



cost
EUROPEAN COOPERATION IN SCIENCE AND TECHNOLOGY



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COST Action TD1105

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

WORKING GROUPS MEETING

Air Quality Monitoring and Calibration: Horizons in Sensing Technologies, Methods and Modelling

2nd EuNetAir Air Quality Joint-Exercise Intercomparison

Belgrade (Serbia), 13 - 14 October 2015

**organized by VINCA Institute and Public Health Institute of Belgrade
hosted by Faculty of Mechanical Engineering, University of Belgrade
16 Kraljice Marije, 11120 Belgrade 35, Serbia**

Meeting AGENDA	
12 October 2015 - Monday	
09:00 - 14:00	Arrival to Belgrade
15:00 - 17:00	Installation of Sensors in AQ Monitoring Station - Part 1
20:30	Free Dinner
13 October 2015 - Tuesday	
09:00 - 18:00	REGISTRATION
09:00 - 13:00	Installation of Sensors in AQ Monitoring Station - Part 2
13:00 - 14:00	Light Lunch offered by COST Action organization
14:00 - 15:00	REGISTRATION
15:00 - 15:30	Session 1: Welcome Address
15:30 - 16:30	Session 2: Oral Presentations
16:30 - 17:00	Coffee Break
17:00 - 18:00	Session 3: Oral Presentations
20:00	Social Dinner
14 October 2015 - Wednesday	
09:00 - 17:00	REGISTRATION
09:00 - 10:30	Session 4: Oral Presentations
10:30 - 11:00	Coffee-break
11:00 - 13:00	Session 5: Oral Presentations
13:00 - 14:30	Light Lunch offered by COST Action organization
14:30 - 16:50	Session 6: Oral Presentations
16:50 - 17:00	Session 7: Conclusions
17:00	End of the WG1-WG4 Meeting and Farewell



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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 120 big institutions from 31 COST Countries (EU-zone: *Austria, Belgium, Bulgaria, Croatia, Czech Republic, Estonia, 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 **WG1-WG4 Meeting at University of Belgrade, Belgrade, Serbia, 13 - 14 October 2015**

The WG1-WG4 Meeting (WGM) will be held on 13-14 October 2015 at Faculty of Mechanical Engineering, University of Belgrade, Belgrade (Serbia) under chairing of Dr. Milena Jovasevic-Stojanovic (MC Member), VINCA Institute, and co-chaired by Dr. Anka Cvetkovic (MC Member), Public Health Institute of Belgrade. The core-issues of the COST Action TD1105 will be surveyed and presented as current results and scientific and technological breakthrough. WG1-WG4 Meeting will discuss on ***Air Quality Monitoring and Calibration: Horizons in Sensing Technologies, Methods and Modelling*** in an interdisciplinary approach aiming to provide **intercomparison sensors-versus-analyzers**, harmonization of the environmental measurements and experimental campaigns, exchange of best practices, quality assurance, quality control, data quality, methods and protocols, development of new sensing technologies, modelling of air pollution. High quality output such as joint-publications of the achieved results of the environmental campaign and discussion of the AQ results to be shared in the Action partnership by future meetings are highly expected. Several teams of the COST Action TD1105 are largely interested and involved by their expression of interest to join on the experimental campaign in Belgrade for Joint-Exercise Intercomparison including the contribution in expertise to the multidisciplinary inter-WGs meeting.

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

Department for Sustainability - Laboratory Functional Materials & Technologies for Sustainable Applications

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Dr. Anka Cvetkovic

Local Organizing Team Co-Chair

Public Health Institute of Belgrade

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WORKING GROUPS MEETING
Air Quality Monitoring and Calibration:
Horizons in Sensing Technologies, Methods and Modelling
2nd EuNetAir Air Quality Joint-Exercise Intercomparison

Belgrade (Serbia), 13 - 14 October 2015

organized by VINCA Institute and Public Health Institute of Belgrade

hosted by Faculty of Mechanical Engineering, University of Belgrade
16 Kraljice Marije, 11120 Belgrade 35, Serbia



