COST Action TD1105
European Network on New Sensing Technologies for Air-Pollution Control and Environmental Sustainability - EuNetAir

FOURTH SCIENTIFIC MEETING
Working Groups and Management Committee
organized by Linköping University, Division of Applied Sensor Science
3 - 5 June 2015

hosted at Physics Building, Department of Physics, Chemistry and Biology
Olaus Magnus väg, Campus Valla, Linköping University
58183 Linköping, Sweden

Meeting AGENDA

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 June 2015 - Wednesday</td>
<td>08:30 - 18:00</td>
<td>REGISTRATION</td>
</tr>
<tr>
<td></td>
<td>09:00 - 09:30</td>
<td>WELCOME SESSION</td>
</tr>
<tr>
<td></td>
<td>09:30 - 11:00</td>
<td>PLENARY SESSION 1: Outdoor Environment Quality Applications</td>
</tr>
<tr>
<td></td>
<td>11:00 - 11:30</td>
<td>Coffee-Break</td>
</tr>
<tr>
<td></td>
<td>11:30 - 13:00</td>
<td>PLENARY SESSION 2: Indoor Environment Quality Applications</td>
</tr>
<tr>
<td></td>
<td>13:00 - 14:30</td>
<td>Lunch</td>
</tr>
<tr>
<td></td>
<td>14:30 - 16:30</td>
<td>WG1-WG2 Meeting</td>
</tr>
<tr>
<td></td>
<td>16:30 - 17:00</td>
<td>Coffee-Break</td>
</tr>
<tr>
<td></td>
<td>17:00 - 18:30</td>
<td>WG1-WG2 Meeting</td>
</tr>
<tr>
<td></td>
<td>18:30</td>
<td>Gathering of Day</td>
</tr>
<tr>
<td></td>
<td>19:15</td>
<td>Optional Guided Tour at Gamla Linkoping Open-Air Museum</td>
</tr>
<tr>
<td></td>
<td>20:30 - 23:00</td>
<td>Social Dinner</td>
</tr>
<tr>
<td>4 June 2015 - Thursday</td>
<td>09:00 - 18:00</td>
<td>REGISTRATION</td>
</tr>
<tr>
<td></td>
<td>09:00 - 09:30</td>
<td>Wrap-Up and Inputs from Action TD1105</td>
</tr>
<tr>
<td></td>
<td>09:30 - 10:30</td>
<td>KEYNOTE SESSION</td>
</tr>
<tr>
<td></td>
<td>10:30 - 11:00</td>
<td>Coffee-Break</td>
</tr>
<tr>
<td></td>
<td>11:00 - 12:30</td>
<td>SIG SESSIONs: SIG1-SIG4 Meeting</td>
</tr>
<tr>
<td></td>
<td>12:30 - 14:00</td>
<td>Lunch</td>
</tr>
<tr>
<td></td>
<td>14:00 - 14:50</td>
<td>ROUNDTABLE: The European Sensor Systems Cluster and EC R&amp;I Policy</td>
</tr>
<tr>
<td></td>
<td>15:00 - 16:30</td>
<td>POSTER SESSION (outside Planck room)</td>
</tr>
<tr>
<td></td>
<td>16:30 - 17:00</td>
<td>Coffee-Break</td>
</tr>
<tr>
<td></td>
<td>17:00 - 18:30</td>
<td>Action WGs/SIGs GENERAL ASSEMBLY</td>
</tr>
<tr>
<td></td>
<td>18:30</td>
<td>CONCLUSIONS</td>
</tr>
<tr>
<td></td>
<td>19:00</td>
<td>Optional Guided Tour at Arwen - Transmission Electron Microscope</td>
</tr>
<tr>
<td></td>
<td>20:30</td>
<td>Free Dinner</td>
</tr>
<tr>
<td>5 June 2015 - Friday</td>
<td>09:30 - 13:00</td>
<td>7th MANAGEMENT COMMITTEE MEETING</td>
</tr>
<tr>
<td></td>
<td>13:00 - 14:00</td>
<td>Lunch</td>
</tr>
<tr>
<td></td>
<td>14:30</td>
<td>Meeting Closing</td>
</tr>
</tbody>
</table>
Background and goals

About COST Action TD1105 EuNetAir
COST Action TD 1105 EuNetAir, a Concerted Action on New Sensing Technologies for Air-Pollution Control and Environmental Sustainability, is a running Networking funded in the framework European Cooperation in the field of Scientific and Technical Research (COST) during 2012-2016. The main objective of the Concerted Action is to develop new sensing technologies for Air Quality Control at integrated and multidisciplinary scale by coordinated research on nanomaterials, sensor-systems, air-quality modelling and standardised methods for supporting environmental sustainability with a special focus on Small and Medium Enterprises.

This international Networking, coordinated by ENEA (Italy), includes over 80 big institutions from 31 COST Countries (EU-zone: Austria, Belgium, Bulgaria, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Latvia, Luxembourg, The Former Yugoslav Republic of Macedonia, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovenia, Spain, Sweden, Switzerland, Turkey, United Kingdom) and 7 International Partners Countries (extra-Europe: Australia, Canada, China, Morocco, Russia, Ukraine, USA) to create a S&T critical mass in the environmental issues.

