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

**THIRD INTERNATIONAL ACTION WORKSHOP on
New Trends and Challenges for Air Quality Control**

— Riga (Latvia), 26 - 27 March 2015

**University of Latvia, Faculty of Geography and Earth Sciences
Alberta Street, 10, LV-1010, Riga, Latvia**

organized by University of Latvia	
supported by Riga Technical University	

AGENDA	
26 March 2015 - Thursday	
09:00 - 18:00	REGISTRATION
09:30 - 10:00	Welcome Address
10:00 - 11:00	Session 1: Plenary Session
11:00 - 11:30	<i>Coffee Break</i>
11:30 - 13:00	Session 2: Oral Presentations
13:00 - 14:30	<i>Lunch</i>
14:30 - 16:00	Session 3: Oral Presentations
16:00 - 16:30	<i>Coffee Break</i>
16:30 - 18:30	Session 4: Oral Presentations
20:00 - 23:00	<i>Social Dinner</i>
27 March 2015 - Friday	
09:00 - 16:00	REGISTRATION
09:30 - 11:00	Session 5: Oral Presentations
11:00 - 11:30	<i>Coffee Break</i>
11:30 - 13:00	Session 6: Oral Presentations
13:00 - 14:30	<i>Lunch</i>
14:30 - 16:00	Session 7: Poster Presentations
16:00 - 16:30	<i>Discussion and Coffee Farewell</i>
16:30	Closure of Meeting



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 30 COST Countries (EU-zone: *Austria, Belgium, Bulgaria, Croatia, Czech Republic, Denmark, 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 3rd *International Action Workshop at University of Latvia, Riga, 26 - 27 March 2015*

The 3rd *International Workshop EuNetAir on New Trends and Challenges for Air Quality Control* will be held at University of Latvia, Riga (Latvia) under management of University of Latvia, and locally coordinated by Dr. Iveta Steinberga (LV MC Member). This third workshop of the Action TD1105 *EuNetAir* follows the first one organized at Barcelona, Spain (20 June 2013) as Satellite Event inside *Transducers 2013 - Eurosensors XXVII*, and the second one organized at Brindisi, Italy (25-26 March 2014).

The core-issues of the COST Action TD1105 on the **new trends and challenges** in the sensing technologies for indoor and outdoor monitoring and air quality control will be surveyed by Action partners in **visionary approach** with emphasis at *functional materials and nanotechnologies for gas sensors, low-cost and low-power chemical sensors, portable sensor-systems, sensor-instrumentations, air-pollution modelling, methods, measurements and protocols for air quality control and environmental monitoring, experimental campaigns of air quality monitoring, air-pollutants and new metrics, health-effects of air pollution, guidelines and regulations.*

Fruitful discussions between Action TD1105 participants, international experts, speakers and international institutional organizations delegates are strongly expected. At the ***Open Third Action Workshop*** of the COST Action TD1105 *EuNetAir*, a strong impact on critical 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

