

# Call for participation and program

## Workshop

### Setting standards for low-cost Air Quality sensors

Thursday, April 11, 2019, 9 a.m. – 3 p.m.

Bundesanstalt für Materialforschung und -prüfung (BAM)

Branch Fabeckstraße, building 89, Unter den Eichen 44-46, 12203 Berlin

#### Why this workshop?

Recent years have seen various activities worldwide aimed at introducing low-cost sensors for monitoring of air pollution and air quality (AQ). These cover sensors for particulate matter (PM) as well as for hazardous gases like CO, NO<sub>x</sub>, ozone, SO<sub>2</sub> as well as carcinogenic VOCs like formaldehyde and benzene, but also odour nuisance monitoring and indicator gases for air quality such as CO<sub>2</sub>, H<sub>2</sub> or tVOC (total VOC), the latter especially for indoor air quality (IAQ).

A primary concern in this field is the data quality or simply the question: can low-cost sensors actually provide relevant information? This fundamental problem has to be addressed with respect to the different fields of application, i.e. outdoor air quality, indoor air quality and odour monitoring, due to the different references available today.

The organizers of this workshop believe that low-cost sensors can indeed provide additional insights, information and services if certain standards are met. The aim of this workshop is to reflect current standardization activities, identify gaps and to potentially initiate new activities for addressing critical gaps.

#### Outline of the workshop

The workshop will set the scene by reflecting the state-of-the-art in low-cost AQ sensors, the importance of standardization as well as existing standards (European AQ directive, ISO 16000 for IAQ). It will then present current activities and first results of various working groups:

- CEN TC 264 (Air Quality), WG42: Ambient air - Air quality sensors
- CEN TC 264, WG41: Emissions and ambient air - Instrumental odour monitoring
- VDI/VDE GMA FA2.62: Fachausschuss Multigassensorik
- FIMEA: Working Group on air quality micro sensors certification

A specific focus of the workshop will be the discussion of standards for IAQ sensors. This field has seen a tremendous effort from many industrial players to provide novel “digital” gas sensors allowing ubiquitous AQ monitoring using mobile phones and IoT devices. However, tests outlined in ISO 16000 part 29 (test methods for VOC detectors) seem inadequate for providing a suitable frame of reference for manufacturers and end users alike.

In the discussion, we want to reflect similarities and differences between the various application fields to identify possible common goals and requirements, but also specific standards which should allow developers and manufacturers a common frame of reference. Finally, a quality standard helping users – not only companies but especially citizens – understand the value and limitations better to make full use of low-cost sensor data is required for achieving better acceptance and to open up new markets for AQ sensor systems.

*Note: This workshop is organized in conjunction with the international training course “Low-cost Environmental Monitoring – from sensor principles to novel services”, April 9-10, 2019 @ BAM. Further information: <http://netmon.eurice.eu/>*

organized by:

Andreas Schütze  
Saarland University

Ole Hertel  
Aarhus University

Kostas Karatzas  
Univ. of Thessaloniki

Carlo Tiebe  
BAM

Thorsten Conrad  
3S GmbH

Michel Gerboles  
JRC Ispra



# Program

from 8:30	<b>Registration</b>
9:00 – 9:15	<b>Welcome</b> , brief introduction of participants
<b>Setting the scene</b>	
9:15 – 9:30	<b>Why are low cost AQ sensors a hot topic? Examples for sensor systems, networks and applications</b> Andreas Schütze, Saarland University, Saarbrücken, Germany
9:30 – 9:45	<b>Why is standardisation important and how is it organized?</b> Dr. rer. nat. Rolf Kordecki, VDI, Düsseldorf, Germany
9:45 – 10:00	<b>Existing standards: European AQ directive, ISO 16000:29 for IAQ</b> Annette Borowiak, Joint Research Center (JRC), Ispra, Italy Dr. Tilman Sauerwald, Saarland University, Saarbrücken, Germany
10:00 – 10:20	Coffee break
<b>Current standardization activities: CEN Technical Committee 264 (Air Quality)</b>	
10:20 – 10:40	<b>WG 42: Ambient air - Air quality sensors</b> Michel Gerboles, Joint Research Center (JRC), Ispra, Italy
10:40 – 11:00	<b>WG 41: Emissions and ambient air - Instrumental odour monitoring</b> Thorsten Conrad, 3S GmbH, Saarbrücken, Germany
<b>Initiatives and requirements for air quality sensor testing</b>	
11:00 – 11:20	<b>Air quality micro sensors certification: Working Group of FIMEA (F)</b> Olivier Martimort, NanoSense, Boulogne-Billancourt, France Dr. Etienne de Vanssay, Fimea co Rincent Air, Neuilly sur Marne, France
11:20 – 11:40	<b>Demand for IAQ sensor standards</b> Dr. Richard Fix, Bosch Sensortec, Reutlingen, Germany Dr. Christian Meyer, Renesas (formerly IDT Europe), Dresden, Germany
11:40 – 12:00	<b>Discussion of goals and requirements for standardization</b> preparation of working groups
12:00 – 13:00	Lunch break
<b>Discussion in working groups</b>	
13:00 – 14:30	We propose to split up in separate working groups to discuss <ul style="list-style-type: none"> <li>- <b>Standardization for Indoor Air Quality sensors</b> topics to be discussed include: <ul style="list-style-type: none"> <li>o A potentially huge market without any standards?</li> <li>o Challenges for Indoor Air Quality monitoring</li> <li>o Lessons learned from other standardization activities</li> <li>o Lab vs. field testing</li> <li>o The way forward: national, European or international?</li> </ul> </li> <li>- <b>Standardization for ambient air</b> (next steps and open topics in WG 42)</li> <li>- <b>Standardization for instrumental odour monitoring</b> (next steps and open topics in WG 41)</li> <li>- <b>Other open standardization issues</b> (to be defined) <ul style="list-style-type: none"> <li>o e.g. standardisation of zero ambient air</li> </ul> </li> </ul>
14:30 – 15:00	<b>Wrap-up and next steps</b>
approx. 15:00	End of the workshop

organized by:

Andreas Schütze  
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Ole Hertel  
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Kostas Karatzas  
Univ. of Thessaloniki

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BAM

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Michel Gerboles  
JRC Ispra



## Participation in the workshop

Participation in the workshop “Setting standards for low-cost Air Quality sensors”, April 11, 2019, @ BAM, Berlin, is free of charge; number of participants is limited (first come, first serve).

To register, please fill in the following form or send an email indicating your **name**, **institution** and your **topic of interest** for the working groups to [info@lmt.uni-saarland.de](mailto:info@lmt.uni-saarland.de).

### Registration for the workshop

## Setting standards for low-cost Air Quality sensors

Thursday, April 11, 2019 @ BAM, Berlin

Bundesanstalt für Materialforschung und -prüfung (BAM)

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send by email ([info@lmt.uni-saarland.de](mailto:info@lmt.uni-saarland.de)) or fax (+49 681 302 4665) before April 1, 2019

Name	
Institution	
Email	
Topic of interest for working groups	<input type="checkbox"/> Standardization for Indoor Air Quality sensors <input type="checkbox"/> Standardization for ambient air sensors <input type="checkbox"/> Standardization for instrumental odour monitoring <input type="checkbox"/> Further suggested topics for standardization of AG sensors:  _____  _____

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