About the Fourth Scientific Meeting at Linköping University, Linköping, 3 - 5 June 2015
The 7th MC Meeting jointly with WG1-4 Meeting will be held at Physics Building of Department of Physics, Chemistry and Biology in Linköping University, under local chairing and organization of Prof. Anita Lloyd Spetz (Action MC Vice-Chair), tentatively organized with a Plenary Session, parallel Inter-WGs Sessions including a General Assembly of the WGs and Special Interest Groups (SIGs), a Roundtable, and finally, the MC Meeting. The Plenary Session will mainly focus on New Sensing Technologies for Outdoor Air-Pollution Monitoring in a multidisciplinary approach including International Experts and Coordinators of the running FP7 and H2020 research projects to consolidate the European Sensor Systems Cluster, supported and sponsored by the EC DG Research and Innovation.

Participation from research, university, industry, environmental agencies, stakeholders, policy-makers and institutional managers is widely planned with large outreach and dissemination activities, at high expected impact (31 Parties involved in the Action on May 2015). Fruitful discussions between Action TD1105 participants, experts, speakers and international organizations delegates (e.g., WHO Europe, JRC, EMRP, EC DG) are strongly expected. At the Open Fourth Scientific Meeting of the COST Action TD1105 EuNetAir, a strong impact on focusing of the critical outdoor and indoor environmental issues would be mutual benefit.

More Information

Dr. Michele Penza
MC Chair/Proposer of COST Action TD1105 EuNetAir
ENEA - Italian National Agency for New Technologies, Energy and Sustainable Economic Development
Technical Unit for Materials Technologies - Brindisi Research Centre
PO BOX 51 Br-4, I-72100 Brindisi, ITALY. Email: michele.penza@enea.it, Action webpages: www.cost.eunetair.it

Prof. Anita Lloyd Spetz
Local Organizing Team Chair and Action MC Vice-Chair
Division of Applied Sensor Science, Department of Physics, Chemistry and Biology
Linköping University, Linköping, Sweden
Olaus Magnus väg, Campus Valla, 58183 Linköping, Sweden
Email: spetz@ifm.liu.se
FOURTH SCIENTIFIC MEETING
Working Groups and Management Committee

New Sensing Technologies for Outdoor Air Pollution Monitoring

Linköping (Sweden), 3 - 5 June 2015

Physics Building at Department of Physics, Chemistry and Biology
Olaus Magnus väg, Campus Valla, Linköping University, 58183 Linköping, Sweden

Action Meeting Programme Committee
Michele Penza, ENEA, Brindisi, Italy
Anita Lloyd Spetz, Linköping University, Sweden
Andreas Schuetze, Saarland University, Germany
Ingrid Bryntse, SenseAir AB, Sweden
Zafer Ziya Ozturk, GEBZE Institute of Technology, Turkey
Carlos Borrego, IDAD, University of Aveiro, Portugal
Ingrid Bryntse, SenseAir AB, Sweden

URL: www.cost.eunetair.it

COST Action TD1105 EuNetAir Steering Committee
Michele Penza, ENEA, Brindisi, Italy - Action Chair
Anita Lloyd Spetz, Linköping University, Sweden - Action Vice-Chair
Juan Ramon Morante, IREC, Spain
Andreas Schuetze, Saarland University, Germany
Ole Hertel, Aarhus University, Denmark
Ingrid Bryntse, SenseAir AB, Sweden

Jan Theunis, VITO, Belgium
Marco Alvisi, ENEA, Brindisi, Italy
Gianluigi De Gennaro, University of Bari, Italy
Fabio Galatioto, Newcastle University, UK
Ralf Moos, University of Bayreuth, Germany
Mar Viana, CSIC-IDAEA, Barcelona, Spain
Corinna Hahn, Eurice GmbH, Saarbrucken, Germany

Iveta Steinberga, University of Latvia, Riga, Latvia
Corinna Hahn, Eurice GmbH, Saarbrucken, Germany - Grant Holder
Julian Gardner, University of Warwick, UK
Rod Jones, University of Cambridge, UK
Giorgio Sberveglieri, University of Brescia, Italy
Eduard Llobet, Universitat Roviri I Virgili, Tarragona, Spain

Albert Romano-Rodriguez, Universitat de Barcelona (UB), Spain
Carlos Borrego, IDAD, University of Aveiro, Portugal
Annamaria Demarinis Loiotile, University of Bari, Italy - Secretary
### Wednesday, 3 June 2015

