

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

## COST Action TD1105

**9<sup>th</sup> MC Meeting at *Czech Academy of Sciences***  
***organized and hosted by J. Heyrovsky Institute of Physical Chemistry***  
**Conference Hall, Prague (Czech Republic), 7 October 2016**

Action Start date: 01/07/2012 - Action End date: 15/11/2016

**Year 4: 1 July 2015 - 15 November 2016 (*EXTENDED Action*)**

 **cost**  
EUROPEAN COOPERATION IN SCIENCE AND TECHNOLOGY



**Michele PENZA**  
Function in the Action: Chair  
ENEA / Italy



# 1. Welcome to Participants

- **Action Parties: 31**
- **Attending Parties: 23**
- MCM Participants: 25+  
**Russia NNC Observer**

Friday, 7 October 2016

## Action TD1105 MANAGEMENT COMMITTEE Meeting

### Conference Hall

#### Action TD1105 9<sup>th</sup> MANAGEMENT COMMITTEE MEETING

11:30 - 13:00

*Chairman: Michele Penza, Action Chair*

*Italian National Agency for New Technologies, Energy and Sustainable Economic Development - ENEA, Brindisi, Italy*

11:30 : 13:00

#### 9<sup>th</sup> Management Committee Meeting

*Michele Penza, Action Chair, ENEA, Brindisi, Italy*

- **DISCUSSION** (see MCM AGENDA): *EuNetAir Meeting Participants and Stakeholders*

- **Coffee-Break** (timely scheduled)

13:00

- **End of the 9<sup>th</sup> MCM of the COST Action TD1105 - EuNetAir**

13:00 - 14:30

- **Lunch offered by the Conference Organization**

14:30

- **Meeting Closing**

# 2. Adoption of Agenda

Friday, 7 October 2016

## Action TD1105 Working Groups and Special Interest Groups Meetings

### Action WGs-SIGs GENERAL ASSEMBLY

09:00 - 11:00

Chairman: Michele Penza, Action Chair  
Italian National Agency for New Technologies, Energy and Sustainable Economic Development - ENEA, Brindisi, Italy

#### Specific Presentations from Key Speakers, WGs and SIGs Leaders

09:00 - 09:20

**Low-Power Heating for Conductometric Gas NanoSensors: Self-Heating Effects**  
O. Monereo, C. Fàbrega, O. Casals, J. Samà, F. Hernandez-Ramírez, A. Cirera, A. Romano-Rodríguez, Juan Daniel Prades, ERC Starting Grant & Action WG Member, Universitat de Barcelona, Barcelona, Spain  
ERC Starting Grant (no. 336917): *Nanodevice Engineering for a Better Chemical Gas Sensing Technology - BetterSense*

09:20 - 09:40

**High Spatial Resolution Air Quality Mapping using Data from an Opportunistic Mobile Monitoring Campaign**  
Joris Van den Bossche<sup>1,2</sup>, Bart Elen<sup>1</sup>, Jan Peters<sup>1</sup>, Dick Botteldooren<sup>3</sup>, Bernard De Baets<sup>2</sup>, Jan Theunis<sup>1</sup>, STSMs Coordinator and Action MC Member, <sup>1</sup>VITO, Health Unit, Mol, Belgium; <sup>2</sup>Ghent University, KERMIT Research Unit Knowledge-based Systems, Belgium; <sup>3</sup>Ghent University, INTEC Acoustics, Belgium

09:40 - 09:50

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

09:50 - 10:00

**Summary of Research and Innovation Needs from WG2: Sensors, Devices and Systems for AQC**  
Andreas Schuetze, Action WG2 Chair, Saarland University, Saarbrücken, Germany

10:00 - 10:10

**Summary of Research and Innovation Needs from WG3: Environmental Measurements and Air-Pollution Modelling**  
Ole Hertel, Action WG3 Leader & MC Member, Aarhus University, Roskilde, Denmark

10:10 - 10:20

**Summary of Research and Innovation Needs from WG4: Protocols and Standardisation Methods**  
Kostas Karatzas, MC Member, Aristotle University, Thessaloniki, Greece

10:20 - 10:30

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

10:30 - 10:40

**Summary of Research and Innovation Needs from SIG2: Smart Sensors for Urban Air Monitoring in Cities**  
Christoph Hueglin, Action SIG2 Leader, EMPA, Zurich, Switzerland

10:40 - 10:50

**Summary of Research and Innovation Needs from SIG3: Guidelines for Best Coupling Air Pollutant - Transducer**  
Eduard Llobet, Action SIG3 Leader, Universitat Roviri i Virgili, Tarragona, Spain substituted by Marcel Bouvet, Action MC Member, Institut de Chimie Moléculaire de l'Université de Bourgogne, CNRS UMR 6302, Université de Bourgogne Franche-Comté, Dijon, France

10:50 - 11:00

**Summary of Research and Innovation Needs from SIG4: Expert Comments for the Revision of the Air Quality EU Directive**  
Carlos Borrego, Action SIG4 Leader, IDAD, Aveiro, Portugal

11:00 - 11:30

Coffee Break

MCM has been anticipated by a General Assembly with individual Reports from WGs-SIGs Leaders

Any new Topics to be introduced in Agenda ?

Planned Single Session

### 3. Approval of minutes and matters arising of last meeting

**ACTION TD1105 OFFICIALLY EXTENDED to**

**15 NOVEMBER 2016**

**approved by Steering Committee of COST Association**

*(SC Meeting October 2015)*

**BUDGET for Extension (marked as Year 5): €35,650.00**

**Total Science Expenditures: €31,000.00**

**FSAC (max 15%) for GH: €4,650.00**



# Final Achievement Report: **EuNetAir**

*New Sensing Technologies for Air-Pollution Control and Environmental Sustainability*

- *Terms & Obligations:*

Action, via Chair with inputs & approval of the Management Committee, has to submit to the COST Association an **official Report** including the achieved results and outcome for final assessment by a dark external expert nominated by COST Association.

- **Timing of Report Submission:**

- Template by COST Association
- Submission is due within 4 weeks after the end date (15 Nov. 2016) of Action
- Deadline for submission of the Report: **15 December 2016**
- *As Chair, I will prepare the first draft and ask inputs to WG Leaders and MC Members on mid-October 2016.*
- *Circulation in MC of the drafted Report expected on mid-November 2016.*

# 4. Update from the Action Chair

a. **Status** (December 2015) of Action, including participating Countries

## PARTIES

**Already accepted MoU: 31 Countries**

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.

**7 Non-COST Countries**

**Australia, Canada, China, Morocco, Russia, Ukraine, USA**

## Country

## MC Members (58): Male (69%) - Female (31%)

Austria	Dr. Anton KOCK
Belgium	Dr Jan THEUNIS; Dr Anne-Claude ROMAIN
Bulgaria	Dr Dimiter SYRAKOV; Dr Ivan NEDKOV
Croatia	Dr. Irena CIGLENECKI-JUSIC; Prof. Vedran BILAS
Czech Republic	Dr. Vera KURKOVA; Dr. Zdenek ZELINGER
Denmark	Prof. Ole HERTEL
Estonia	Prof. Raivo Jaaniso
Finland	Prof. Kaarle HAMERI; Prof. Jyrki LAPPALAINEN
France	Prof. Marcel BOUVET; Prof. Jerome BRUNET
Germany	Prof. Andreas SCHUETZE; Dr Corinna HAHN
Greece	Prof. George PAPAPOULOS; Prof. Kostas KARATZAS
Hungary	Ms Krisztina LABANCZ; Dr Zita FERENCZI
Iceland	Dr Arngrimur THORLACIUS
Ireland	Dr. Francesco PILLA; Prof. John WENGER
Israel	Dr. Liad ORTAR; Prof. Hossam HAICK
Italy	Dr. Michele PENZA; Prof. G. SBERVEGLIERI; Dr. G. DE GENNARO
Latvia	Dr. Iveta STEINBERGA; Dr. Gita SAKALE
Luxembourg	Dr. Arno GUTLEB
Macedonia Rep.	Dr. Igor ATASANOV; Dr. Ljupcho GROZDANOVSKI
Netherlands	Dr Sywert BRONGERSMA; Dr. Ernie WEIJERS
Norway	Dr Nuria CASTELL BALAGUER; Dr. Philipp SCHENEIDER
Poland	Dr Monika KWOKA; Prof. Janislaw GAWRONSKI
Portugal	Prof. Bernadete RIBEIRO; Prof. Carlos BORREGO
Romania	Dr Marcel IONICA; Dr Roxana Mioara PITICESCU
Serbia	Dr. Anka CVETKOVIC; Dr. Milena JOVASEVIC-STOJANOVIC
Slovenia	Dr Grisa MOCNIK; Dr Rahela ZABKAR
Spain	Prof. Juan Ramon MORANTE; Prof. Eduard LLOBET VALERO
Sweden	Prof. Anita LLOYD SPETZ; Prof. Ingrid BRYNTSE
Switzerland	Dr Danick BRIAND; Dr. Nicolas MOSER
United Kingdom	Dr John SAFFELL; Prof. Roderic JONES
Turkey	Prof. Zafer ZIYA OZTURK; Prof. Mehmet Fatih DANISMAN

**Kick-off Meeting  
Brussels  
16 May 2012**

**MANAGEMENT  
COMMITTEE**

**MC Chair:** Michele Penza, ENEA, IT

**MC Vice Chair:** Anita Lloyd Spetz, Linkoping University, SE

**Grant Holder:** Eurice GmbH, Saarbrucken, DE

## Country

## MC Substitutes (33)

Austria	Dr Stefan DEFREGGER
Belgium	Dr Julien DELVA
Czech Republic	Dr. Roman NERUDA
Denmark	Dr. Lise Lotte SORENSEN
Finland	Prof. Jorma KESKINEN
France	Dr Jean SUISSE; Prof. Alain PAULY Dr. Daniela SCHONAUER-KAMIN
Germany	Dr. Thomas KUHMBUSCH Dr. Juliane ROSSBACH
Greece	Prof. George KIRIKIADIS Dr. Christos KOULAMAS
Hungary	Prof. Zoltan HORVATH
Italy	Dr. Roberto SIMMARANO Dr. Marco ALVISI; Dr. Saverio DE VITO
Macedonia Rep.	Dr. Beti ANGELEVSKA
Netherlands	Dr. Rene OTJES
Poland	Prof. Jacek SZUBER
Portugal	Dr. Joao Paulo TEIXEIRA Dr. Ana Margarida COSTA
Romania	Dr. Cristina RUSTI; Dr. Marcel Adrian IONICA
Slovenia	Prof. Andrej DOBNIKAR
Spain	Prof. Albert ROMANO-RODRIGUEZ Dr. Jordi LLOSA
Sweden	Dr Mike ANDERSSON; Dr. Marina VOINOVA
Switzerland	Dr Christoph HUEGLIN
Turkey	Prof. Necmettin KILINC
UK	Prof. Julian GARDNER Dr Robin NORTH; Prof. Florin UDREA

# COST Action TD1105 EuNetAir: WORKING GROUPS

<b>WG1: Sensor materials and nanotechnology</b>	<b>Sub-WG1.1:</b> Metal oxides nanostructures for AQC fas sensors
	<b>Sub-WG1.2:</b> Carbon nanomaterials for AQC gas sensors
	<b>Sub-WG1.3:</b> Emerging sensor materials (organic/inorganic, hybrid, nanocomposites, polymers, functional)
<b>WG2: Sensors, devices and systems for AQC</b>	<b>Sub-WG2.1:</b> Gas nanosensors and new transducers
	<b>Sub-WG2.2:</b> Portable gas sensor-systems
	<b>Sub-WG2.3:</b> Wireless technology and AQC sensors network
	<b>Sub-WG2.4:</b> Intelligence algorithms and distributed computing for networked AQC gas sensors
<b>WG3: Environmental measurements and air-pollution modelling</b>	<b>Sub-WG3.1:</b> Environmental measurements at laboratory and in field air-quality stations
	<b>Sub-WG3.2:</b> Air-quality modeling and chemical weather forecasting
	<b>Sub-WG3.3:</b> Harmonisation of environmental measurements
<b>WG4: Protocols and standardisation methods</b>	<b>Sub-WG4.1:</b> Protocols, standards and methods for AQC by analyzers/instruments (no-sensors) technologies
	<b>Sub-WG4.2:</b> Protocols, standards and methods for AQC by sensors (no-analyzers) technologies
	<b>Sub-WG4.3:</b> Benchmarking of new products and market of commercial AQC sensors



## 4. Update from the Action Chair - a. **Status** of Action

- **SIG 1**: *Network of Spin-offs*
- **SIG 2**: *Smart Sensors for Urban Air Monitoring in Cities*
- **SIG 3**: *Guidelines for Best Coupling Air Pollutant-Transducer*
- **SIG 4**: *Expert comments for the Revision of the Air Quality EU Directive*