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Dr. Iveta STEINBERGA

MC LV Member and Local Organizing Team Chair

Faculty of Geography and Earth Sciences

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Dr. Gita SAKALE

MC LV Member and Local Organizing Team Co-Chair

Institute of Technical Physics

Riga Technical University

Paula Valdena Street 3, LV-1048, Riga, LATVIA

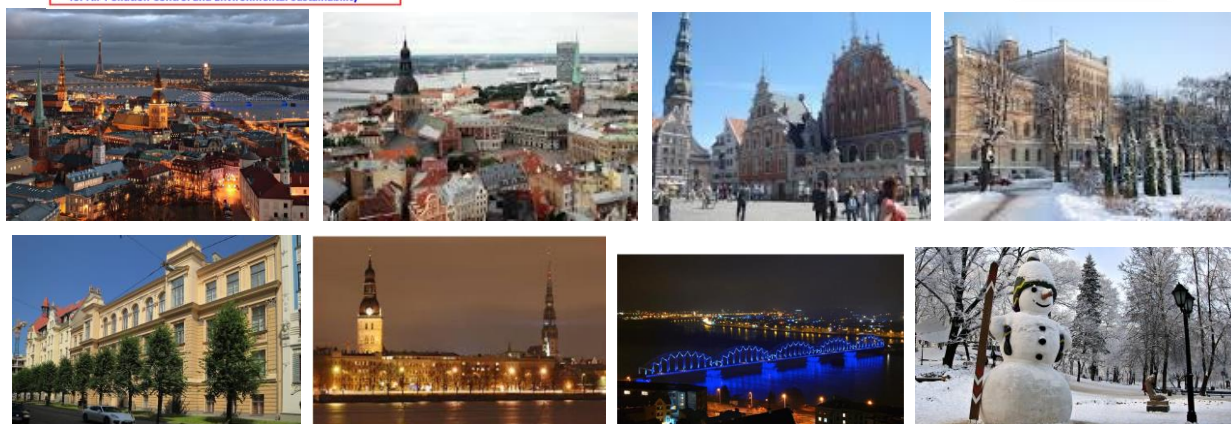
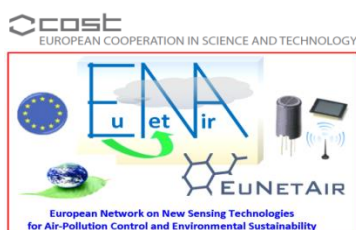
Email: Gita.Sakale@rtu.lv



THIRD INTERNATIONAL ACTION WORKSHOP on New Trends and Challenges for Air Quality Control

Riga (Latvia), 26 - 27 March 2015

**University of Latvia, Faculty of Geography and Earth Sciences
Alberta Street, 10, LV-1010, Riga, Latvia**



Action Workshop Programme Committee

Michele Penza, ENEA, Brindisi, Italy
Anita Lloyd Spetz, Linköping University, Sweden
Iveta Steinberga, University of Latvia, Riga, Latvia
Gita Sakale, Riga Technical University, Riga, Latvia
Andreas Schuetze, Saarland University, Germany
Zafer Ziya Ozturk, GEBZE Institute of Technology, Turkey
Carlos Borrego, IDAD, University of Aveiro, Portugal
Ole Hertel, Aarhus University, Denmark
Ingrid Bryntse, SenseAir AB, Sweden
Juan Ramon Morante, IREC, Spain
Marco Alvisi, ENEA, Italy
Corinna Hahn, Eurice GmbH, Saarbrücken, Germany
Juliane Roszbach, Eurice GmbH, Saarbrücken, Germany
Annamaria Demarinis Loiotile, University of Bari, Italy
Sanda Palapa, University of Latvia, Riga, Latvia
Sandra Vesere, University of Latvia, Riga, Latvia
Sandra Guzlina, Riga Technical University, Riga, Latvia

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
Iveta Steinberga, University of Latvia, Riga, Latvia
Corinna Hahn, Eurice GmbH, Saarbrücken, 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
Thomas Kuhlbusch, IUTA eV, Duisburg, Germany
Albert Romano-Rodriguez, Universitat de Barcelona (UB), Spain
Carlos Borrego, IDAD, University of Aveiro, Portugal
Annamaria Demarinis Loiotile, University of Bari, Italy - *Secretary*

URL: www.cost.eunetair.it



Thursday, 26 March 2015

COST Action TD1105 EuNetAir WORKSHOP

**Faculty of Geography and Earth Sciences, University of Latvia
Alberta Street, 10, LV-1010 Riga, Latvia**

09:00 - 18:00

COST Event Registration

Welcome Address

09:30 - 10:00 *Chairperson: Iveta Steinberga, Local Organizing Committee Chair and MC LV Member - University of Latvia, Riga, Latvia*

Welcome: Delegate of Riga City Council

Janis Kleperis, Member of Riga City Council, Latvia

Welcome: University of Latvia

Maris Klavins, Chairman University of Latvia Senate, Riga, Latvia

Welcome: Riga Technical University

Talis Juhna, Vice-Rector for Research, Riga Technical University, Riga, Latvia

Welcome: COST Action TD1105 EuNetAir

Michele Penza, Action Chair, ENEA, Brindisi, Italy

10:00 - 11:00

Session 1 - Plenary Session

Chairperson: Michele Penza, Action Chair - ENEA, Brindisi, Italy

10:00 - 10:30

COST Action TD1105: European Network on New Sensing Technologies for Air-Pollution Control and Environmental Sustainability. Overview and Plans of COST Action TD1105

