



Energy Harvesting: A metrological approach - Industry Meeting and Workshops

28th – 29th August 2013

Physikalisch-Technische Bundesanstalt (PTB), Braunschweig, Germany

A free one-off event aimed at anyone interested in the technological and commercial advancement of energy harvesting technologies. Please contact energy-harvesting@npl.co.uk to register.

Energy harvesting's time has come. Tiny devices that scavenge wasted energy could boost European industry, improve its green credentials and create a multibillion pound market themselves. However the industry urgently requires agreement on measurement standards in order to provide certainty to the market on what they can deliver and prevent unfounded claims harming confidence in the technology.

The Metrology for Energy Harvesting project brings together Europe's seven leading measurement institutes, who for the last three years have developed the measurement tools and methods to support European industry in the advancement and application of energy harvesting technologies.

In August the Project will come together to present its results for the first time at a free day of meetings and workshops. Delegates will receive in-depth briefings on a range of new tools and best practice for the measurement of energy harvesting performance including techniques focused on specific technologies such as piezoelectric, thermoelectric, electrostatic and magnetostrictive energy harvesting. Delegates will also have the opportunity to input into the future metrological requirements in this area and the best ways of ensuring energy harvesting's commercial success.

As well as the industry meeting, attendees will also be given the choice of one of two workshops run by world leading experts that provide more in-depth insights into either electro-mechanical (including piezoelectric) or thermoelectric technologies and their application.

Agenda

Wed 28th August (evening):

Reception for delegates – drinks & buffet

Thur 29th August:

10:00 – 12:30	Industry Meeting
12:30 – 14:00	Lunch & poster session
14:00 – 17:00	Parallel sessions for workshops: – Workshop 1 Electro-mechanical Energy Harvesting – Workshop 2 Thermoelectric Energy Harvesting

The sessions will be webcast and recorded for later viewing if you are unable to attend in person.

Whilst the meeting and workshops are free to attend, we will need to make a small charge for those attending the evening reception.



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29th August, 2013, PTB, Braunschweig, Germany

This free to attend one day event provides an overview of recent developments in energy harvesting metrology and workshops run by world leading experts from European metrology laboratories.

- Note: On the evening of 28th August we will provide dinner and a chance to meet informally for attendees arriving on the 28th.
- The event will be webcast. If you wish to attend by webcast please register and indicate this in the email.
- Registration is by email to: energy-harvesting@npl.co.uk by **8th August**.
- Times are local times in Germany i.e. Central European Summer Time

Agenda

10:00	Welcome on behalf of PTB and EMRP	Jörn Stenger
10:10	Energy harvesting metrology – overview of recent developments	Jürgen Melcher / ALL
10:40	Discussion & industry views	
11:00	Workshop 1 – Efficiency, power and electrical measurement for energy harvesting <ul style="list-style-type: none"> • Overview of efficiency measurement • AC-DC power measurement • Sampling and instrumentation 	Bernd Schumacher Torsten Funck Rado Lapuh
12:30	<i>Lunch</i>	All
14:00	Parallel sessions for workshops	
14:00	Workshop 2 Electro-Mechanical Energy Harvesting <ul style="list-style-type: none"> • Piezoelectric and mechanical energy harvesting (introduction) – macro, MEMS to nanoscale • Piezoelectric energy harvesting measurement • Magnetostrictive energy harvesting • Electrostatic MEMS energy harvesting 	Paul Weaver Peter Woolliams Mauro Zucca Alexandre Bounouh
14:00	Workshop 3 Thermoelectric Energy Harvesting <ul style="list-style-type: none"> • Thermoelectric energy harvesting (Introduction) • Measurement of the Seebeck coefficient/reference material • Measurement of the electrical conductivity • Measurement of the thermal conductivity • Nanoscale thermoelectric measurement & simulation 	F. Edler E. Lenz B. Schuhmacher O. Hahtela Alex Cuenat / Petr Klapetek
17:00	<i>End</i>	