Action Meeting Programme Committee

Michele Penza, ENEA, Brindisi, Italy
Milena Jovasevic-Stojanovic, VINCA, Belgrade, Serbia
Anka Cvetkovic, Public Health Institute of Belgrade, Serbia
Carlos Borrego, IDAD, University of Aveiro, Portugal
Ana Margarida Costa, IDAD, Aveiro, Portugal
Ivan Nedkov, Bulgarian Academy of Sciences, Sofia, Bulgaria
Dimiter Syrakov, Bulgarian Academy of Sciences, Sofia, Bulgaria
Anton Kock, MCL, Leoben, Austria
Ole Hertel, Aarhus University, Denmark
Kaarle Hameri, University of Helsinki, Finland
Nuria Castell, NILU, Kjeller, Norway
Anita Lloyd Spetz, Linkoping University, Sweden
Andreas Schuetze, Saarland University, Germany
Ingrid Bryntse, SenseAir AB, Sweden
Juan Ramon Morante, IREC, Spain
Marco Alvisi, ENEA, Italy
Corinna Hahn, Eurice GmbH, Saarbrücken, Germany
Juliane Rossbach, Eurice GmbH, Saarbrücken, Germany
Annamaria Demarinis Loiotile, University of Bari, Italy
Dusan Topalovic, VINCA, Belgrade, Serbia
Milos Davidovic, VINCA, Belgrade, Serbia

COST Action TD1105 EuNetAir Steering Committee

Michele Penza, ENEA, Brindisi, Italy - *Action Chair*
Anita Lloyd Spetz, Linkoping 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
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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



Monday, 12 October 2015

COST Action TD1105 EuNetAir

**Joint-Exercise Kick-off at Belgrade Sensors-vs-Analyzers using AQ Automatic Monitoring Station
Faculty of Mechanical Engineering, University of Belgrade, 11120 Belgrade 35, Serbia**

09:00 - 14:00

Arrival to Belgrade

15:00 - 17:00

Installation of Sensors in AQ Monitoring Station - Part 1

Chairperson: Milena Jovasevic-Stojanovic, Local Chair, VINCA, Belgrade, Serbia

EuNetAir Partner: Air-Sensor-Box (NO₂, O₃, CO, SO₂, PM, T, RH)

Domenico Suriano, Mario Prato and Michele Penza, Action WG Member, ENEA, Brindisi, Italy

EuNetAir Partner: AQMesh Pod Sensor-Box (NO, NO₂, O₃, CO)

*Mar Viana and Mariacruz Minguillon, Action WG Member, CSIC-IDAEA, Barcelona, Spain
Amanda Randle, AQMesh, Warwickshire, UK*

EuNetAir Partner: Microsensor-Box (NO₂, O₃, p, T, RH) for Air Quality Measurements

Kostas Karatzas, Aristotle University of Thessaloniki, Greece

EuNetAir Partner: CMOS Sensor-System for Air Quality Monitoring

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

EuNetAir Partner: PM/Gas Sensor-System for Air Quality Monitoring

Milena Jovasevic-Stojanovic, Action MC Member, VINCA, Belgrade, Serbia

EuNetAir Partner: VOCs Sensor-System for Air Quality Monitoring

G.Sakale, M.Knite, S.Stepina, E.Liepa, S.Sergejeva, Riga Technical University, Latvia

20:30

Free Dinner



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Tuesday, 13 October 2015

COST Action TD1105 EuNetAir

**Joint-Exercise Kick-off at Belgrade Sensors-vs-Analyzers using AQ Automatic Monitoring Station
Faculty of Mechanical Engineering, University of Belgrade, 11120 Belgrade 35, Serbia**

09:00 - 18:00

COST Meeting Registration

9:00 - 13:00

Installation of Sensors in AQ Monitoring Station - Part 2

Chairperson: Anka Cvetkovic, Local Co-Chair, Public Health Institute of Belgrade, Serbia

All Partners install sensor-systems in AQ Automatic Monitoring Station (AMS) in Belgrade

13:00 - 14:00

Lunch offered by COST Action organization

14:00 - 15:00

COST Meeting Registration

15:00 - 15:30

Session 1: Welcome Address

Chairperson: Milena Jovasevic-Stojanovic, Local Chair, VINCA, Belgrade, Serbia

Bojan Radak, Institute VINCA Deputy Director, Belgrade, Serbia

Representative from Public Health Institute of Belgrade Director, Belgrade, Serbia

Natasa Djokic, Secretary of Environmental Protection, Municipality of Belgrade, Serbia

Representative from University of Belgrade, Belgrade, Serbia

Michele Penza, COST Action TD1105 Chair, ENEA, Brindisi, Italy

15:30 - 16:30

Session 2: Plenary Session

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

15:30 - 16:00

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

Michele Penza, Action Chair, ENEA, Brindisi, Italy

16:00 - 16:30

Development of Real Time Reactive Oxygen Species Sensors

Zorane Ristovski, Faculty of Engineering, Queensland University of Technology, Brisbane, Australia