Michele Penza, Action Chair, ENEA, Brindisi, Italy

10:30 - 11:00

Health Effects of Air Pollution in Europe

Michal Krzyzanowski, Former Head WHO European Centre for Environment and Health, Bonn Office, Germany - Honorary Affiliation: Environmental Research Group, King's College London, UK

11:00 - 11:30

Coffee Break

11:30 - 13:00

Session 2 - Environmental Informatics and AQ Sensors

Chairperson: Carlos Borrego, IDAD and University of Aveiro, Aveiro, Portugal

11:30 - 12:00

CMOS Sensor Systems for Air Quality Monitoring

Foysoyl Chowdhury, Action WG Member, CCMOSS Ltd, Cambridge, UK

12:00 - 12:20

Preprocessing, Analyzing and Modeling of Air Quality Measurement Data

Kostas Karatzas, Aristotle University of Thessaloniki, Greece

12:20 - 12:40

Towards Personal Exposure Estimates Using Low-Cost Air Quality Sensors and Data Fusion Techniques

Philipp Schneider, Action MC Member, NILU, Kjeller, Norway

12:40 - 13:00

Air Quality Modelling and Chemical Weather Forecasting at Different Scales

Camillo Silibello, Project manager, ARIANET srl, Milan, Italy

13:00 - 14:30

Lunch Break



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Session 3 - Methods and Applications for Environmental Sustainability

14:30 - 16:00 *Chairperson: Hans-Guido Muecke, WHO Collaborating Centre for Air Quality Management and Air Pollution Control - Federal Environment Agency, Berlin, Germany*

14:30 - 15:00 **“What Can Be Done When Pollutants Are in the Air ?”**
Stanislaw W. Gawronski, Warsaw University of Life Science, Warsaw, Poland

15:00 - 15:20 **The 1st EuNetAir Air Quality Joint-Exercise Intercomparison: Assessment of Micro-Sensors versus Reference Methods**
Carlos Borrego, IDAD and University of Aveiro, Aveiro, Portugal

15:20 - 15:40 **Air Pollution Modelling for Regulatory Purposes: Riga Case-Study**
Iveta Steinberga, Aiva Eindorfa, Oskars Stulbergs, University of Latvia, Riga, Latvia

15:40 - 16:00 **Making Visible the Invisible: Communicating Air Quality**
Nuria Castell-Balaguer, NILU - Norwegian Institute for Air Research, Kjeller, Norway

16:00 - 16:30

Coffee Break

Session 4 - Modelling and Applications for Air Quality Control

16:30 - 18:30 *Chairperson: Iveta Steinberga, University of Latvia, Riga, Latvia*

16:30 - 16:50 **Performance of Bulgarian WRF-CMAQ Modeling System**
E. Georgieva, D. Syrakov, M. Prodanova, I. Etropolska, K. Slavov, Bulgarian Academy of Sciences, Sofia, Bulgaria

16:50 - 17:10 **Air Quality Control in Hungary: Recent Changes**
Krisztina Labancz, Hungarian Meteorological Service, Budapest, Hungary

17:10 - 17:30 **On a Multilevel Parametric CFD Model for Urban Air Pollution Modelling**
Zoltan Horvath, Department of Mathematics and Computational Sciences, Szechenyi Istvan University, Győr, Hungary

17:30 - 17:50 **Review of Ambient Particulate Matter Levels and Source Contribution in Serbia**
Milena Jovasevic-Stojanovic¹, Anka Cvetkovic², Viša Tasić³; 1) Action MC Member, Institute Vinca, Belgrade, Serbia; 2) Public Health Institute; 3) Mining and Metallurgy Institute Bor, Serbia