**Special Interest Groups**

**Ad-Hoc Groups**



### **MANAGEMENT COMMITTEE:**

#### **CORE-GROUP & STEERING COMMITTEE**

- *Editorial Board*
- *Dissemination Committee*
- *Training Schools Committee*
- *Gender Balance Committee*
- *Short-Term Scientific Mission (STSM) - Early Stage Researchers (ESR) Committee*
- *Intellectual Property Rights (IPR)*
- *Local Organizing Committee (LOC)*
- *International Stakeholders*

# 4. Update from the Action Chair

## a. Status of Action, including participating Countries

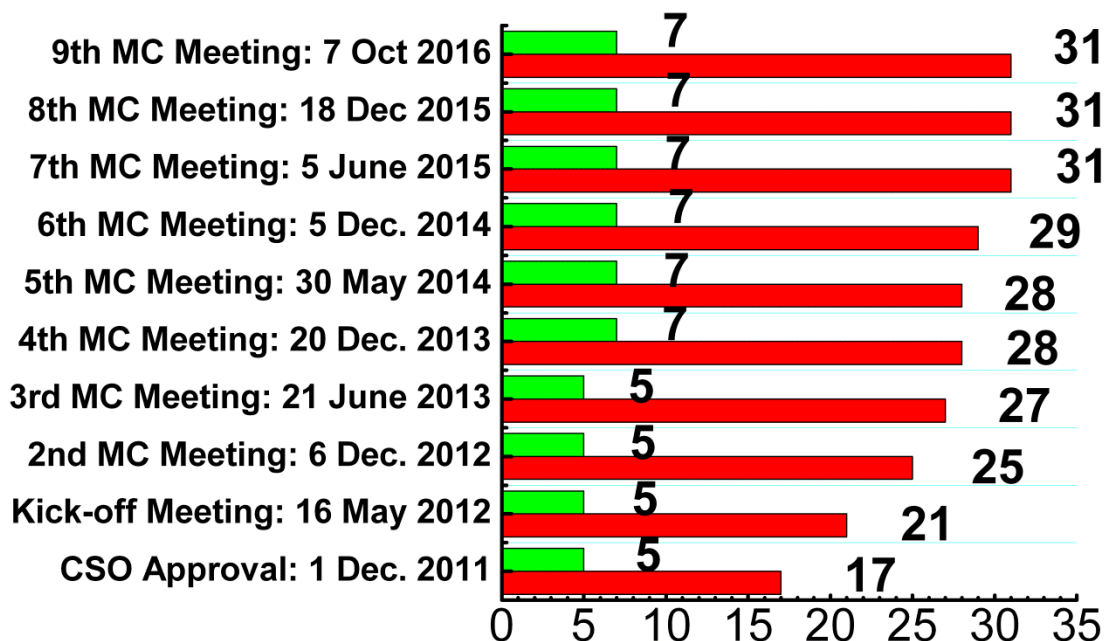
### Grant Holder:

Eurice GmbH, Saarbrücken, Germany

### *GH Scientific Representatives:*

Corinna Hahn, MC Member

Juliane Rossbach, MC Substitute



### Action (2012-2016) Size:

200 Experts

120 Teams

31 COST Countries

7 Non-COST Countries:

4 IPC + 3 NNC

# 4. Update from the Action Chair

*July-September 2016:*  
GH involved with COST  
Association to sign GA  
for W&B Plan Year 5

## b. Action Budget Status

### Work & Budget Plan Year 5: 1 May 2016 - 15 November 2016

**Work And Budget Plan**  
TD1105 Grant Agreement Period 5  
01/05/2016 to 15/11/2016

#### Work and Budget Plan Summary

A. COST Networking Tools	EUR
(1) Meetings	26,400.00
(2) Training Schools	0.00
(3) Short Term Scientific Missions (STSM)	3,000.00
(4) COST Action Dissemination	1,100.00
(5) Other Expenses Related to Scientific Activities (OERSA)	500.00
<b>B. Total Science Expenditure (sum of (1) to (5))</b>	<b>31,000.00</b>
<b>C. Financial and Scientific Administration and Coordination (FSAC) (max. of 15% of B)</b>	<b>4,650.00</b>
<b>D. Total Expenditure (B+C)</b>	<b>35,650.00</b>

Year 1: 11 Approved STSMs  
Year 2: 15 Approved STSMs  
Year 3: 13 Approved STSMs  
Year 4: 3 Approved STSMs  
Year 5: 1 Approved STSMs

**TOTAL STSMs: 43**

**YEAR 5 - Extension**

**Target : 2 STSMs**

**Assigned Budget : 3 000 €**

**1 STSM Application funded : 2 000 €**

**Balance: 1 000 €**

# STSM – Year 4

- Timing and deadlines: The Call for STSMs is Open for the whole Action Fourth Period (1 July 2015 – 15 November 2016).
- Assignment of the grants will be grouped :
  1. **applications submitted before 01/03/2016**
    - Earliest start : 01/04/2016
  2. **applications submitted before 15/05/2016**
    - Earliest start : 15/06/2016
  3. **(Depending on balance on the budget) applications submitted before 01/08/2016**
    - Earliest start : 01/09/2016

# 4. Update from the Action Chair

## c. **STSM status** and new applications

### CALL for Short Exchange Visits (STSM - Short Term Scientific Mission)

- **4° Call launched September 2015 (YEAR 4)**
- Period: **1 July 2015 - 15 November 2016**

#### *New Sensing Technologies for Air-Pollution Control and Environmental Sustainability*

- functional nanomaterials, advanced gas sensors, sensor-systems, artificial intelligence for gas sensing, air-quality modeling, environmental measurements, chemical weather forecasting, standards, methods and protocols for air quality control
- **Who ?**
  - 1. **Early Stage Researchers (High Priority)**
  - 2. Experienced scientists
  - assure gender balance, promote “women in science and technology”

# 4. Update from the Action Chair

## c. **STSM status** and new applications

### CALL for Short Exchange Visits (STSM - Short Term Scientific Mission)

- **Where ?**
  - a) *To an Institution in another COST participating Country or formally approved host institution in a Non-COST Country*
  - b) *From a formally approved Home Institution in a Near Neighbour Country (NNC) to another COST participating Country.*

### Examples STSM

### Additional resources from Action Budget to fund more STSMs (> 13).

- Travelling costs and subsistence:
- Travel: 300 EUR recommended not obligatory
- Subsistence: 60 to 90 EUR / day
- **max. 2500 EUR for PhD students**
- **max 3500 EUR for Post-Doc**
- Paid after approval scientific report

#### 1 month visits

30 days at 60 €/day	2.100 €
travel	300 €
total	2.400 €

#### **2 visits**

**4.800 €**

#### 1 week (5 days) visits

5 days at 90 €/day	450 €
travel	300 €
total	750 €

#### **4 visits**

**3.000 €**

#### **total**

**7.800 €**

#### **Total budget**

**8.000 €**

# STSM - Year 4

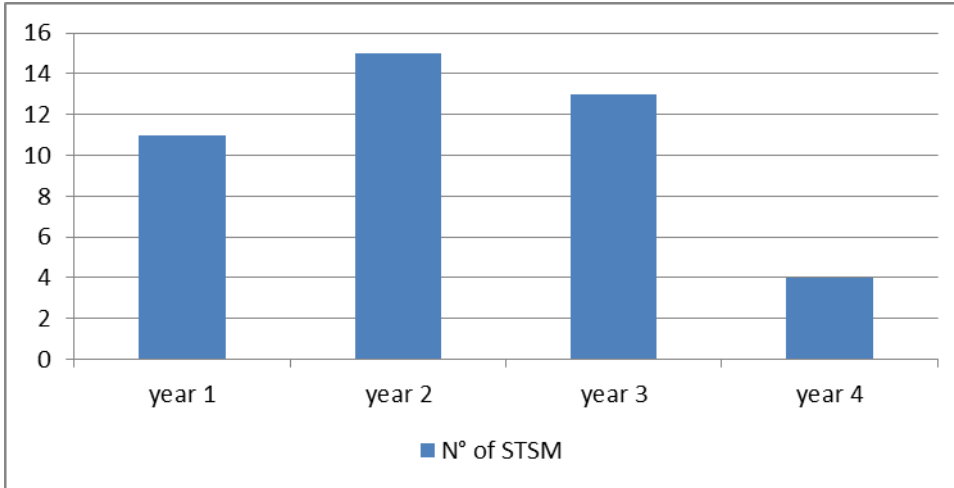
Target : 4 STSM

Budget : 9250 €

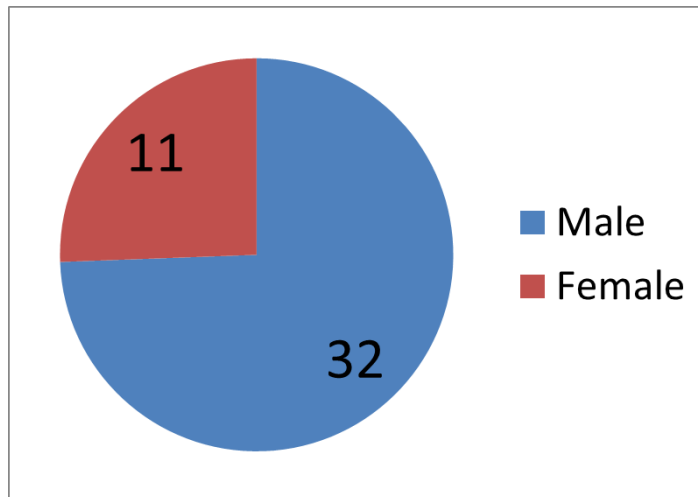
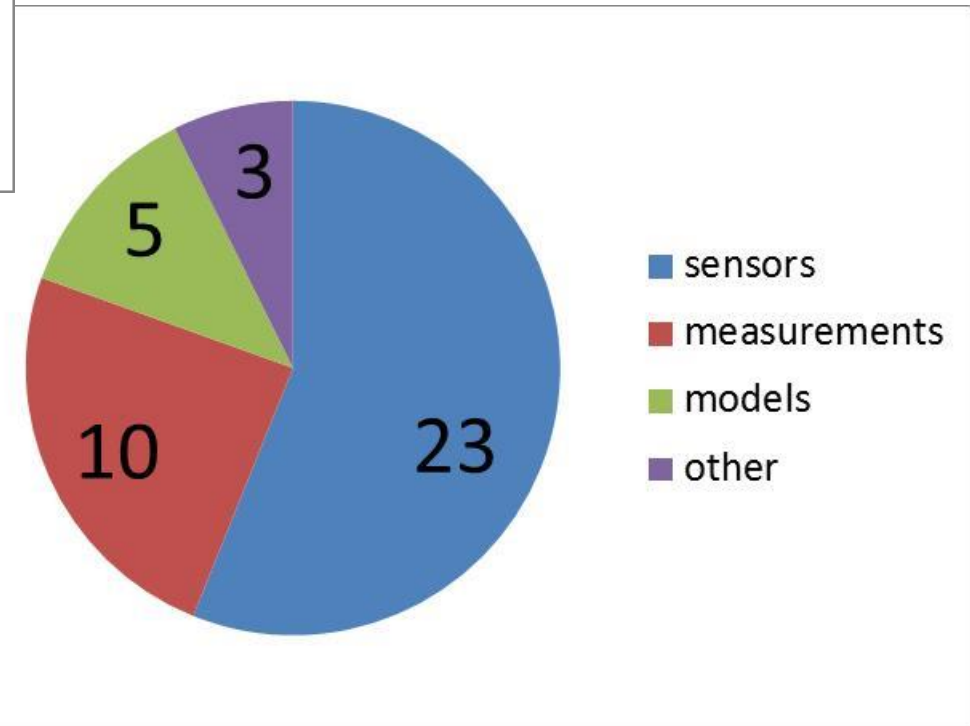
Joni Kilpijarvi	LTTC sensors for cell and nanoparticle	Oulu University, Oulu (FI),	Linköping University (SW)
Guillem Domènech	Individual nanowire gas sensor device prepared by in situ growth method	Universitat de Barcelona (ES)	Technische Universität Wien, Wien (AU)
Orhan Sisman	Investigation of CO and NH3 sensing of CuO nanowires and their heterostructures with organics	Gebze Technical University, Kocaeli (TR)	University of Barcelona, Barcelona (ES)
Uri Lerner	Development of performance-analysis framework for small air quality sensors in real world scenarios	Technion - Israel Institute of Technology, HAIFA (IL)	Norwegian Institute for Air Research (NILU), Kjeller (NO)