**COST Action TD1105 Working Groups and Special Interest Groups MEETING**

**Main Hall: Planck Room**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session/Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>08:30 - 18:00</td>
<td><strong>Welcome Address Session</strong>&lt;br&gt;Chairman: Anita Lloyd Spetz, Action Vice-Chair - Linkoping University, Sweden</td>
</tr>
<tr>
<td>09:00 - 09:30</td>
<td><strong>Welcome Address Session</strong>&lt;br&gt;Chairman: Anita Lloyd Spetz, Action Vice-Chair - Linkoping University, Sweden</td>
</tr>
<tr>
<td>09:00 - 09:10</td>
<td>Welcome: Linköping City Council&lt;br&gt;Helena Balthammar, Linköping Mayor, Sweden</td>
</tr>
<tr>
<td>09:10 - 09:20</td>
<td>Welcome: Linköping University&lt;br&gt;Kenneth Järrendahl, Department Dean, Linköping University, Sweden</td>
</tr>
<tr>
<td>09:20 - 09:30</td>
<td>Welcome Address from COST Action TD1105&lt;br&gt;Michele Penza, Action Chair, ENEA, Brindisi, Italy</td>
</tr>
<tr>
<td>09:30 - 11:00</td>
<td><strong>Plenary Session 1: Outdoor Environment Quality Applications</strong>&lt;br&gt;Chairman: Anita Lloyd Spetz, Action Vice-Chair - Linkoping University, Sweden</td>
</tr>
<tr>
<td>09:30 - 10:00</td>
<td>COST Action TD1105: European Network on New Sensing Technologies for Air-Pollution Control and Environmental Sustainability - Updating&lt;br&gt;Michele Penza, Action Chair, ENEA, Italy</td>
</tr>
<tr>
<td>10:00 - 10:30</td>
<td>Review of Gas Sensors to Monitor Benzene and Other VOCs in Ambient Air in the Framework of the EURAMET Key-VOC Project&lt;br&gt;Laurent Spinelle and Michel Gerboles, JRC, EC DG ENV, Institute for Environment and Sustainability, Ispra, Italy</td>
</tr>
<tr>
<td>10:30 - 11:00</td>
<td>Extended Performance Analysis of a Sensor Unit for O₃ and NO₂ and Operation of a Small Static Sensor Network in Zurich, Switzerland&lt;br&gt;Christoph Hueglin, MC Substitute, EMPA, Zurich, Switzerland</td>
</tr>
<tr>
<td>11:00 - 11:30</td>
<td><strong>Coffee Break</strong></td>
</tr>
<tr>
<td>11:30 - 13:00</td>
<td><strong>Plenary Session 2: Indoor Environment Quality Applications</strong>&lt;br&gt;Chairman: Michele Penza, Action Chair - ENEA, Italy</td>
</tr>
<tr>
<td>11:30 - 12:00</td>
<td>The FP7 SENSIndoor Project (NMP-2013-5): Increasing Sensitivity and Selectivity of Gas Sensor-Systems by Using Micromachined Pre-Concentrators with MIP and MOF Layers&lt;br&gt;Andreas Schuetze, Action WG2 Leader &amp; MC Member, Saarland University, Saarbrucken, Germany</td>
</tr>
<tr>
<td>12:00 - 12:30</td>
<td>The FP7 IAQSense Project (NMP-2013-5): Sensors for Indoor Air-Pollution Monitoring&lt;br&gt;Mathias Holz, Nano Analytik GmbH, Ilmenau, Germany</td>
</tr>
<tr>
<td>12:30 - 13:00</td>
<td>Development of SenseAir High Performance Platform (HPP) for Indoor Sensing&lt;br&gt;Ingrid Bryntse, Action WG4 Leader &amp; MC Member, SenseAir AB, Delsbo, Sweden</td>
</tr>
<tr>
<td>13:00 - 14:30</td>
<td>Lunch offered by COST Action organization</td>
</tr>
</tbody>
</table>
**Wednesday, 3 June 2015**

**Action TD1105 Working Groups Meetings**

**Parallel Session of WG1-WG2. Location: Main Hall - Planck Room (Theatre 300 seats)**

**14:30 - 16:30**

**WG1: Sensor Materials and Nanotechnology**

*Chairman: Jyrki Lappalainen, Action WG1 Vice-Chair - Oulu University, Oulu, Finland*

14:30 - 14:50  
**Effect of Sensor Configuration for Low-Temperature Gas Detection with Semiconducting Oxides**

Azhar A. Haidry, E. Ciftyürek, Bilge Saruhan-Brings, WG Member, German Aerospace Center, Institute of Materials Research, Cologne, Germany

14:50 - 15:10  
**Pulsed Laser Deposition of Metal Oxide Nanoparticles, Agglomerates, and Nanotrees**

J. Lappalainen¹, J. Huotan², J. Baur³, J. Puustinen⁴, T. Sauerland⁵, and A. Schütze⁵  
¹Microelectronics and Material Physics Laboratories, University of Oulu, Oulu, Finland; ²Laboratory for Measurement Technology, Saarland University, Saarbrücken, Germany

15:10 - 15:30  
**Graphene Gas Sensors Enhanced by UV Light and Pulsed Laser Deposition**

Raivo Jaaniso, University of Tartu, Tartu, Estonia

15:30 - 15:45  
**Nanostructured BST based Films with Potential Application in Hazardous Gas Detection**

Cristina F. Rusti, Roxana M. Piticescu, IMNR, Pantelimon, Romania

15:45 - 16:00  
**Challenges Performing Outdoor Air Pollution Monitoring with Polymer Nanocomposites**

Gita Sakale, M. Kriz, S. Stepina, S. Guzlena, I. Klemenoks, Riga Technical University, Latvia

16:00 - 16:15  
**VOCs Sensing Properties of Hybrid Nanostructures**

Zafer Ziya Ozturk, Gebze Institute of Technology, Kocaeli, Turkey

16:15 - 16:30  
**Low-Temperature Co-Fired Ceramic Package for Lab-on-Chip Application**