17:50 - 18:10 **The MOSSClone FP7 project: Monitoring Air Quality using Moss as Passive Sensor**
José Angel Fernández Escribano, Project Coordinator, Facultad de Biología, Universidad de Santiago de Compostela (USC), Santiago de Compostela, Spain

18:10 - 18:30 **Kernel Networks for Learning from Sensory Data**
Roman Neruda, Vera Kurkova, Institute of Computer Science, Academy of Sciences of the Czech Republic, Prague, Czech Republic

20:00 - 23:00

Social Dinner



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Friday, 27 March 2015

COST Action TD1105 EuNetAir WORKSHOP

**Faculty of Geography and Earth Sciences, University of Latvia
Alberta Street, 10, LV-1010 Riga, Latvia**

09:00 - 16:00

COST Event Registration

09:30 - 11:00

Session 5 - Advanced Materials for Chemical Sensors

Chairperson: Michele Penza, Action Chair - ENEA, Brindisi, Italy

09:30 - 10:00

Several Ways to Get More Data in ChemoSensing

Marcel Bouvet, Université de Bourgogne, Institut de Chimie Moléculaire, Dijon, France

10:00 - 10:20

Application of Chemiresistive Polymer Films in Air Quality Control

Gita Sakale, M. Knite, I. Klemenoks, S. Stepina, S. Sergejeva, Riga Technical University, Latvia

10:20 - 10:40

Electrochemical Processes to Functionalize Nanostructured Sensitive Layers for NO₂ Gas Sensors

Elena Dilonardo^{1,2}, M. Penza³, M. Alvisi³, R. Rossi³, C. Di Franco⁴, L. Torsi², and N. Cioffi²;
¹DEE, Politecnico di Bari, Bari, Italy; ²Department of Chemistry, Università degli Studi di Bari, Bari, Italy; ³ENEA Brindisi, Italy; ⁴CNR-IFN Bari, Bari, Italy

10:40 - 11:00

Gas Sensors and Artificial Olfaction Instruments - Researches and Application at University of Latvia (ISSP UL, Faculty of Medicine)

Liga Grinberga, Janis Kleperis, Institute of Solid State Physics, University of Latvia, Riga, Latvia

11:00 - 11:30

Coffee Break

11:30 - 13:00

Session 6 - Sensors and Systems for Air Quality Control

Chairperson: Marcel Bouvet, Université de Bourgogne, Dijon, France

11:30 - 12:00

Gas Sensors - Fire Detection and Beyond

Oliver von Sicard, Siemens AG, Munich, Germany

12:00 - 12:20

SOI Micro-hotplates Platforms for Humidity Sensing: Follow-up of the Air Quality Intercomparison Joint-Exercise

Nicolas André, Laurent Francis, Université Catholique de Louvain, Electrical Engineering Department, ICTEAM Institute, Louvain-la-Neuve, Belgium

12:20 - 12:40

Expanding the Capabilities of CO₂ LIDAR System with Nonlinear Optical Chalcogenide Crystals

Wojciech Kuznik, Czestochowa University of Technology, Czestochowa, Poland

12:40 - 13:00

Mobile Air Quality Monitoring with Low-Cost Sensors - Piloting Experience in Zagreb

Dinko Oletic, University of Zagreb, Faculty of Electrical Engineering and Computing, Zagreb, Croatia

13:00 - 14:30

Lunch Break



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Session 7 - Poster Session

14:30 - 16:00

Chairperson: Gita Sakale, Local Organizing Committee Co-Chair and MC LV Member - Riga Technical University, Riga, Latvia

Posters will be presented by Quick Presentations (5-6 minutes, max 5-6 templated slides) by presenters, preferably Early Stage Researchers. Posters are listed by theme and as-received.