# STSM – 4 years overview



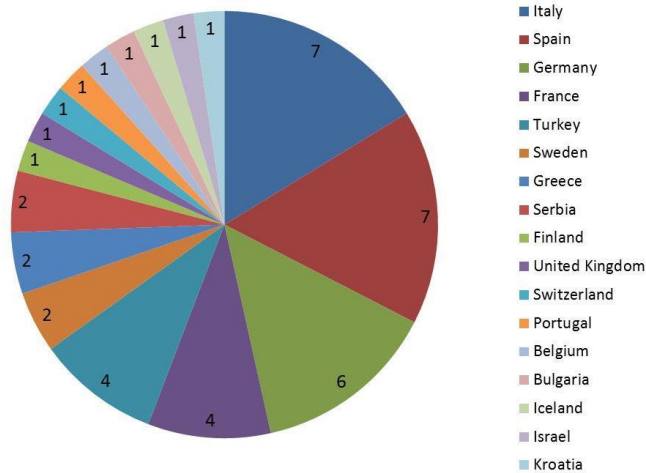
43 STSM



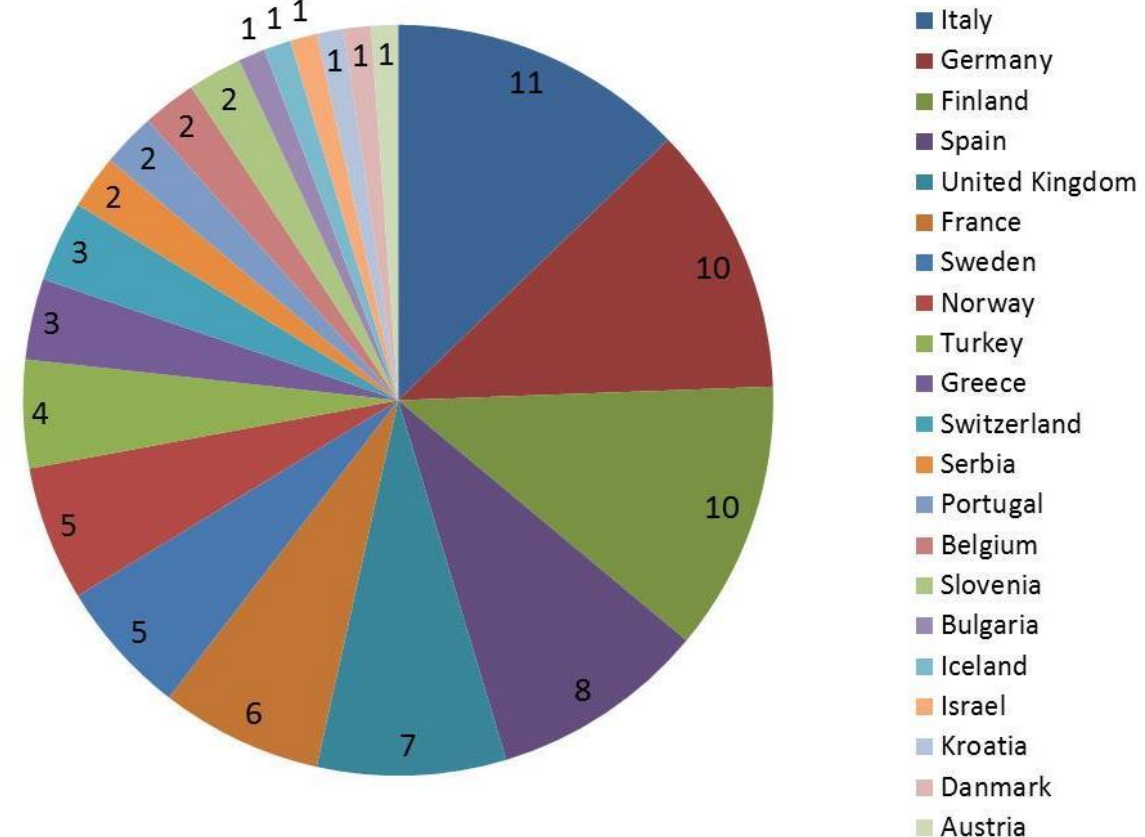
# STSM – 4 years overview

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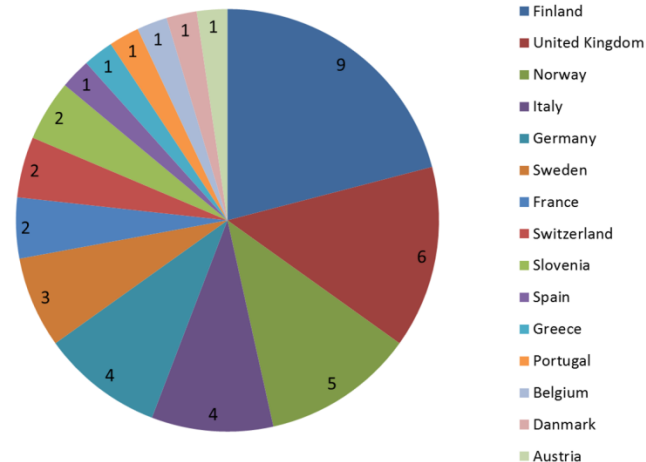
Home countries of STSM beneficiaries



Countries involved in STSM



Host countries for STSM



# STSM – 4 years overview

- At least 5 joint papers in peer-reviewed journals – 6 more on their way
- At least 12 contributions to international conferences
- Continued collaboration and joint projects

*The purpose of my STSM was to experiment with some ideas before the initial **start of my Master thesis** and get to learn more about the preparation process of the sensors I used in my work. After my STSM and some measurements back at my home university, I presented a **poster** about the first results of my work at the INASCON in Basel. Because of those very promising results, I started with those results as groundwork and applied for another **scholarship** (UdS mobil) at my university and went for a **second stay** at Professor Lappalainen's group in Oulu. Those combined results were again presented as a **conference contribution** at SGS in Poland. A final **peer reviewed paper** containing all projects (STSM, UdS mobil and Master thesis) with me as first author is still in progress. The group of Professor Lloyd Spetz from Linköping, Sweden was also involved in this work. After my graduation, I applied for my **doctoral studies** at Professor Lloyd Spetz group and will start there on the first of November.*

***The field of my scientific work**, the investigation of gas sensor systems for air quality, **was definitely strengthened over the last year and without the STSM I most probably would not have known my future employer and supervisor.** (Marius Rodner)*

# STSM – 4 years overview

“My STSM helped my group to **open its research focus** from a years long expertise in sensing materials to a more system oriented perspective.”

“As I’m in the final stages of my PhD, I will carry this project with me forward to the next stages of my academic career. It will help me **bridge the gap, from a student to a young researcher.**”

“(…) **excellent and stimulating environment** for the transfer of knowledge and the enhancement of critical and problem-solving thinking, promoting **my professional development** as an independent “new generation indoor air scientist””

“Several **new project proposals** from our institution contain work-packages and deliverables related to topics learned during STSM”

“Our two laboratories continue to collaborate (...) Based on the preliminary results obtained during these STSM, **new collaborations** have been initiated with other participants of this COST Action (Spain, Germany...). (...) It opens the way to new collaborations, especially with SMEs.”

“My STSM helped me to get a much better understanding of this technique than would otherwise have been possible, really **giving me a head start into my PhD studies.**”

“That collaboration didn't continue but that was a really **beneficial, educational and useful** experience for me.”

“The STSM program has allowed me to advance one step in my research project by **combining the expertise** of the research group to which I belong with the group at the Technische Universität of Wien.”

“My STSM gave me a **kickstart** into the use and optimization of gas sensors based on the NDIR (non-dispersive infrared) principle. The sensor that I built during my STSM has been the **basis for my whole PhD project.**”

## Inputs from Action GB Committee (1/4)

In the action (TD1105) **about 25% of the participants are female**, which is in line with the fact that technological and scientific sector of this action is male-dominated. In order to approach a 50% gender balance, for example the Management Committee Vice-Chair, Prof. Anita Lloyd Spetz, is female.

To achieve better gender balance in Working Groups women researchers are encouraged to participate in Short Term Scientific Missions, Training Schools and the overall COST actions.

During **Rome meeting** (Dec. 2012) only 20% of speakers were females. Also, the Rome SIG4 session were composed by 60% female speakers. Finally, significant progress in gender balance at Duisburg meeting (March 2013) was achieved with 45% of female speakers.

In last meeting **at EEA in Copenhagen** (October, 3-4, 2013), a substantial number of female speakers participated. Sessions were chaired to almost 45% by females, and 34% of session presenters were female speakers. The highest numbers of female speakers were in sessions concerning **Environmental Measurements and Modelling** (Session 7) and **Standardization of Methods for Air-Pollution Commercial Sensors** (Session 9).

## Inputs from Action GB Committee (2/4)

During **Cambridge meeting** (18 - 20 Dec. 2013) only 31% of speakers were females (17). Also, the Cambridge SIG4 session were composed by 50% female speakers.

During **Brindisi meeting** (25 - 26 March 2014) only 28% of speakers were females (11). Also, an Interview at Dr. Thu-Hoa TRAN-THI, CEA-CNRS, on Indoor Sensors Applications was performed. Video coming soon on EuNetAir webpages (*VIDEO section*). Moreover, a 35% of participants were Early Stage Researchers (14). Most of them (40%) were females.

## Gender Balance

## WGs Meeting, Aveiro, 13-15 October 2014

I. Steinberga, MC member & GB coordinator, University of Latvia, Latvia

During the last (13-15 October, 2014) workgroup meeting at IDAD, University of Aveiro (Portugal) within 9 sessions totally 27 scientific presentations were presented. The overall balance between female and male presenters reflects the dominating male situation in this COST action - 26

% presentations were given by female action members. In general, the tendency is positive – during the last half-year, new female members from Latvia joined the actions and a female representative from Croatia is in the acceptance process.

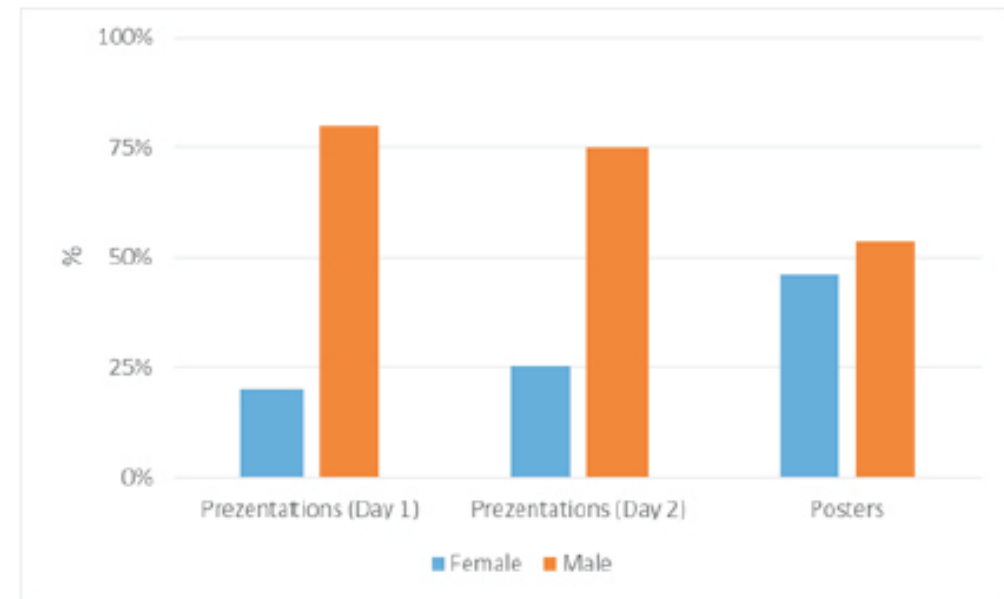
## Inputs from Action GB Committee (3/4)

Workshop, Riga, 26-27 March 2015

### Gender Balance

I. Steinberga, MC member & GB coordinator, University of Latvia, Latvia

During the last (26 – 27 March 2015) international scientific workshop on New Trends and Challenges for Air Quality Control in Riga, 37 % of 55 participants were female, reflecting a positive tendency. Balance of female presenters varies from 20 % to 46 %. A detailed distribution of male and female speakers in the Riga meeting is shown in the figure.



## Inputs from Action GB Committee (4/4)

### Updating 2015

During the period from 2012 to 2015, in the COST action meetings and in the leading positions, the percentage of female members substantially grew, from 20 % of female members at the beginning of the Action (2012) until now, where in some cases female members in meetings achieve 46 %. This indicates a strong positive tendency.