Niina Halonen et al., University of Oulu, Oulu, Finland

16:30 - 17:00  
**Coffee Break**

**Parallel Session of WG1-WG2. Location: Main Hall - Planck Room (Theatre 300 seats)**

**17:00 - 18:30**

**WG2: Sensors, Devices and Systems for AQC**

*Chairman: Andreas Schuetze, Action WG2 Chair - Saarland University, Saarbrücken, Germany*

17:00 - 17:20  
**Functionalised Carbon Nanotube Sensors for Detecting Benzene at Trace Levels**

Eduard Llobet, P. Clement, E.J. Parra, MC Member, Universitat Roviri I Virgili, Tarragona, Spain

17:20 - 17:40  
**The Application of Additive Technologies for Ceramic MEMS Gas Sensors**

A.A. Vasiliev¹, A.V. Sokolov¹, N.N. Samotaev², V.P. Kim³, S.V. Tkachev³, S.P. Gubin³, G.N. Potapov⁴, Yu.V. Kukhtina⁵, A.V. Nisan⁵  
¹NRC Kurchatov Institute, Moscow, Russia; ²National Research Nuclear University “MEPhI”, Moscow, Russia; ³LLC AkKo Lab, Moscow, Russia; ⁴LLC Ostec, Moscow, Russia

17:40 - 18:00  
**Measurement of Monoaromatic Hydrocarbons in Air by Phthalocyanine-based QCM Sensors: Results and Outlooks**

Jerome Brunet, A. Kumar, A.L. Ndiaye, A. Pauly, Université Blaise Pascal/CNRS, Aubiere, France

18:00 - 18:15  
**New Principle Theory of QCM and SAW Devices in Sensors and Biosensor Applications**

Marina Voinova¹², Anton Wikstrom³, ¹Chalmers University of Technology, Gothenburg, Sweden ²National Technical University, Kharkiv, Ukraine

18:15 - 18:30  
**Views on Inter-Laboratory Reproducibility of Chemosensing Experiments**

J.-M. Suisse¹, M. Bouvet¹, K. Persaud¹, E. Danesh², ¹Institut de Chimie Moléculaire de l’Université de Bourgogne, UMR CNRS, Dijon, France; ²The University of Manchester, UK
### Parallel Session of WG3-WG4

**Location:** Jordan Fermi Room (40 seats) *(two floors right above Planck)*

**14:30 - 16:30**  
**WG3: Environmental Measurements and Air-Pollution Modelling**  
*Chairman: Joao Paulo Teixeira, Action MC Substitute, National Institute of Health, Porto, Portugal*

<table>
<thead>
<tr>
<th>Time</th>
<th>Title</th>
<th>Presenter(s)</th>
</tr>
</thead>
</table>
| 14:30 - 14:50 | Highly Resolved UFP Number Concentration Maps in Zurich based on Data from a Mobile Sensor Network  
*Michael Mueller, WG Member, EMPA, Zurich, Switzerland*                   |
| 14:50 - 15:10 | The Use of Sensors for VOC Emission Control at Industrial Sites  
*Jan Peters, VITO, Mol, Belgium*                                           |
| 15:10 - 15:30 | MOX Sensor Systems in Outdoor Odor Nuisance Monitoring  
*Wolfhard Reimringer, WG Member, 3S GmbH, Saarbrucken, Germany*              |
| 15:30 - 15:50 | Evaluation of Monitoring Gases and PMs with Low-cost and Reference Devices at AMS(s) in Belgrade, Serbia  
*Milena Jovasevic-Stojanovic, D. Topalovic, M. Davidovic, M. Zivkovic, I. Lazovic, Z. Ristovski*,  
Action WG3 Member, Institute Vinca, Belgrade, Serbia                      |
| 15:50 - 16:10 | Using Lichens as Multi-Pollutant Bioindicators in Air Quality Monitoring  
*Maja Maslac, Irena Ciglenecki*, Rudjer Boskovic Institute, Zagreb, Croatia |
| 16:10 - 16:30 | Transforming AQ Data to Personalised Services  
*Kostas Karatzas*, Aristotle University of Thessaloniki, Greece              |

**16:30 - 17:00**  
Coffee Break

### Parallel Session of WG3-WG4

**Location:** Jordan Fermi Room (40 seats) *(two floors right above Planck)*

**17:00 - 18:30**  
**WG4: Protocols and Standardisation Methods**  
*Chairman: Ingrid Bryntse, Action WG4 Chair - SenseAir SA, Delsbo, Sweden*

<table>
<thead>
<tr>
<th>Time</th>
<th>Title</th>
<th>Presenter(s)</th>
</tr>
</thead>
</table>
| 17:00 - 17:20 | Present IAQ Sensor Technologies and Future Trends  
*Olivier Martimort*, NanoSense Sarl, Boulogne Billancourt, France               |
| 17:20 - 17:40 | Benefits of CMOS Sensors for Environmental Monitoring  
*Foyal Chowdhury*, Action WG Member, CCMOSS Ltd, Cambridge, UK                   |
| 17:40 - 18:00 | Low-Cost IR CO₂ Sensor for Battery Powered Applications  
*Maksym Bryzgalov, Bengt Jonsson*, Action WG Member, SenseAir AB, Delsbo, Sweden |
| 18:00 - 18:20 | Silicon Carbide Sensor Systems for Harsh Environment Market Applications  
*Bo Hammarlund, Mike Andersson, Anita Lloyd-Spetz*,  
"SenSiC AB, Linkoping, Sweden;  
"Linkoping University, Sweden*                                                   |
| 18:20 - 18:30 | Final remarks, comments and conclusions from WG4 Chair                                                                                 |

