [mathematical] formulation of the dynamic analysis problem is very general and the number of applications enormous. The combined facilities for dynamic calibration at the National Metrology institutes covers virtually all measurements and are often of the highest available quality. In many applications though, the calibration result is not used optimally or even satisfactorily understood. The interpretation of a dynamic problem in a general worldwide accepted framework of calibration may facilitate an efficient robust solution. Sometimes, the calibration is appropriate, but the users are unable to translate the result into the relevant context and/or compensate for its deficiencies. The ambition of the project and the workshop is to bridge such gaps, in order to provide the best possible services.

SP Technical Research Institute of Sweden

SP Measurement Technology
Box 857, SE-501 15 Borås, Sweden
Telephone: +4610 516 50 00, Telefax: +46 33 13 55 02
E-post: info@sp.se, www.sp.se