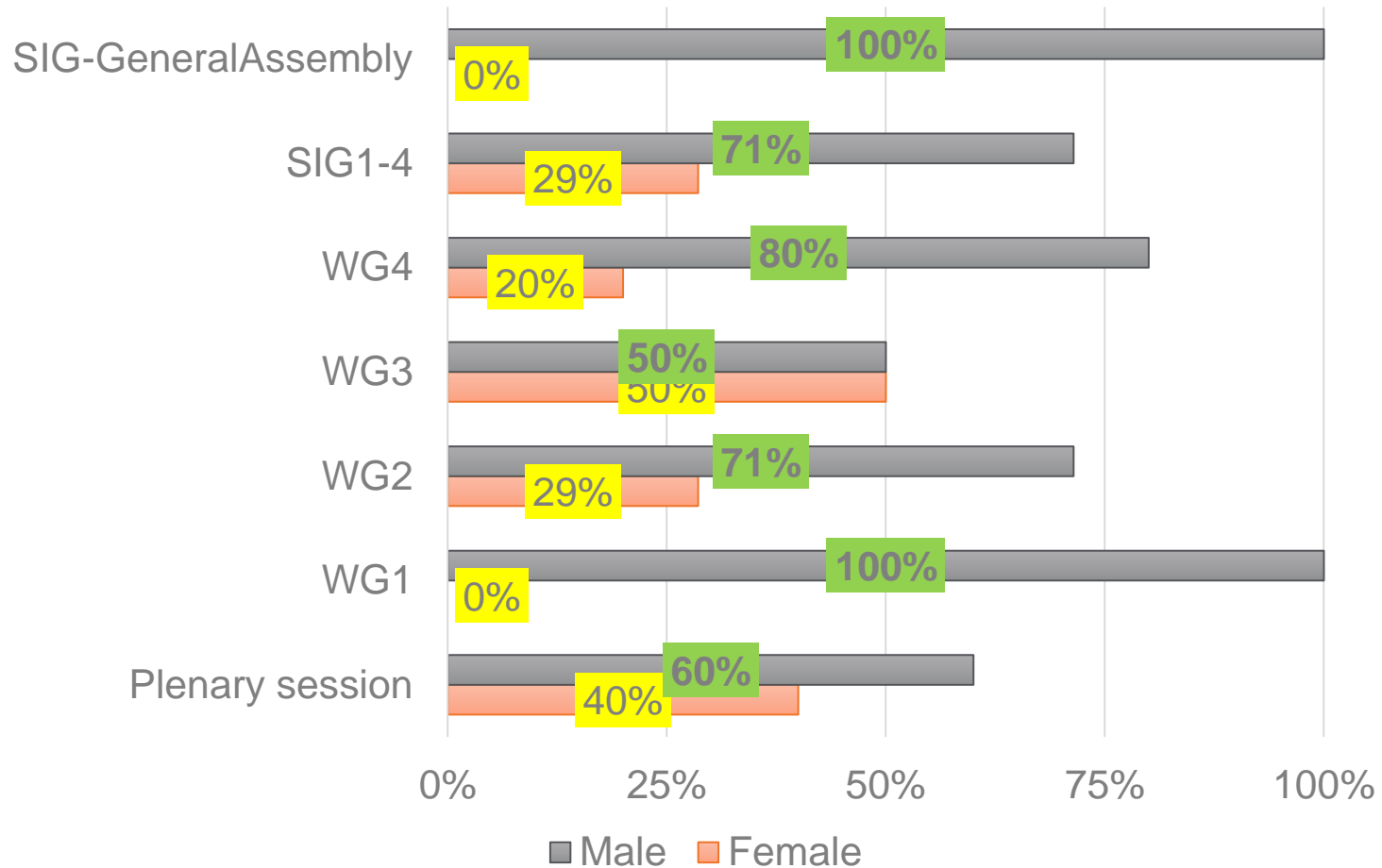
Of course, the number of female members varies from topic to topic. While in some Special Interest Groups (e.g. SIG4: Expert Comments for the Revision of the Air Quality Directive (2008/50/EC)) even 60 % of the speakers in meetings are female, this number is rather low in other groups.



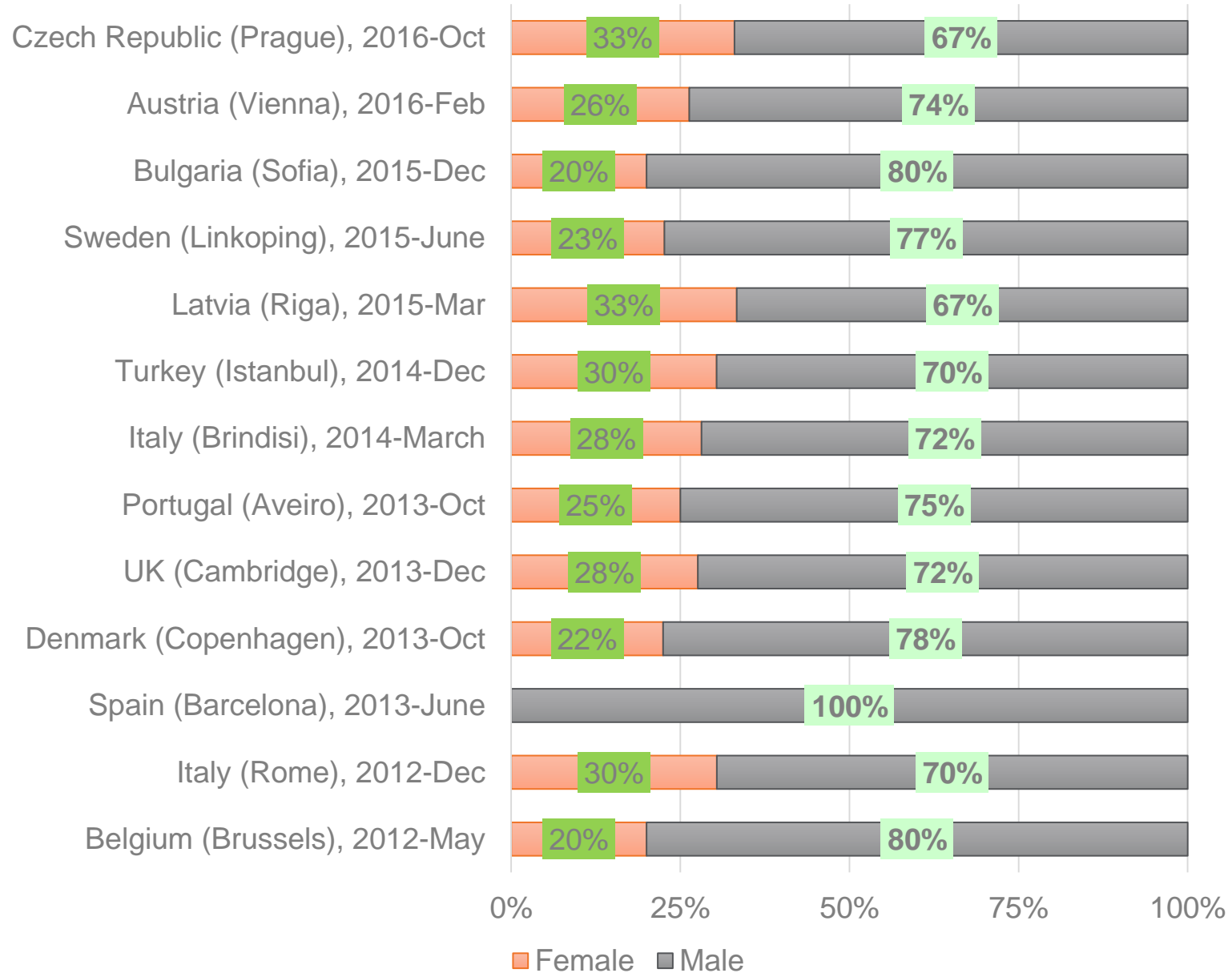
# Gender Balance

Prague meeting (33% Female & 67% Male)

GB - Speakers, Prague meeting



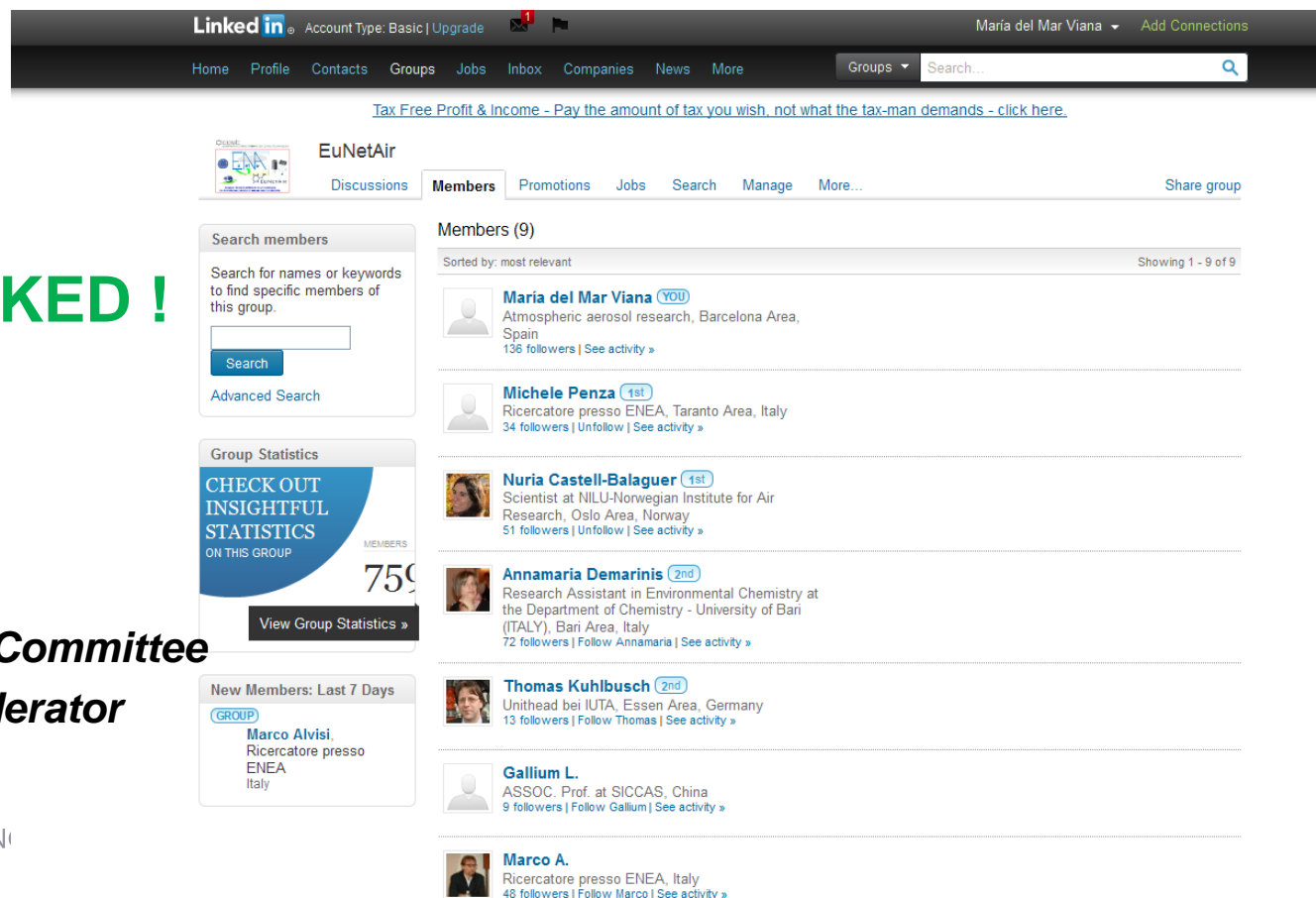
## Gender Balance during COST TD1105



# 5b. Promotion of Early Stage Researchers (ESRs)

## Social Scientific ESRs Network (SSEN) by LinkedIn

- Open Group on [LinkedIn "EuNetAir"](#), launched in October 2012.
- Aim: to promote connections between EuNetAir COST Action's ESRs, to create a community connecting ESRs for current and future Science and Technology activities on AQC Technologies, **not only from inside Action but also outside Action community.**
- Invitations sent out to Action participants and members.
- **> 100 Participants** to date.



The screenshot shows the LinkedIn interface for the 'EuNetAir' group. The top navigation bar includes 'Home', 'Profile', 'Contacts', 'Groups', 'Jobs', 'Inbox', 'Companies', 'News', and 'More'. The group name 'EuNetAir' is prominently displayed with a search bar and navigation tabs for 'Discussions', 'Members', 'Promotions', 'Jobs', 'Search', 'Manage', and 'More...'. A 'Search members' box is visible on the left, with a search bar and a 'Search' button. Below it, there is a 'Group Statistics' section with a blue banner that says 'CHECK OUT INSIGHTFUL STATISTICS ON THIS GROUP' and a large number '759' representing the number of members. A 'View Group Statistics' button is also present. On the right, a 'Members (9)' list is shown, sorted by 'most relevant'. The members listed are: Maria del Mar Viana (YOU), Michele Penza (1st), Nuria Castell-Balaguer (1st), Annamaria Demarinis (2nd), Thomas Kuhbusch (2nd), Gallium L., and Marco A. Each member entry includes a profile picture, name, and a brief description of their research or affiliation.