**18:30**  
Gathering of Day

**19:15**  
Optional Guided Tour at Gamla Linköping Open-Air Museum  
*Register yourself at the Desk for Tour (Contact Point: Donatella Puglisi)*

**20:30 - 23:00**  
Social Dinner at Värdshuset - a Swedish Typical Restaurant  
*Värdshuset* in Gamla (Old) Linköping *(20 min. walk or 10 min. by bike from University)*  
Gastgivaregatan 1, 582 46 Linköping *(Gamlas Linköping) *(See map at the end)*
**Thursday, 4 June 2015**

*Action TD1105 Special Interest Groups Meetings*

**Main Hall: Planck Room**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>09:00 - 18:00</strong></td>
<td>Registration</td>
</tr>
<tr>
<td><strong>09:00 - 09:30</strong></td>
<td><strong>Wrap-up and Inputs from Action TD1105</strong></td>
</tr>
<tr>
<td><strong>09:00 - 09:15</strong></td>
<td>Inputs from Action TD1105: Wrap-up and Upcoming Action Events</td>
</tr>
<tr>
<td></td>
<td>Michele Penza, Action Chair, ENEA, Brindisi, Italy</td>
</tr>
<tr>
<td><strong>09:15 - 09:30</strong></td>
<td>Inputs from Action TD1105: Online Travel Reimbursement Request &amp; Strong Feature Authentication</td>
</tr>
<tr>
<td></td>
<td>Juliane Rossbach, Grant Holder Manager, Eurice GmbH, Saarbrucken/Berlin, Germany</td>
</tr>
<tr>
<td><strong>09:30 - 10:30</strong></td>
<td><strong>KEYNOTE SESSION: Key Enabling Technologies for Air Quality Control</strong></td>
</tr>
<tr>
<td></td>
<td>Chairman: Michele Penza, Action Chair</td>
</tr>
<tr>
<td></td>
<td>Italian National Agency for New Technologies, Energy and Sustainable Economic Development - ENEA, Brindisi, Italy</td>
</tr>
<tr>
<td><strong>09:30 - 10:00</strong></td>
<td>Towards Zero-Power Gas Detection Systems based on Nanowires: Fabrication, Characterization, Benefits and Challenges</td>
</tr>
<tr>
<td></td>
<td>J. Samà¹, J. D. Prades¹, O. Casals¹, S. Barth², J. Santander³, C. Cané³, I. Gracia³, Albert Romano-Rodriguez³, MC Substitute, ¹Universitat de Barcelona, Barcelona, Spain; ²Technical University of Vienna; ³CSIC, Bellaterra, Spain</td>
</tr>
<tr>
<td><strong>10:00 - 10:30</strong></td>
<td>Cost-Efficient Approaches to Measure Carbon Dioxide (CO₂) Fluxes and Concentrations in Natural Environments Using Mini-Loggers</td>
</tr>
<tr>
<td></td>
<td>David Bastviken, Expert of Thematic Studies on Environmental Changes, Linkoping University, Linkoping, Sweden</td>
</tr>
<tr>
<td><strong>10:30 - 11:00</strong></td>
<td><strong>Coffee Break</strong></td>
</tr>
<tr>
<td><strong>11:00 - 12:30</strong></td>
<td><strong>SIGs Session - SIG1: Network of spin-offs</strong></td>
</tr>
<tr>
<td></td>
<td>Chairman: Marco Alvisi, Action SIG1 Leader</td>
</tr>
<tr>
<td></td>
<td>Italian National Agency for New Technologies, Energy and Sustainable Economic Development - ENEA, Brindisi, Italy</td>
</tr>
<tr>
<td><strong>11:00 - 11:20</strong></td>
<td>Specific Presentation from SIG1</td>
</tr>
<tr>
<td><strong>11:00 - 11:20</strong></td>
<td>“KOMpetitive Intelligence” - A New Method for the Identification and Assessment of Technological Alternatives</td>
</tr>
<tr>
<td></td>
<td>Tiziano Montecchi⁷ and Davide Russo⁷, ¹University of Bergamo, ²Bigflo srl, Italy</td>
</tr>
<tr>
<td><strong>11:20 - 12:30</strong></td>
<td><strong>SIGs Session - SIG2: Smart Sensors for Urban Air Monitoring in Cities</strong></td>
</tr>
<tr>
<td></td>
<td>Chairman: Christoph Hueglin, MC Substitute and SIG2 Member</td>
</tr>
<tr>
<td></td>
<td>EMPA, Zurich, Switzerland</td>
</tr>
<tr>
<td><strong>11:20 - 11:40</strong></td>
<td>Specific Presentation from SIG2</td>
</tr>
<tr>
<td><strong>11:20 - 11:40</strong></td>
<td>The 1st EuNetAir Air Quality Joint-Exercise Intercomparison: Assessment of Micro-Sensors Versus Reference Methods (Part II)</td>
</tr>
<tr>
<td></td>
<td>Ana Margarida Costa, WG Member, IDAD, Aveiro, Portugal</td>
</tr>
</tbody>
</table>
### 11:00 - 12:30  
**SIGs Session - SIG3: Guidelines for Best Coupling Air Pollutants and Transducer**  
Chairman: Eduard Llobet, Action SIG3 Vice-Chair, Universitat Rovirí i Virgili, Tarragona, Spain