16:30 - 17:00

Coffee Break

17:00 - 18:00

Session 3: Methods for Air Quality Monitoring

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

17:00 - 17:30

Challenge of an Air Quality and Noise Sensor Network on a Maritime Port

Carlos Borrego, Institute of Environment and Development, Aveiro, Portugal

17:30 - 18:00

Electroanalytical Methods in Marine Aerosols Characterization

Irena Ciglencecki-Jusic, Rudjer Boskovic Institute, Zagreb, Croatia

20:00

Social Dinner



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Wednesday, 14 October 2015

COST Action TD1105 EuNetAir

**Joint-Exercise Kick-off at Belgrade Sensors-vs-Analyzers using AQ Automatic Monitoring Station
Faculty of Mechanical Engineering, University of Belgrade, 11120 Belgrade 35, Serbia**

09:00 - 17:00

COST Meeting Registration

09:00 - 10:30

Session 4: Air Quality Modelling and Environmental Measurements

Chairperson: Carlos Borrego, Action MC Member, IDAD, Aveiro, Portugal

09:00 - 09:30

Air Quality Modelling with Bulgarian WRF-CMAQ System over Europe - O₃, PM, Meteorology

Dimiter Syrakov, Bulgarian Academy of Sciences, Sofia, Bulgaria

09:30 - 10:00

Air Quality Modelling at Different Scales

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

10:00 - 10:30

Comparing Sensor Data with the Aid of Self Organizing Maps

Kostas Karatzas, Aristotle University of Thessaloniki, Greece

10:30 - 11:00

Coffee Break

11:00 - 13:00

Session 5: Exposure Assessment to Air Pollution

Chairperson: Milena Jovasevic-Stojanovic, Local Chair, VINCA, Belgrade, Serbia

11:00 - 11:30

School Children's Exposure to Ultrafine Particles: A Cross-Sectional Study in Rural and Urban Sites

Joao Paulo Teixeira, National Institute of Health, Porto, Portugal

11:30 - 12:00

Benzo[a]pyrene Toxicity Equivalent Level and Lifetime Lung Cancer Risk in Belgrade Area

Anka Cvetkovic (1), Milena Jovasevic-Stojanovic (2), Dragan Marković (3), (1) Action MC Member, Public Health Institute of Belgrade, Belgrade, Serbia; (2) Action MC Member, Institute VINCA, Belgrade, Serbia; (3) Faculty for Applied Ecology "Futura", Belgrade, Serbia

12:00 - 12:20

PM Levels and I/O Ratios of PM in the School in the NIŠ City Center, Serbia

Visa Tasic, Mining and Metallurgy Institute, Bor, Serbia

12:20 - 12:40

Carbon Species in Black Crust of Zagreb Cathedral

Kristijan Vidovic, Rudjer Boskovic Institute, Zagreb, Croatia

12:40 - 13:00

DISCUSSION and NETWORKING

13:00 - 14:30

Lunch offered by COST Action organization

14:30 - 17:00

Session 6: Sensors and Sensor-Systems for Air Quality Monitoring

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

14:30 - 15:00

Challenges and Requirements for Low Cost Environment Monitoring for Poultry Farms

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

15:00 - 15:20

Comparative Statistical Analyses of Multilinear Regression Models for Calibration of Low-Cost Sensors for Air Pollution Monitoring

Dušan Topalović, Miloš Davidović, Milena Jovašević-Stojanović, Action WG Member, Institute Vinca, Belgrade, Serbia



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- 15:20 - 15:40** **Use of European Multicity Model for Creation of NO₂ and PM_{2.5} Base Maps for Belgrade**
Miloš Davidović, Dušan Topalović, Milena Jovašević-Stojanović, Action WG Member, Institute Vinca, Belgrade, Serbia
- 15:40 - 16:00** **Gas Sensing Properties of Pd Nanoparticles on TiO₂ Nanorods**
Erdem Sennik, Onur Alev, Zafer Ziya Ozturk, Action WG Member, GEBZE, Kocaeli, Turkey
- 16:00 - 16:20** **Volatile Organic Compounds Source of Information**
G.Sakale, M.Knite, S.Stepina, S.Guzlena, I.Klemenoks, Riga Technical University, Latvia
- 16:20 - 16:50** **CITI-SENSE: Citizens Observatory**
Alena Bartonova, CITI-SENSE Coordinator, NILU, Kjeller, Norway
- 16:50 - 17:00** **CONCLUSIONS**
Michele Penza, Action Chair, ENEA, Brindisi, Italy

17:00

End of the WG1-WG4 Meeting and Farewell



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