**MORE ESRs TO BE LINKED !**

**Mar Viana and Mariacruz Minguillon**  
**Early Stage Researcher Evaluation Committee**  
**Social Scientific ESRs Network Moderator**

# 5. Update from the Grant Holder

Action status EuNetAir

Juliane Roßbach  
Manager Grant Holder  
Eurice GmbH, Germany

## Status of remaining funding period

- **COST divided the funding period for the last year + extension into two separate periods**
- **Fourth Year: 01 July 2015 – 30 April 2016**
- **Fifth Year: 01 May 2016 – 15 November 2016**

# 5. Update from the Grant Holder

## Action budget status fourth year (I)

Juliane Roßbach  
Manager Grant Holder  
Eurice GmbH, Germany

### Status of Fourth Year (01 July 2015 – 30 April 2016)

- **Total budget:** 105,994.10€
- **First instalment from COST Office:**  
transferred in mid-November 2015
- **Second instalment from COST Office:**  
remaining expenditures covered after submission of the financial report in July 2016

# 5. Update from the Grant Holder

## Action budget status fourth year (II)

Juliane Roßbach  
 Manager Grant Holder  
 Eurice GmbH, Germany

Fourth Year 01/07/2015 - 30/04/2016	Events	SPENT Budget
Meetings	Core Group Meeting / Freiburg (D) Working Group Meeting / Belgrade (RS) Working Group & Management Committee Meeting / Sofia (BG) Workshop / Vienna (A)	2,705.54€ 8,638.62€ 29,249.89€ 19,551.42€
Training Schools	Modelling, Methods and Technologies for Air Quality Control / Copenhagen (DK); 16 trainees, 1 trainer via EuNetAir	17,747.75€
Short Term Scientific Missions	Orhan Sisman (TR) Uri Lerner (IL) Guillem Domenech (ES)	2,500.00€ 2,500.00€ 2,250.00€
Dissemination	EuNetAir Newsletter, Issue 7 EuNetAir Flash drives	301.64€ 883.90€
Other Expenses Related To Scientific Activities	Shipping costs Bank fees	33.98€ 838.00€
Total Science Expenditure	All scientific activities within EuNetAir	87,200.74
FSAC	Coordination and administration of EuNetAir	12,696.43
<b>TOTAL EXPENDITURES</b>		<b>99,897.17</b>

# 5. Update from the Grant Holder

Juliane Roßbach  
 Manager Grant Holder  
 Eurice GmbH, Germany

## Action budget status fourth year (III)

Fourth Year 01/07/2015 - 30/04/2016	APPROVED BUDGET	SPENT Budget	OVER-/ UNDERSPENT	OVER-/ UNDERSPENT
Meetings	60,145.26	60,145.47	-0.21	0%
Training Schools	15,000.00	17,747.75	-2,747.75	18.31%
Short Term Scientific Missions	15,300.00	7,250.00	8,050.00	52.61%
Dissemination	1,185.54	1,185.54	0.00	0%
Other Expenses Related To Scientific Activities	891.98	871.98	20.00	2.24%
<b>Total Science Expenditure</b>	<b>92,522.78</b>	<b>87,200.74</b>	<b>5,322.04</b>	<b>5.75%</b>
FSAC	13,471.32	12,696.43	774.89	5.75%
<b>TOTAL EXPENDITURES</b>	<b>105,994.10</b>	<b>99,897.17</b>	<b>6,096.93</b>	<b>5.75%</b>

# 5. Update from the Grant Holder

## Action budget status fifth year (I)

Juliane Roßbach  
Manager Grant Holder  
Eurice GmbH, Germany

### Status of the Fifth Year (01 May 2016 – 15 November 2016)

- **Total budget: 35,650.00€**
- **One instalment from COST Office for the entire period:**  
transferred in mid-September 2016



# 5. Update from the Grant Holder

## Action budget status fifth year (II)

Juliane Roßbach  
Manager Grant Holder  
Eurice GmbH, Germany

<b>Fifth Year 01/05/2016 - 15/11/2016</b>	<b>Events</b>	<b>SPENT Budget up to now</b>
<b>Meetings</b>	Dissemination Meeting / Lille (FR) Core Group Meeting / Nuremberg (D) Final Meeting / Prague (CZ)	600.56 824.67 -
<b>Training Schools</b>	-	-
<b>Short Term Scientific Missions</b>	Joni Kilpijärvi (FL)	-
<b>Dissemination</b>	EuNetAir Newsletter, Issue 8 / Leaflet / Brochure AMA SCIENCE open access papers	312.56€ -
<b>Other Expenses Related To Scientific Activities</b>	Shipping costs Bank fees	33.98€ -
<b>Total Science Expenditure</b>	<b>All scientific activities within EuNetAir</b>	<b>1,771.77</b>
<b>FSAC</b>	<b>Coordination and administration of EuNetAir</b>	<b>-</b>
<b>TOTAL EXPENDITURES</b>		<b>-</b>

# 5. Update from the Grant Holder

Juliane Roßbach  
Manager Grant Holder  
Eurice GmbH, Germany

## Action budget status fifth year (III)

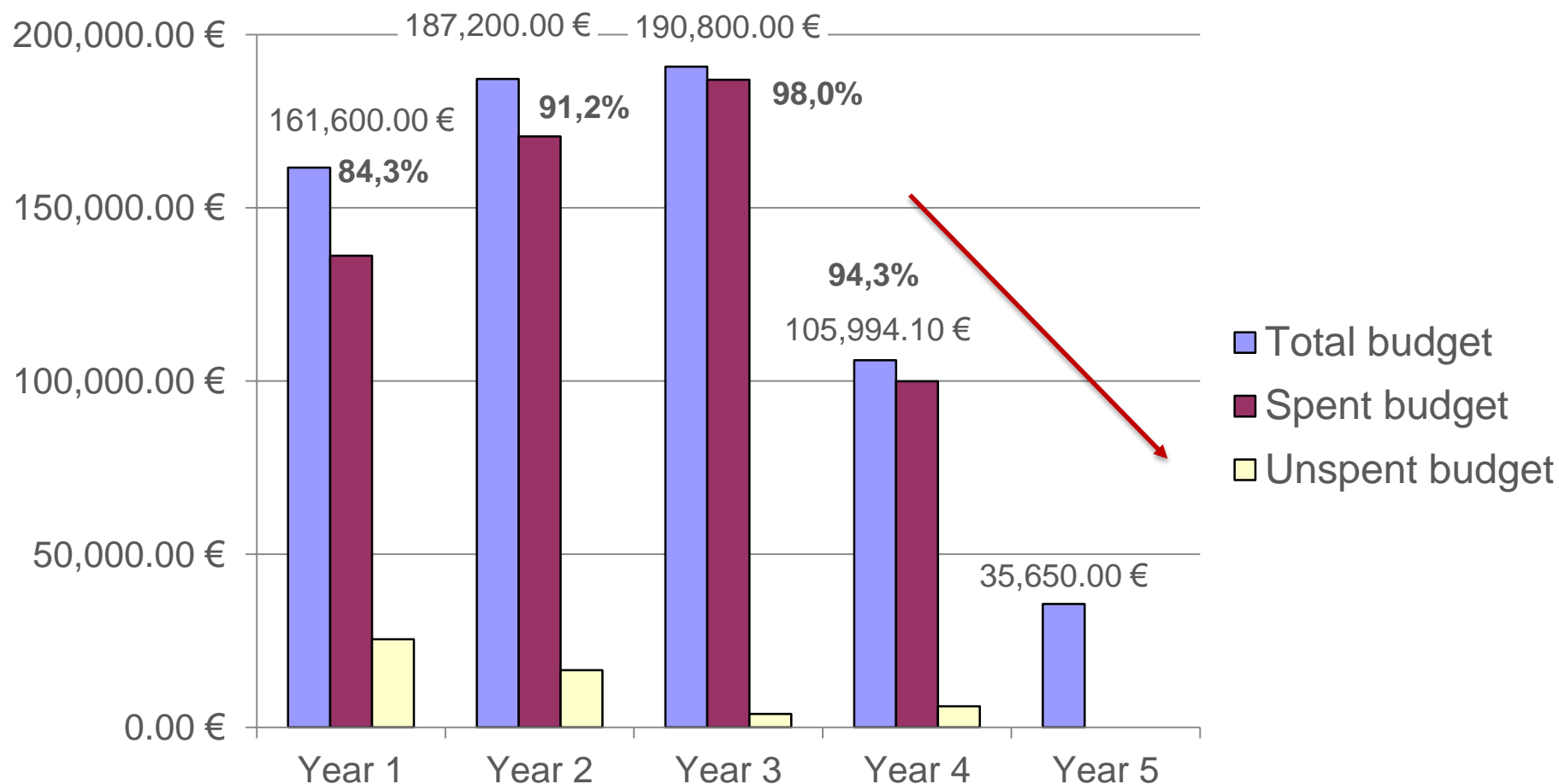
<b>Fifth Year 01/05/2016 - 15/11/2016</b>	<b>APPROVED BUDGET</b>	<b>SPENT Budget</b>	<b>REMAINING Budget</b>
Meetings	26,400.00	1,425.23	24,974.77
Training Schools	0.00	-	-
Short Term Scientific Missions	3,000.00	-	3,000.00
Dissemination	1,100.00	312.56	787.44
Other Expenses Related To Scientific Activities	500.00	33.98	466.02
<b>Total Science Expenditure</b>	<b>31,000.00</b>	<b>1,771.77</b>	<b>29,228.23</b>
FSAC	4,650.00	-	-
<b>TOTAL EXPENDITURES</b>	<b>35,650.00</b>	<b>-</b>	<b>-</b>

Final Meeting Prague: 25,000.00€  
STSM Joni Kilpijärvi: 2,000.00€  
Publication AMA + other Dissemination Material: 800.00€  
**TOTAL: 27,800.00€**

# 5. Update from the Grant Holder

## Action budget status over funding periods

Juliane Roßbach  
Manager Grant Holder  
Eurice GmbH, Germany



**GH Year 1: UNIBA, Italy**

**GH Year 2 - Year 5: Eurice, Germany**

**Total Budget Y1-Y5:  
≈ 668 k€**

# 7. Update from the COST Office

Science Officer: Deniz Karaka, ESSEM

Administrative Officer (AdO): Andrea Tortajada, Tania Gonzalez-Ovin

- **Deniz Karaca**

COST Science Officer of Action TD1105

Inputs from Science Officer:

*This Action TD1105 is excellent and no need any Officer !*

# 8. Update from the DC Rapporteur(s)

ESSEM Rapporteur: Kostantinos Kourtidis, EL - Demokritos University of Thrace

MPNS Rapporteur: Joaquim Manuel Vieira, PT - University of Aveiro

CMST Rapporteur: Antonio Laganà, IT - Università di Perugia

ESSEM Rapporteur: Not attending

MPNS Rapporteur: Not Attending

CMST Rapporteur: Not Attending

**The DC Rapporteurs ceased the Action monitoring from 30 September 2014.**

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<b>MC Chair:</b>	Dr. Michele Penza, ENEA, IT <a href="mailto:michele.penza@enea.it">michele.penza@enea.it</a>
<b>MC Vice Chair:</b>	Prof. Anita Lloyd Spetz Linkoping University, SE; <a href="mailto:spetz@ifm.liu.se">spetz@ifm.liu.se</a>
<b>Grant Holder:</b>	Dr. Corinna Hahn, Dr. Juliane Rossbach Eurice GmbH, DE <a href="mailto:c.hahn@eurice.eu">c.hahn@eurice.eu</a> ; <a href="mailto:j.rossbach@eurice.eu">j.rossbach@eurice.eu</a>
<b>Science Officer:</b>	Dr. Deniz Karaca <a href="mailto:deniz.karaca@cost.eu">deniz.karaca@cost.eu</a>
<b>Adm. Officer:</b>	Dr. Andrea Tortajada <a href="mailto:andrea.tortajada@cost.eu">andrea.tortajada@cost.eu</a>
<b>Rapporteur ESSEM:</b>	Prof. Kostantinos Kourtidis (GR) <a href="mailto:kourtidi@env.duth.gr">kourtidi@env.duth.gr</a>
<b>Rapporteur MPNS:</b>	Prof. Joaquim Manuel Vieira (PT) <a href="mailto:jvieira@cv.ua.pt">jvieira@cv.ua.pt</a>
<b>Rapporteur CMST:</b>	Prof. Antonio Lagana (IT) <a href="mailto:lagana05@gmail.com">lagana05@gmail.com</a>

**CEASED from 30 Sept 2014**

# 9. Annual Progress Conference - Preparation and/or feedback from DC

11:30 – 12:00 11:40 – 12:10 TD1105 | European Network on New Sensing Technologies for Air-  
Pollution Control and Environmental Sustainability - EuNetAir | Michele Penza (Chair)

Konstantinos Kourtidis (Rapporteur)

12:00 – 12:30 ES 1006 | Evaluation, improvement and guidance for the use of local-scale emergenc  
prediction and response tools for airborne hazards in built environments | Bernd Leitl  
(Chair) | Vidmantas Ulevicius (Rapporteur)

**12:30-13:30 Lunch**

**Moderator: Dick Blaauboer**

13:30 – 14:00 ES1207 | A European BREWer NETwork – EUBREWNET | John Rimmer (Chair) | Niels  
Larsen (Rapporteur)

13:50 – 14:10 ES1305 | European Network for the Radar surveillance of Animal Movement (ENRAM) |  
Jason Chapman | Teresa Abrantes (Rapporteur)