Specific Presentation from SIG3

### 11:40 - 12:00  
**Graphene Metal-Oxide Hybrids for Gas Sensor Tuning**  
*Jens Eriksson¹, D. Puglisi¹, C. Strandqvist¹, R. Yakimova¹, A. Lloyd-Spetz¹*  
¹Department of Physics, Chemistry and Biology, Linköping University, Linköping, Sweden

### 11:00 - 12:30  
**SIGs Session - SIG4: Expert Comments for the Revision of the Air Quality Directive (AQD)**  
Chairman: Ana Margarida Costa, WG Member, IDAD, Aveiro, Portugal

Specific Presentation from SIG4

### 12:00 - 12:20  
**Preliminary Indoor and Outdoor Air Pollution Investigation in Naturally Ventilated Classrooms: Results from the ARIA Project**  
Joana Mandureira, Joao Cavaleiro-Rufo, Ines Paciencia, Eduardo de Oliveira Fernandes, Livia Aguiar, Cristina Pereira and Joao Paulo Teixeira, National Institute of Health, Porto, Portugal

### 12:20 - 12:30  
**DISCUSSION on SIG1-SIG4 Presentations**  
Questions and Answers from Participants  
Comments and Inputs from Audience

### 12:30 - 14:00  
Lunch offered by COST Action organization
Thursday, 4 June 2015

COST Action TD1105 for the European Sensor-Systems Cluster (ESSC): The EC DG R&I Policy on the European Clusters

Main Hall: Planck Room

14:00 - 14:50 Action TD1105 ROUND-TABLE DISCUSSION
Chairman(s):
Michele Penza, Action Chair and ESSC Chairman, ENEA, Brindisi, Italy
Andreas Schuetze, Action WG2 Leader and ESSC WG2 IAQ Leader, Saarland University, Saarbrucken, Germany

EC Policy of the EU Clusters:
The European Sensor-Systems Cluster (ESSC)

14:00 - 14:10 The European Sensor-Systems Cluster (ESSC): Vision, Objectives and Position Paper
Michele Penza, COST Action TD1105 Chair and ESSC Chairman, ENEA, Brindisi, Italy

14:10 - 14:20 The Role of the Project Technical Assistants (PTAs) in the EU Projects and Clusters
Eberhard Seitz, EC PTA, Julich, Germany

14:20 - 14:30 An Industry View in the Commercialization of Gas Sensors for Environmental Sustainability
Hans Martin, R&D Director of SenseAir SA, Delsbo, Sweden

14:30 - 14:50 Discussion of Action/Cluster Participants:
Comments and Inputs on Priorities, R&I Needs, Strategies, Roadmap for future joint-activities of ESSC Cluster and COST Action TD1105 EuNetAir
Speeches and Comments from Action WGs/SIGs Leaders and Participants
Free Comments from Action and ESSC Cluster Stakeholders
Thursday, 4 June 2015

Gallery of Main Hall: Outside Planck Room

**Poster Session:**

New Technologies and Methods for Environmental Monitoring  
Chairperson: Andreas Schuetze, Action WG2 Leader, Saarland University, Saarbrucken, Germany

Posters (max sizes: 90 cm width x 120 height) will be exhibited on Panels. The Poster Presenter, preferably Early Stage Researcher, is required to stay near poster for discussion with interested people.

A Local Integrated Assessment of Air Pollution Impacts on Human Health - A Case Study for Portugal and Grande Porto  
S. Costa (1,2), C. Costa (1), C. Silveira (3), M. Lopes (3), J. Ferreira (3), H. Relvas (3), C. Borrego (3), P. Roebeling (3), A. Miranda (3), J.P. Teixeira (1,2)  
(1)EPIUnit-Institute of Public Health, University of Porto, Portugal; (2)National Institute of Health, Environmental Health Department, Portugal; (3)Centre for Environmental and Marine Studies & Department of Environment and Planning, University of Aveiro, Portugal

Non-Resonant High-Frequency Excitation of Nanoelectromechanical Oscillators  
A. M. Eriksson, M. V. Voinova, L. Y. Gorokh, Department of Applied Physics, Chalmers University of Technology, Kemigården 1, Göteborg, Sweden

Detection of Harmful Pollutions from NO₂ in Gas Phase by Quartz Crystal Microbalance  
I. Nedkov(5), Action MC Member, Institute of Electronics, Bulgarian Academy of Sciences, Sofia, V. Georgieva(1), Z. Raicheva(1), B. Georgieva(2), D. Dimova-Malinovska(3), S. Boyadjiev(4), "Institute of Solid States Physics, Bulgarian Academy of Sciences, Sofia, Bulgaria; "UCTM bul. " St. Kliment Ohridski" Sofia, Bulgaria; "Central Laboratory of Solar Energy and New Energy Sources at the Bulgarian Academy of Sciences, Sofia, Bulgaria; "MTA-BME Technical Analytical Research Group, Budapest, Hungary; "Institute of Electronics, Bulgarian Academy of Sciences, Sofia, Bulgaria