MATERIALS, SENSORS, SYSTEMS AND METHODS FOR AIR QUALITY MONITORING

- P01** **Characterization of Organic Matter in Marine Aerosols Near Eutrophic Seawater Ecosystem (Rogoznica Lake, Central Dalmatia) during Winter Season**
Ana Cvitesic, Sanja Frka Milosavljević, Irena Ciglenceki, Rudjer Boskovic Institute, Zagreb, Croatia
- P02** **LIDAR Sensing of Atmospheric Impurities versus Passive FTIR Spectroscopy - A Comparison**
Tomasz Imielski, Czestochowa University of Technology, Czestochowa, Poland
- P03** **Effects of Particle Indoor Air Pollution Concerning Smoking Habits**
Sandra Vesere, Iveta Steinberga, Faculty of Geography and Earth Sciences, University of Latvia, Riga, Latvia
- P04** **Odour Measurements Using Commercial USB-Stick Sensor Devices**
Sanda Palapa, Iveta Steinberga, Faculty of Geography and Earth Sciences, University of Latvia, Riga, Latvia
- P05** **Chemiresistive VOC Sensor Materials Based on Silicone Rubber Composites**
Sandra Guzlina, Riga Technical University, Latvia
- P06** **Ethylene Vinylacetate Copolymer and Nanographite Particle Composite as VOC Sensor**
Santa Stepina, Riga Technical University, Latvia
- P07** **Integration and Performance of an Ultra-Low Power Palladium-based MEMS Hydrogen Sensor for High Selective Monitoring and Fast Detection**
Thomas Walewyns, Nicolas André, Laurent Francis, Université Catholique de Louvain, Electrical Engineering Department, Louvain-la-Neuve, Belgium
- P08** **Optical Air Quality Sensors: Benzene, Dust, CO₂**
J. Alnis^{1,2}, I. Fescenko¹, Z. Gavare¹, G. Revalde², A. Vrubleviskis², 1)Institute of Atomic Physics and Spectroscopy, University of Latvia, Latvia; 2)Institute of Technical Physics, Riga Technical University, Latvia
- P09** **Gas Sensors Based on PLD-Modified Graphene for Environmental Monitoring**
Margus Kodu, Artjom Berholts, Tauno Kahro, Tea Avarmaa, Ahti Nilisk, Harry Alles, Raivo Jaaniso, Institute of Physics, University of Tartu, Estonia
- P10** **Spinel Ferrite Gas Sensors**
Andris Sutka, Institute of Silicate Materials, Riga Technical University, Riga, Latvia
- P11** **Practical Application of Commercial Alpha-MOS E-Nose for Air Quality Control in Riga**
Kala Aiga, Oskars Beikulis, Janis Rubinis, Estonian, Latvian & Lithuanian Environment Ltd, Riga, Latvia
- P12** **One-dimensional ZnO Nanostructures and Their Optoelectronic Applications**
R. Yatskiy, J. Grym, M. Hamplova O. Cernohorsky, J. Vanis, Synthesis and characterization of nanomaterials, Institute of Photonics and Electronics AVCR, Prague, Czech Republic
- P13** **Micro/Nanomechanical Elements Studied by Laser Photoacoustic Spectroscopy for the Development of New Sensing Technologies**
M. Dostál^{1,2}, J. Suchánek^{1,2}, T. Vlasáková^{1,3}, P. Janda¹, Z. Zelinger¹; ¹J. Heyrovský Institute of Physical Chemistry, v.v.i., Academy of Sciences of the Czech Republic, Praha, Czech Republic; ²Technical University of Ostrava, Faculty of Safety Engineering, Ostrava, Czech Republic; ³ Charles University in Prague, Faculty of Science, Prague, Czech Republic



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16:00 - 16:30

Discussion on EU Initiatives related to COST Action TD1105

Chairperson: Michele Penza, Action Chair - ENEA, Brindisi, Italy

Riga Time

Live Video Chat Brussels-Riga - Brussels (CET: -1h EET) and Riga Time (EET: +1h CET)

16:00 - 16:10

Policy Inputs from DG Research and Innovation on EU Cluster Sensor-Systems

Hans Hartmann Pedersen, EC DG R&I Policy Officer, Brussels, Belgium

16:10 - 16:20

Research & Innovation Priorities of the COST Action TD1105 and EU Cluster Sensor-Systems

Michele Penza, ENEA, Brindisi, Italy

16:20 - 16:30

Discussions from COST Action TD1105 Partners/Stakeholders

16:30

Closure of COST Action TD1105 *EuNetAir* WORKSHOP



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