14:10 – 14:40 ES1206 | Advanced Global Navigation Satellite Systems tropospheric products for  
monitoring severe weather events and climate (GNSS4SWEC) | Jonathan Jones (Chair) |  
Anders Lindroth (Rapporteur)

14:40 – 15:00 ES1303 | Towards operational ground based profiling with ceilometers, doppler lidars  
and microwave radiometers for improving weather forecasts (TOPROF) | Anthony  
Illingworth (Chair) | Hugo De Backer (Rapporteur)

**15:00 - 15:20 Coffee break (including poster review)**

**Moderator: Ipek Erzi**

15:20 – 15:40 ES1304 | European network on invasive parakeets: Understanding invasion dynamics  
and risks to agriculture and society (ParrotNet) | Jim Groombridge (Chair) | Zorica  
Svircev (Rapporteur)

15:40 – 16:10 ES1005 | Towards a more complete assessment of the impact of solar variability on the  
Earth's climate | Thierry Dudok De Wit (Vice-Chair) | Hugo De Backer (Rapporteur)

16:10 – 16:40 ES1002 | Weather Intelligence for Renewable Energies | Anna Maria Semprevia (Vice-  
Chair) | Zoltan Dunkel (Rapporteur)

16:40 – 16:50 Closing remarks – Ipek Erzi

**Earth System Science and Environmental Management**

**Annual Progress Conference 2014**

**Hotel Valamar Lacroma Dubrovnik**

**34 Iva Dulčića - 20000 Dubrovnik, Croatia**

**12th and 13th May 2014**

**Monitoring Progress Report  
submitted to COST Office  
by 1 April 2014 (Year 2)**

**TD1105 APC 2014:  
Dubrovnik, Croatia  
12-13 May 2014**

# 9. Annual Progress Conference - Preparation and/or feedback from DC

Earth System Science and Environmental Management

Annual Progress Conference 2014

Hotel Valamar Lacroma Dubrovnik

34 Iva Dulčića - 20000 Dubrovnik, Croatia

12th and 13th May 2014

[TD1105 APC 2014:](#)  
Dubrovnik, Croatia  
12-13 May 2014

**Monitoring Progress Report  
submitted to COST Office  
by 1 April 2014 (Year 2)**



### 2. Results versus objectives

The main objective of the trans-domain Action TD1105 *EuNetAir* is the development of new sensitive nanostructured materials, low-cost gas sensors, low-powered sensor-systems, wireless sensor network, air-quality modelling, environmental measurements, methods, protocols and standards for air quality monitoring in lab-tests and real-world practice. The results achieved and S&T joint activities from the Action are referenced in the list of the published/submitted papers (**>17 records**), conference/workshop communications (**>19 records**) and ongoing research collaborations between *EuNetAir* partners (**> 28 records**).

They all reflect the objectives set by the Action.

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### 6. Coordination and management

The Cambridge meeting was successful and the work in the WGs is moving forward with the definition of scientific updating of the future research agenda. The management structures are well-established, including the procedures for assigning STSMs, meetings support, organization of Training Schools. Overall, the coordination and management work very effectively.

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#### 7. Strengths and weaknesses

A critical administrative issue has been the mismatch between national fiscal/administrative rules and EC rules/procedures applied to manage the Action grant. These are generating delays in the reimbursements and payments, despite the efforts of the Grant Holder. At the 3<sup>rd</sup> MCM in Barcelona (21 June 2013), the MC decided to elect Eurice GmbH (Saarbrücken, Germany), a qualified company in project management, as new GH because the German fiscal rules fit better the EU fiscal rules, as requested by COST Office.

At the current stage, no significant problems have been encountered in the Action and the project is progressing according to the approved plan without noteworthy deviations.

# 10. Follow-up of MoU Objectives - List of Meetings

## **COST ACTION TD1105 MEETINGS 2012-13 (Year 1)**

### **COST ACTION TD1105 *EuNetAir***

#### **Kick-off Meeting of Action Management Committee**

**COST Office, 16 May 2012, Brussels (BE)**



### **COST ACTION TD1105 *EuNetAir***

#### **First Meeting and 2<sup>nd</sup> Management Committee and Working Groups**

**ENEA Headquarters, 4-6 December 2012, Rome (IT)**



### **COST ACTION TD1105 *EuNetAir***

#### **WG3-WG4 Meeting joined to AirMonTech project**

**Fraunhofer Inhaus Zentrum, 4-6 March 2013, Duisburg (DE)**



### **COST ACTION TD1105 *EuNetAir***

#### **3<sup>rd</sup> Management Committee Meeting (21 June 2013)**

**Training School (13-15 June 2013)**

**Open Satellite Workshop (20 June 13)**

**inside *Transducers-2013*, 16-20 June 2013, Barcelona (ES)**



# 9. Follow-up of MoU Objectives – Dissemination Events

## COST ACTION TD1105 DISSEMINATION EVENTS



**IMCS 2012**  
The 14<sup>th</sup> International Meeting on Chemical Sensors  
May 20 - 23, 2012, Nürnberg/Nuremberg



Special Session: **Chemical Sensors and New Technologies for Air-Pollution Control**

COST Action TD1105 EuNetAir

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

IMCS 2012 - The 14<sup>th</sup> International Meeting on Chemical Sensors, May 20-23, 2012 - Nuremberg, Germany



**SGS 2012**

**VIII International Workshop on  
Semiconductor Gas Sensors**

**September 11 - 15, 2012, Cracow, Poland**



**3<sup>th</sup> Intelligent Systems for Quality of Life information  
Services Workshop (ISQL 2012)**

**8<sup>th</sup> AIAI Conference, September 27- 30, 2012,  
Halkidiki, Greece**



**TCM 2012**

**The 4<sup>th</sup> International Symposium on Transparent  
Conductive Materials**  
**October 21- 26, 2012, Hersonissos, Crete, Greece**



IN SCIE



# 10. Follow-up of MoU Objectives:

**INTERNATIONAL WG1-WG4 MEETING on**

***New Sensing Technologies and Methods for Air-Pollution Monitoring***

**European Environment Agency - EEA**

**Copenhagen, Denmark, 3 - 4 October 2013**



European Environment Agency



**Meeting Proceedings  
at Action webpages:**

**[www.cost.eunetair.it](http://www.cost.eunetair.it)**

*50+ Speakers involved  
from 21 COST Countries*

**Letter of Support  
from COST Office Director  
Dr. Monica Dietl**

# 10. Follow-up of MoU Objectives: **WGs Meeting at EEA**

*New Sensing Technologies for Air-Pollution Control and Environmental Sustainability*

## • **Special Issue Urban Climate (Elsevier)**

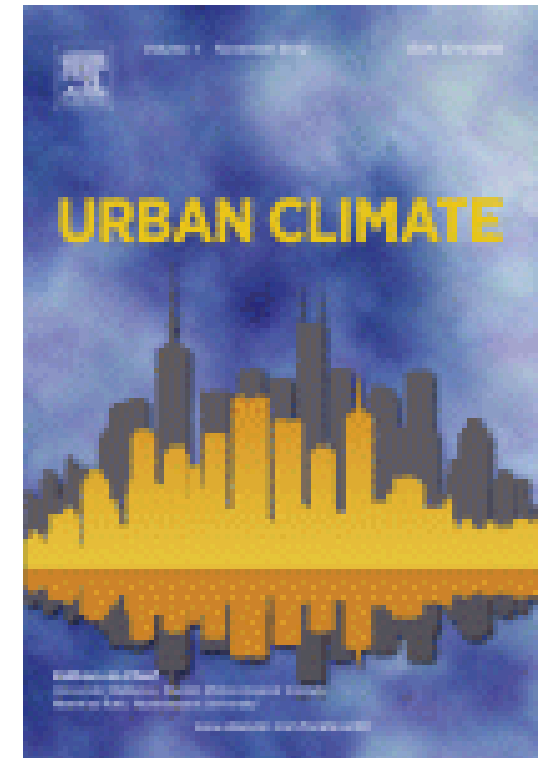
*New Sensing Technologies and Methods for Air-Pollution Monitoring*

*Proceedings of the Action EEA Meeting open to external contributors.*

*Peer-review process (<http://ees.elsevier.com/uclim/>)*

### • **Guest Editors:**

- ✓ Michele Penza, ENEA, Italy
- ✓ Anita Lloyd Spetz, Linkoping University, Sweden
- ✓ Ole Hertel, Aarhus University, Denmark
- ✓ Ulrich Quass, IUTA eV, Germany
- Deadline for submission: 28 February 2014 (**Close**)
- Number of Submissions: **22 Manuscripts**
- Publication: *December 2015 (online)*



# 9. Follow-up of MoU Objectives – a8. International Workshop

## **COST Action TD1105 at FP7 Project MACPOLL WORKSHOP:**

### ***Metrology of Sensors for Air-Quality Monitoring***

JRC-Ispra, Italy, 19 November 2013

09:00 Welcome & Introduction: The MACPoll project –A. Borowiak/M. Gerboles/J. Walden

Micro-Sensors & Air Pollution – (WP 4 of MACPoll)

*Chair: Michele Penza. Rapporteur: Jan Theunis*

09:15 *EuNetAir* – Michele Penza, ENEA, IT

09:35 *Sensor principles and sensor system performance* – Andreas Schuetze, Saarland University, DE

10:05 *On the use of Sensors* – Jan Theunis (VITO)

**10:35 COFFEE BREAK**

11:00 *The graphene sensor* – Serguei Novikov, University of Aalto, FI

11:30 *Calibration of Small Resistive Commercial Sensors to measure O<sub>3</sub>*, Manuel Aleixandre, CSIC, ES

11:45 *O<sub>3</sub> and NO<sub>2</sub> sensor validation* – Laurent Spinelle, JRC, EC

12:15 *Summary and discussion* – Michele Penza, Jan Theunis, Michel Gerboles

**12:45 LUNCH BREAK**

# 10. Follow-up of MoU Objectives: **SECOND SCIENTIFIC MEETING**

**University of Cambridge, Queens' College, Cambridge, 18-20 Dec. 2013**

## **Letter of Commitment**

to host 4<sup>th</sup> MC Meeting  
and *WG1-WG4 Meeting*  
from Prof. Rod Jones, Cambridge  
Action SIG2 Leader and UK MC Member

**18 - 20 Dec. 2013, Cambridge, UK**

*60+ Speakers involved  
from 22 COST Countries and 1 IPC  
Invited Speaker from US EPA*

**Research & Innovation Needs  
discussed and defined  
by Action TD1105**

## **Location and date:**

4<sup>rd</sup> MC Meeting, 20 December 2013, and  
WG1-WG4 Meeting, 18-19 December 2013  
Queens' College, Cambridge, UK



# 10. Follow-up of MoU Objectives:

**2<sup>ND</sup> INTERNATIONAL WORKSHOP *EuNetAir* on  
*New Sensing Technologies for Indoor and Outdoor Air Quality Control*  
organized by ENEA, Brindisi Research Center**

**Palazzo Granafei-Nervegna - Headquarters of Municipality of City Brindisi  
Brindisi, Italy, 25 - 26 March 2014**



**Workshop Booklet  
at Action webpages:**

**[www.cost.eunetair.it](http://www.cost.eunetair.it)**

*30+ Speakers involved  
from 14 COST Countries*

**Focus on  
*Clean Air for Smart Cities*  
*Local Municipality interested***

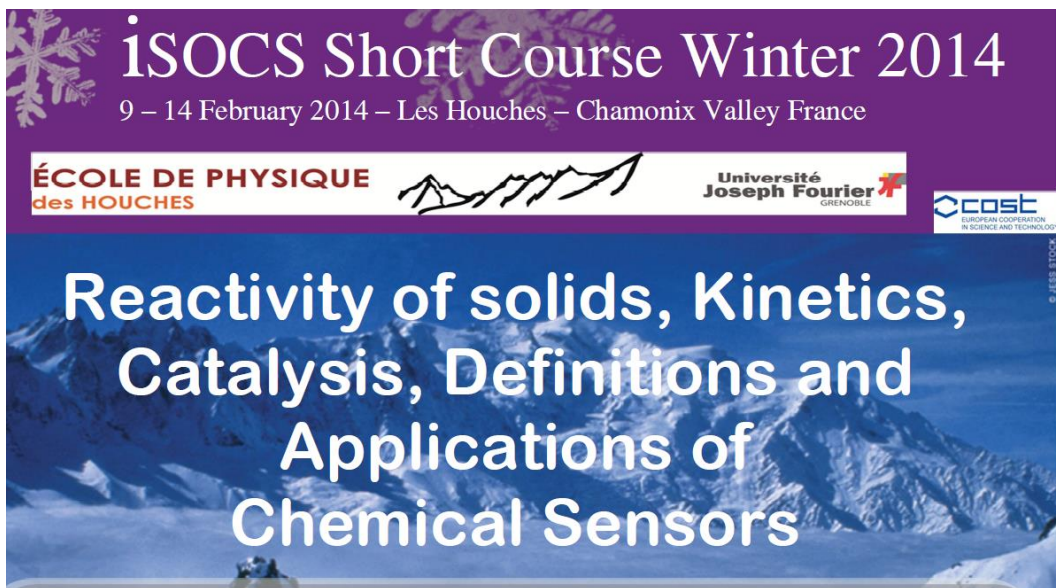


# COST Action TD1105 EuNetAir at ISOCS 2014 in Les Houches

*Les Houches (France), 9 - 14 February 2014*

**Call for Participation of the Trainees:**

**5 Grants for Trainees assigned to 5 ESRs from 5 COST Countries**



**ISOCS Short Course Winter 2014**  
9 – 14 February 2014 – Les Houches – Chamonix Valley France

**ÉCOLE DE PHYSIQUE**  
des HOUCHES

**Université Joseph Fourier**  
GRENOBLE

**COST**  
EUROPEAN COOPERATION  
IN SCIENCE AND TECHNOLOGY

**Reactivity of solids, Kinetics,  
Catalysis, Definitions and  
Applications of  
Chemical Sensors**

© JESS ETOKO



(3/4)