AirSensEUR: An Open Software/Open Hardware Multi Sensor for the Monitoring of Air Quality  
Michel Gerboles, Laurent Spinelle, Marco Signorini, JRC, EC DG ENV, Institute for Environment and Sustainability, Ispra, Italy

Evaluation of Electrochemical Sensors by means of an Handheld Device for Air Quality Monitoring  
Domenico Suriano, Gennaro Cassano, Valerio Pfister, Michele Penza  
ENEA, Technical Unit for Materials Technologies - Brindisi Research Centre, Brindisi, Italy

Sensor of Biogas Ingredient Methane Employing Powerful Pulsed Laser Diodes  
Vasilka Pencheva, Stoyan Penchev, Ivan Nedkov  
Institute of Electronics, Bulgarian Academy of Sciences, Sofia, Bulgaria

Effect of Dopants in Semiconductor Oxide Sensing Layers under Low Oxygen Partial Pressures and at Higher Temperatures  
Azhar A. Haidry(1), Engin Ciftiyurek(1), Bilge Saruhan-Brings(1), Sebastian Schröder(2), Holger Fritze(2);  
(1)German Aerospace Center, Institute of Materials Research, Linder Höhe, 51147 Cologne, Germany; (2)Technical University Clausthal, Institute for Energy Research and Physical Technologies, 38640 Goslar, Germany
How to Manage a Project of Citizen Science: Olfactory Annoyance Evaluation in Taranto City (Italy)

M. Brattol®, L. de Gennaro®, A. Mazzone®, S. Petracconeb, A. Demarinis Loiotile®, R. Giua®, G. Assennato®, G. de Gennaro°®,

°Agenzia Regionale per la Prevenzione e la Protezione Ambientale Puglia - Corso Trieste 27, 70126 Bari; °Dipartimento di Chimica, Università degli Studi di Bari, via Orabona, 4, 70126 Bari, Italia; °Enviros srl - spin off dell'Università degli Studi di Bari, via Orabona 4, 70126 Bari, Italia

16:30 - 17:00 Coffee-Break
Thursday, 4 June 2015

Action TD1105 Working Groups and Special Interest Groups Meetings

Main Hall: Planck Room

17:00 - 18:30 Action WGs GENERAL ASSEMBLY
Chairman: Michele Penza, Action Chair
Italian National Agency for New Technologies, Energy and Sustainable Economic Development - ENEA, Brindisi, Italy

Specific Presentations from WGs Leaders

17:00 - 17:10
Summary of Research and Innovation Needs from WG1 Session: Sensor Materials and Nanotechnology
Jyrki Lappalainen, Action WG1 Vice-Chair - Oulu University, Oulu, Finland

17:10 - 17:20
Summary of Research and Innovation Needs from WG2 Session: Sensors, Devices and Systems for AQI
Andreas Schuetze, Action WG2 Chair, Saarland University, Saarbrucken, Germany

17:20 - 17:30
Summary of Research and Innovation Needs from WG3 Session: Environmental Measurements and Air-Pollution Modelling
Joao Paulo Teixeira, Action MC Substitute, National Institute of Health, Porto, Portugal

17:30 - 17:40
Summary of Research and Innovation Needs from WG4 Session: Protocols and Standardisation Methods
Ingrid Bryntse, Action WG4 Chair, SenseAir SA, Delsbo, Sweden

17:00 - 18:30 Action SIGs GENERAL ASSEMBLY
Chairman: Anita Lloyd Spetz, Action Vice-Chair
Linkoping University (Sweden) and Oulu University (Finland)

Specific Presentations from SIGs Leaders

17:40 - 17:50
Summary of Research and Innovation Needs from SIG1: Network of Spin-offs
Marco Alvisi, Action SIG1 Leader, ENEA, Brindisi, Italy

17:50 - 18:00
Summary of Research and Innovation Needs from SIG2: Smart Sensors for Urban Air Monitoring in Cities
Christoph Hueglin, MC Substitute and SIG2 Member, EMPA, Zurich, Switzerland

18:00 - 18:10
Summary of Research and Innovation Needs from SIG3: Guidelines for Best Coupling Air Pollutants and Transducer
Eduard Llobet, Action SIG3 Vice-Chair, Universitat Roviri I Virgili, Tarragona, Spain

18:10 - 18:20
Summary of Research and Innovation Needs from SIG4: Expert Comments for the Revision of the Air Quality Directive (AQD)
Ana Margarida Costa, WG Member, IDAD, Aveiro, Portugal

18:30 CLOSING of WGs and SIGs MEETING

Optional Guided Tour at Arwen
Europe’s Most Precise Transmission Electronic Microscope (TEM)
Register yourself at the Desk for Tour (Contact Point: Donatella Puglisi)

19:00 Dinner Freely by Participants
Friday, 5 June 2015

**Action TD1105 MANAGEMENT COMMITTEE Meeting**

Main Hall: *Planck Room*

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Presenter, Organization</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>09:30 - 13:00</strong></td>
<td><strong>Action TD1105 7th MANAGEMENT COMMITTEE MEETING</strong>&lt;br&gt;Chairman: Michele Penza, Action Chair&lt;br&gt;Italian National Agency for New Technologies, Energy and Sustainable Economic Development - ENEA, Brindisi, Italy</td>
<td></td>
</tr>
<tr>
<td><strong>09:30 - 10:00</strong></td>
<td><strong>WORLD ENVIRONMENT DAY (WED) 2015</strong>&lt;br&gt;Global Celebration on 5 June&lt;br&gt;United Nations Environment Programme (UNEP)&lt;br&gt;This year's WED slogan is ‘Seven Billion Dreams. One Planet. Consume with Care’&lt;br&gt;See more at: <a href="http://www.unep.org/wed/news/wed-2015">http://www.unep.org/wed/news/wed-2015</a></td>
<td></td>
</tr>
<tr>
<td><strong>10:00 - 13:00</strong></td>
<td><strong>New Methods for Control of Nanoparticles in Indoor-versus-Outdoor Environment</strong>&lt;br&gt;Anita Lloyd Spetz, Action Vice-Chair, Linkoping University (Sweden) and University of Oulu (Finland)</td>
<td></td>
</tr>
<tr>
<td><strong>10:00 - 13:00</strong></td>
<td><strong>7th Management Committee Meeting</strong>&lt;br&gt;Michele Penza, Action Chair, ENEA, Brindisi, Italy</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• DISCUSSION (see MCM AGENDA)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Coffee-Break (timely scheduled)</td>
<td></td>
</tr>
<tr>
<td><strong>12:00 - 12:20</strong></td>
<td><strong>Live VideoChat Brussels-Linkoping:</strong> Inputs from the COST Association&lt;br&gt;Deniz Karaca, Science Officer of the COST Action TD1105, COST Association, Brussels, Belgium</td>
<td></td>
</tr>
<tr>
<td><strong>12:20 - 12:30</strong></td>
<td>• QUESTION TIME with COST Science Officer</td>
<td></td>
</tr>
<tr>
<td><strong>13:00</strong></td>
<td>• End of the 7th MCM of the COST Action TD1105 - EuNetAir</td>
<td></td>
</tr>
<tr>
<td><strong>13:00 - 14:30</strong></td>
<td>• Lunch offered by the Conference Organization</td>
<td></td>
</tr>
<tr>
<td><strong>14:30</strong></td>
<td>• Meeting Closing</td>
<td></td>
</tr>
</tbody>
</table>
Draft Agenda
7th Management Committee Meeting
COST Action TD1105
European Network on New Sensing Technologies for Air-Pollution Control and Environmental Sustainability

FOURTH SCIENTIFIC MEETING
Working Groups and Management Committee

New Sensing Technologies for Outdoor Air Pollution Monitoring

Linköping (Sweden), 3 - 5 June 2015

Planck Room - Physics Building at Department of Physics, Chemistry and Biology
Olaus Magnus väg, Campus Valla, Linköping University, 58183 Linköping, Sweden

Management Committee Meeting, 5 June 2015, 9:30 - 14:30 (local time)

To be completed by the meeting secretary and circulated to the MC, the DC Rapporteur(s) and the COST Office (Science and Administrative Officer)

1. Welcome to participants
2. Adoption of agenda
3. Approval of minutes and matters arising of last meeting
4. Update from the Action Chair
   a. Status of Action, including participating countries
   b. Action budget status
   c. STSM status and new applications
5. Promotion of gender balance and of Early Stage Researchers (ESR)
6. Update from the Grant Holder
7. Update from the COST Office
8. Update from the DC Rapporteur
9. Annual Progress Conference (preparation and/or feedback from DC)
10. Follow-up of MoU objectives
    a. Progress report of working groups
11. Scientific planning
    a. Scientific strategy
    b. Action Budget Planning
    c. Long-term planning (including anticipated locations and dates of future activities)
    d. Dissemination planning (Publications and outreach activities)
12. Requests for new members
13. Non-COST applications to the Actions
14. AOB
15. Location and date of next meeting
16. Summary of MC decisions
17. Closing
7th MC Meeting Venue/Location of COST Action TD1105 EuNetAir

FOURTH SCIENTIFIC MEETING
Working Groups and Management Committee

New Sensing Technologies for Outdoor Air Pollution Monitoring

Linköping (Sweden), 3 - 5 June 2015

Physics Building at Department of Physics, Chemistry and Biology
Olaus Magnus väg, Campus Valla, Linköping University, 58183 Linköping, Sweden

Google Map Link: MAP-1

Google Map Link: MAP-2
How to arrive to Wärdhuset restaurant in Gamla Linköping

MAP. Location of Wärdhuset
the restaurant in Gamla (Old) Linköping chosen for the Social Dinner on 3rd June 2015, with respect to the suggested / pre-booked hotels and Linköping University.

Walking distances from:
Linköping University, Meeting venue = 650 m
Valla Folkhögskola = 1.2 km
First Hotel Linköping = 1.7 km
Scandic Hotel Linköping Väst = 2.4 km
Scandic Hotel Frimurarehotellet = 2.6 km

Address:
Gästgivaregatan 1
582 46 Linköping (Gamla Linköping)
http://www.wardhuset.com/