### Develop your knowledge on chemical sensors systems and applications at the ISOCS Short Course in Les Houches (Chamonix Valley), France

#### This Short Course will cover topics including:

- Adsorption and kinetics of transformation in solids
- Catalysis for gas-solid interactions
- Point defects in solids
- Biosensors
- Electronic Noses and their application
- Definition of sensors
- Nano-sensor preparation
- Automotive gas sensors
- Food application of Electronic Nose
- Practical demonstrations
- Presentation COST Action EuNetAir

#### Speakers

- Prof. Michèle Pijolat, EMSE St-Etienne
- Dr. Philippe Vernoux, Institute of Catalysis Lyon
- Dr. Jean-Paul Viricelle, EMSE St-Etienne
- Prof. Krishna Persaud SCEAS University of Manchester
- Prof. Julian Gardner, University of Warwick
- Prof. Corrado Di Natale, University Tor Vergata, Roma
- Prof. Elisabetta Comini, University of Brescia
- Prof. Christophe Pijolat, EMSE St-Etienne
- Dr. Veronica Sberveglieri, University Modena e Reggio Emilia
- Dr. Jan Mitrovics, JLM Innovation, Tübingen, Germany
- Dr. Michele Penza, ENEA, Brindisi, Italy

#### Who should attend?

The Short Course is ideal for anyone with an interest in chemical sensors and olfaction, and is new to the field; for example, PhD students, researchers, technologists and industrialists.

Short Courses organized by ISOCS are a unique combination of fundamental theory lectures and practical application exercises. They provide an introduction into selected topics of current research and new developments in the area of chemical sensing and olfaction. Most lecturers will be present throughout the duration of the course. Ample opportunity is given for discussion and networking.



***Register now! Limited places available only!***

For more information please visit [www.olfactionsociety.org/wintercourse2014](http://www.olfactionsociety.org/wintercourse2014)

# 10. Follow-up of MoU Objectives:

(1/4)

## 2nd Training School at Saarland University, Saarbrücken, Germany, 31 March - 2 April 2014

Open Call for Participation of the Trainees

Deadline for Application of Grants: 14 February 2014

More info at [Action webpages](#) - Section *Training Schools*



*24 Trainees and 5 Trainers (1 from USA)  
involved from 15 COST Countries*



**Director of Training School:  
Prof. Andreas Schuetze**

# 10. Follow-up of MoU objectives

Training School, **31 March - 2 April 2014 (TBC)**, Saarbrücken, Germany

(2/4)



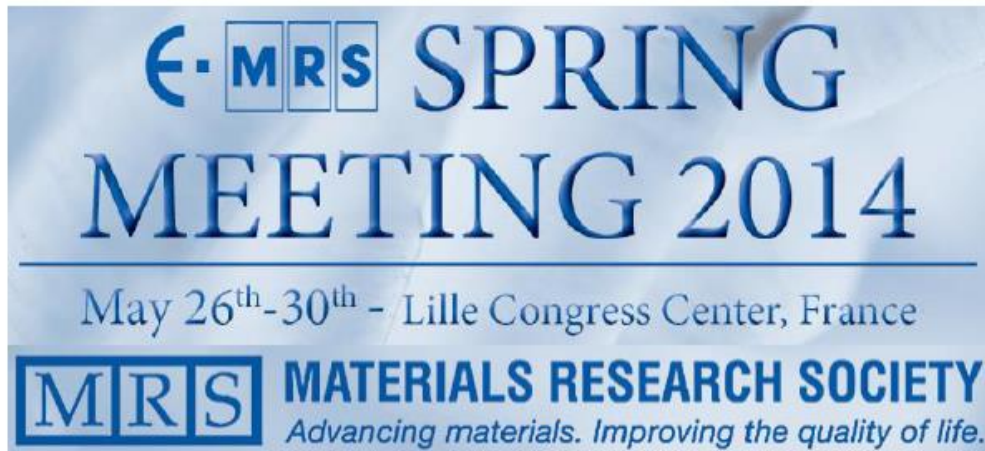
2<sup>nd</sup> EuNetAir training school



**Focus topic:**

**Optimized operation of solid state gas sensors,  
especially for low concentrations**

- 2<sup>nd</sup> **TRAINING SCHOOL** COST Action TD1105, Saarbrücken, March-April 2014, and hosted by **Prof. Andreas Schuetze**, Saarland University, Germany.



**E-MRS SPRING MEETING 2014**  
 May 26<sup>th</sup>-30<sup>th</sup> - Lille Congress Center, France  
**MRS MATERIALS RESEARCH SOCIETY**  
*Advancing materials. Improving the quality of life.*



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



## Call for Abstracts and Papers

**Symposium B: Advanced Functional Materials for Environmental Monitoring and Applications**

**E-MRS - Spring Meeting 2014, May 26 - 30, Lille Congress Center, France**

### Symposium Organizers and Guest Editors

**Michele Penza**  
 Technologies for Materials  
 ENEA  
 I-72100, Brindisi, Italy  
[michele.penza@enea.it](mailto:michele.penza@enea.it)

**Anita Lloyd Spetz**  
 Dept. of Physics, Chemistry & Biology  
 Linköping / Oulu University  
 SE-581 83 Linköping, Sweden  
[spetz@ifm.liu.se](mailto:spetz@ifm.liu.se)

**Albert Romano-Rodriguez**  
 Department of Electronics  
 University of Barcelona  
 08028 Barcelona, Spain  
[aromano@el.ub.es](mailto:aromano@el.ub.es)

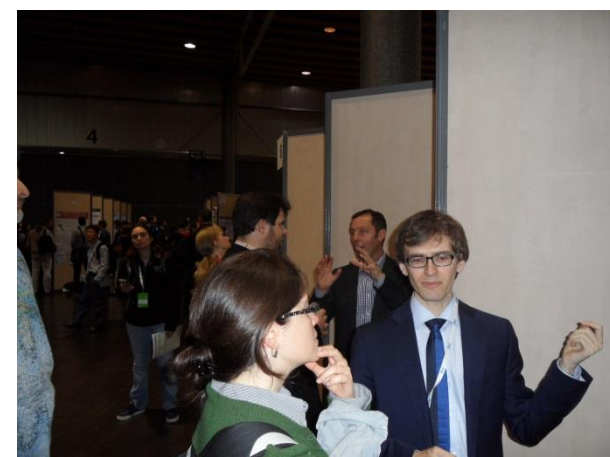
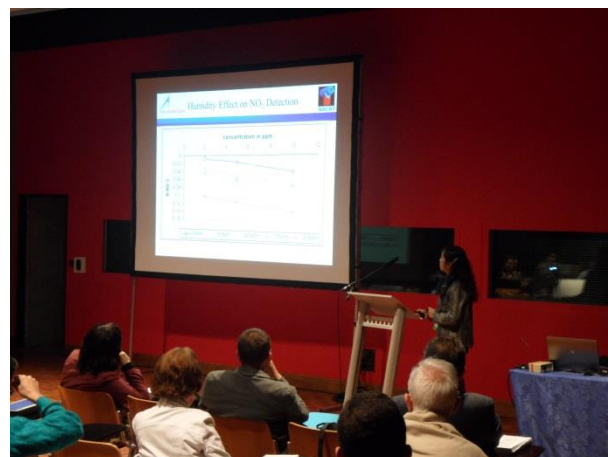
**Yongxiang Li**  
 Shanghai Institute of Ceramics  
 Chinese Academy of Sciences  
 1295 Shanghai, China  
[yxli@mail.sic.ac.cn](mailto:yxli@mail.sic.ac.cn)

**Meyya Meyyappan**  
 Ames Research Center  
 NASA  
 94035 Moffett Field, CA, USA  
[m.meyyappan@nasa.gov](mailto:m.meyyappan@nasa.gov)

**EMRS-2014 Symposium B Proceedings  
 In Special Issue JSSS  
 Journal of Sensors and Sensor Systems**

**Number of EMRS Submissions:  
 202 Abstracts**

## EMRS-2014 Symposium B - Lille, 26 - 30 May 2014



# COST Session & Core-Group Meeting at *EUROSENSORS 2014*



*The 28<sup>th</sup> European Conference  
on Solid-State Transducers*

**Brescia, Italy  
September 7-10, 2014**



**09:30 - 12:30** **Open Session COST: New Sensing Technologies for Air-Quality Monitoring**  
*Chairperson: Michele Penza, ENEA, Brindisi, Italy*

**09:30 - 10:00** **COST Action TD1105: European Network on New Sensing Technologies for Air-Pollution Control and Environmental Sustainability. Overview of Sensor-Systems for Air Quality Monitoring**  
*Michele Penza, Action Chair, ENEA, Brindisi, Italy*

**10:00 - 10:30** **Performance Analysis of Low-Cost Gas Sensors for Air Quality Control**  
*Michel Gerboles and Laurent Spinelle, JRC, EC DG ENV, Institute for Environment and Sustainability, Ispra, Italy*

**10:30 - 11:00**

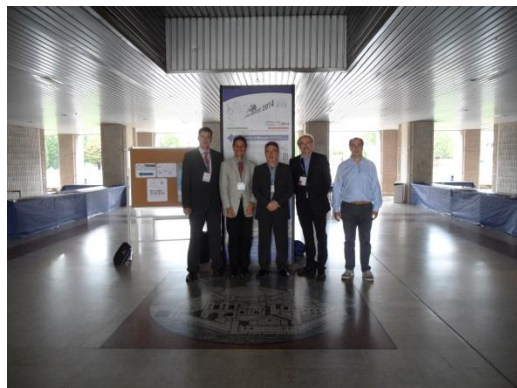
**Break**

**11:00 - 11:20** **Gas and Particle Sensors for Air Quality Monitoring**  
*Anita Lloyd Spetz, Action Vice-Chair, Linköping University, Linköping, Sweden*

**11:20 - 11:40** **Nanostructured Metal Oxides Low-Cost Gas Sensors: Trends and Challenges**  
*Juan Ramon Morante, Action WG1 Leader, IREC, Barcelona, Spain*

**11:40 - 12:00** **Highly Sensitive and Selective VOC Detection for Indoor Air Quality Applications**  
*Andreas Schuetze, Action WG2 Leader, Saarland University, Saarbrücken, Germany*

**12:00 - 12:20** **Smart Sensors in Mobile Phones for Environmental Monitoring Applications**  
*Julian W. Gardner, Action MC Substitute, University of Warwick, Coventry, UK*



# Special Session Smart Cities Sensors at IEEE SENSORS 2014



10:00 - 11:30 **Special Session: Smart Cities Sensors**  
*Chairperson: Michele Penza, ENEA, Brindisi, Italy*

10:00 - 10:30 **INVITED TALK: COST Action TD1105 - New Sensing Technologies for Environmental Sustainability in Smart Cities**  
*Michele Penza, Action Chair, ENEA, Brindisi, Italy*

10:30 - 10:45 **Analysis of Efficient Dense Wireless Sensor Network Deployment in Smart City Environments**  
*Peio López-Iturri, Erik Aguirre, Leire Azpilicueta, Carlos Fernández-Valdivielso, Ignacio Raúl Matías, Francisco Falcone Universidad Pública de Navarra, Spain*

10:45 - 11:00 **A Maker Friendly Mobile and Social Sensing Approach to Urban Air Quality Monitoring**  
*Luca Capezzuto<sup>2</sup>, Luigi Abbamonte<sup>2</sup>, Saverio De Vito<sup>1</sup>, Ettore Massera<sup>1</sup>, Fabrizio Formisano<sup>1</sup>, Grazia Fattoruso<sup>1</sup>, Girolamo Di Francia<sup>1</sup>; <sup>1</sup> Italian National Agency for New Technologies, Energy and Sustainable Economic Development, Italy; <sup>2</sup> Università degli Studi di Napoli Federico II, Italy*

11:00 - 11:15 **vCity Map: Crowdsensing Towards Visible Cities**  
*Yoshito Tobe<sup>1</sup>, Itaru Usami<sup>1</sup>, Yusuke Kobana<sup>1</sup>, Junji Takahashi<sup>1</sup>, Guillaume Lopez<sup>1</sup>, Niwat Thepvilojanapong<sup>2</sup>; <sup>1</sup> Aoyama Gakuin University, Japan; <sup>2</sup> Mie University, Japan*

11:15 - 11:30 **Calibration of a Cluster of Low-Cost Sensors for the Measurement of Air Pollution in Ambient Air**  
*Laurent Spinelle<sup>3</sup>, Michel Gerboles<sup>3</sup>, Maria Gabriella Villani<sup>2</sup>, Manuel Aleixandre<sup>1</sup>, Fausto Bonavitacola<sup>4</sup>; <sup>1</sup> Consejo Superior de Investigaciones Científicas, Spain; <sup>2</sup> ENEA, Italy; <sup>3</sup> Joint Research Center, Italy; <sup>4</sup> Phoenix Sistemi & Automazione s.a.g.l., Switzerland*

## Session Numbers:

- 5 Speakers
- 150+ Participants
- 700+ Delegates



# Aveiro Joint-Exercise Intercomparison & WG Meeting

13 - 27 October 2014: Starting Joint-Exercise (2 weeks duration)

14 - 15 October 2014: EuNetAir WG1-WG4 Meeting

**EuNetAir Air Quality Joint-Exercise Intercomparison 2014**

**Local Organizers: Prof. Carlos Borrego and Dr. Ana Margarida Costa (IDAD)**

**Air Quality Monitoring campaign at Aveiro (Portugal) city centre 2014**



**Continuous measurements: CO, benzene, NO<sub>x</sub>, SO<sub>2</sub>, PM<sub>10</sub>, VOC**

**Temperature, humidity, wind velocity, wind direction, solar radiation, precipitation**

**COST partners (15 teams joined from 12 COST Countries) installed their microsensors side-by-side to compare performance with referenced equipment in the Air-Quality Mobile Laboratory**

# COST Action TD1105 *EuNetAir*: Aveiro INTERCOMPARISON

*New Sensing Technologies and Modelling for Air-Pollution Monitoring*

CAMBRIDGE  
CMOS  
SENSORS



Cambridge, UK



Kjeller, NO



Delsbo, SE



Cambridge, UK

Eindhoven, NL



Saarbr., DE



SIEMENS

Warwickshire, UK



Mol, BE



Louvain, BE

Petten, NL



Munich, DE



Leoben, AT



Corcelles, CH



Aveiro, PT



Barcelona, ES



Brindisi, IT



Thessaloniki, EL



EUROPEAN COOPERATION IN SCIENCE AND TECHNOLOGY

# THIRD SCIENTIFIC MEETING: WG & 6<sup>th</sup> MC Meeting

## *New Sensing Technologies for Indoor Air-Pollution*

**Bahcesehir University, Istanbul** (Turkey), 3 - 5 December 2014

### ***Multidisciplinary Meeting:***

*International Experts and Coordinators of FP7 and H2020 research projects related to the IEQ Cluster*



**Local Organizers:**  
**Prof. Zafer Ziya Ozturk,**  
**GEBZE, Istanbul (Turkey)**

**Prof. Ali Gungor,**  
**Bahcesehir University,**  
**Istanbul (Turkey)**

### **Participation:**

- **60+ Participants**
- **21 COST Countries**

# 3<sup>rd</sup> International WORKSHOP *EuNetAir*

## *New Trends and Challenges for Air Quality Control*

hosted by University of Latvia, **Riga** (Latvia), 26 - 27 March 2015



### Local Organizer:

Dr. Iveta Steinberga  
University of Latvia  
Riga (Latvia)

### Local Co-Organizer:

Dr. Gita Sakale  
Riga Technical University  
Riga (Latvia)

### Participation:

- 50+ Participants
- 18 COST Countries



# Focus Group Meeting *EuNetAir*

## *Data Analysis of Aveiro Air Quality Sensors Intercomparison*

hosted by WHO CC - Federal Environment Agency, **Berlin** (Germany), 17 April 2015



### Local Organizer:

**Dr. Hans-Guido Muecke**  
**WHO CC - FEA**  
**Berlin (Germany)**

### Participation:

- 9 Participants
- 8 COST Countries

### Output:

**Planned Joint-Publication**  
**on AQ Sensors Aveiro Database**



# Focus Group Meeting *EuNetAir*

## *Innovation on Environmental Sensor Technologies*

hosted by Siemens, **Munich** (Germany), 29 April 2015

# SIEMENS

Local Organizer:

Dr. Olivier von Sicard  
Siemens AG  
Munich (Germany)



Participation:

- 15 Participants
- 10 COST Countries

Output:

Planned Report on  
Innovation on Environmental Sensor Technologies



# 3<sup>rd</sup> TRAINING SCHOOL *EuNetAir* at Hyytiala Forestry Field Station

## *Atmospheric Aerosol Physics, Measurements and Sampling*

hosted by University of Helsinki, **Hyytiala** (Helsinki), 2 - 8 May 2015

### Local Organizer:

Prof. Kaarle Hameri,  
University of Helsinki,  
Helsinki (Finland)



### Participation:

- 13 COST Trainees
- 3 Trainers
- 1 COST Trainer



# 11. Scientific planning - approved event Year 3

## ISOCS 2015 Short Course Winter Course

*Electronic Noses and their Panorama of Sensors*

8 - 13 March 2015, Ponte di Legno (Brescia), Italy

Funding 3 Young Trainees to Training Course

*EuNetAir* has financed 3 Young Trainees

**Type:** Grant (Example: 750 euro x 3 trainees)

**Granted Trainees:** 3 ESRs from Italy, Spain, Germany. Trainer no funded.

**Estimated/Approved Budget: 2400 Euro**



# FOURTH SCIENTIFIC MEETING: WG & 7<sup>th</sup> MC Meeting

hosted by Linköping University, **Linköping** (Sweden), 3 - 5 June 2015

## Local Organizer:

Prof. Anita Lloyd Spetz,  
Linköping University,  
Linköping (Sweden)



## FOCUS ON:

### *Outdoor Applications*

- 4 June 2015: Roundtable on the *European Sensor-Systems Cluster (ESSC)*
- 5 June 2015: *World Environment Day 2015, 5 June* - Global Day by UNEP
- 22 June 2015: *AMA Science Proceedings* - Published Sept. 2015 with DOI

# 11. Scientific planning - approved event Year 3

**16<sup>th</sup> ISOEN 2015**

**International Symposium on Olfaction and Electronic Nose**

28 June - 1 July 2015, Dijon, France

Funding 3-4 Speakers to attend Symposium ISOEN

2 Speakers for Talks and Flash Presentations to promote

***EuNetAir***

**Speaker: Prof. Andreas Schuetze**

**Speaker: Prof. Julian W. Gardner**

**Co-Chair ISOEN 2015: Prof. Anne-Claude Romain**

# Year 4: Scientific Planning of *EuNetAir* (1/2)

Meetings/Workshops/Training Schools managed

(Year 4: 1 July 2015 - 15 May 2016): EXTENSION: 15 Nov. 2016

- **WG1-WG4 Meeting** on *Air Quality Monitoring and Calibration: Horizons in Sensing Technologies, Methods and Modelling - Start of the 2<sup>nd</sup> EuNetAir Air Quality Joint-Exercise Intercomparison* organized by the VINCA Institute, Belgrade (**Serbia**), 13 - 14 Oct. 2015. Local organizer: Dr. Milena Jovasevic-Stojanovic, VINCA and Anka Cvetkovic, Public Health Institute of Belgrade
- The **4<sup>th</sup> International Workshop of the COST Action TD1105** on *Innovations and Challenges for Air Quality Control Sensors* at FFG (National AT COST Office), Wien (**Austria**), 25 - 26 February 2016. Local organizer: Dr. Anton Kock, MCL
- The **Action 4<sup>th</sup> International Training School** on *Modelling, Methods and Technologies for Air Quality Control* at Emdrup Campus in Copenhagen, by Aarhus University (**Denmark**), 19 - 22 April 2016. Local organizer: Prof. Ole Hertel, Aarhus University. Trainees: 13-15 expected. Trainers: 3-4 expected. Deadline for Trainees Application: 10 March 2016

## MC/WG Meetings managed

(Year 4: 1 July 2015 - 15 May 2016): *EXTENSION: 15 Nov. 2016*

- **5<sup>th</sup> SCIENTIFIC MEETING: WGs Meeting and 8<sup>th</sup> MC Meeting on New Sensing Technologies for Indoor Air Pollution Monitoring and Environmental Measurements** at Bulgarian Academy of Sciences, Sofia (Bulgaria), 16 - 18 Dec. 2015. Local organizers: Prof. Ivan Nedkov and Prof. Dimiter Syrakov, BAS
- **Special Session EuNetAir / Core-Group Meeting** to **EUROSENSORS 2015**, Freiburg (Germany), 6 - 10 September 2015

# COST Session & Core-Group Meeting at **EUROSENSORS 2015**



*The 29<sup>th</sup> European Conference on Solid-State Transducers*

**10:30 - 12:30** **Open Session COST: New Sensing Technologies for Air Quality Monitoring**  
*Chairperson: Michele Penza, ENEA, Brindisi, Italy*

**10:30 - 10:50** **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*

**10:50 - 11:10** **Performance Evaluation of Amperometric Sensors for the Monitoring of O<sub>3</sub> and NO<sub>2</sub> in Ambient Air at ppb Level**  
*Laurent Spinelle, Manuel Aleixandre, Michel Gerboles, JRC, EC DG ENV, Institute for Environment and Sustainability, Ispra, Italy*

**11:10 - 11:30** **LTCC, New Packaging Approach for Toxic Gas and Particle Detection**  
*Anita Lloyd Spetz, M. Sobocinski, N. Halonen, D. Puglisi, J. Juuti, H. Jantunen, M. Andersson, Action Vice-Chair, Linköping University, Linköping, Sweden*

**11:30 - 11:50** **Low-Cost Fabrication of Zero-Power Metal Oxide Nanowire Gas Sensors: Trends and Challenges**  
*Jordi Samà<sup>a</sup>, Juan Daniel Prades<sup>a</sup>, Olga Casals<sup>a</sup>, Guillem Domènech-Gil<sup>a</sup>, Sven Barth<sup>b</sup>, Isabel Gracia<sup>c</sup>, Carles Cané<sup>c</sup>, Francisco Hernández-Ramírez<sup>a,d</sup>, Albert Romano-Rodríguez<sup>a</sup>, Action MC Substitute, <sup>a</sup>Universitat de Barcelona, Barcelona, Spain; <sup>b</sup>Technical University Vienna (TUW), Institut für Material Chemistry, Vienna, Austria; <sup>c</sup>Consejo Superior de Investigaciones Científicas (CSIC), Institut de Microelectrònica de Barcelona (IMB-CNM), Bellaterra, Spain; <sup>d</sup>Catalonia Institute for Energy Research (IREC), Barcelona, Spain*

**11:50 - 12:10** **Integrated Sensor Systems for Indoor Applications: Ubiquitous Monitoring for Improved Health, Comfort and Safety**  
*Andreas Schuetze, WG2 Leader and MC Member, Saarland University, Saarbrücken, Germany*

**12:10 - 12:30** **Towards Disposable Sensing Platforms and Analytical Instruments for Air Quality Monitoring**  
*Danick Briand, Action MC Member, EPFL, Neuchâtel, Switzerland*



# WGs MEETING:

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

VINCA Institute & Public Institute of Health, **Belgrade** (Serbia), 13 - 14 Oct. 2015



**Joint-Exercise Sensors-vs-Analyzers**  
Belgrade, October 2015 - running 2016



## Local Co-Organizers:

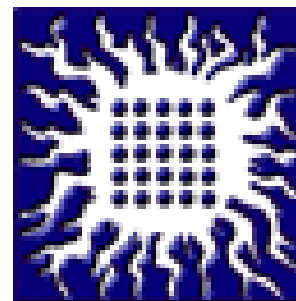
**Dr. Milena Jovasevic-Stojanovic, RS MC Member,**

**Dr. Anka Cvetkovic, RS MC Member,**

**VINCA Institute and Public Institute of Health**

**Belgrade - (Serbia)**

**joined to WeBIOPATR 2015 Conference**



# 5<sup>th</sup> SCIENTIFIC MEETING at Sofia: WGs + MC:

*New Sensing Technologies for Indoor Air Pollution Monitoring and Environmental Measurements*

**Bulgarian Academy of Science, Sofia** (Bulgaria), 16 - 18 Dec. 2015



**Roundtable: Which Future for AQ Sensors**  
**60 Participants:**  
**Contributed/Invited /KeynoteTalks**  
**Poster Session**  
**WG1-WG4 Meeting**  
**SIG1-SIG4 Meeting**  
**MC Meeting**

## Local Co-Organizers:

**Prof. Ivan Nedkov, BG MC Member,**  
**Prof. Dimiter Syrakov, BG MC Member,**  
**BAS - Institute of Electronics**  
**BAS - National Institute for Meteorology and Hydrology**

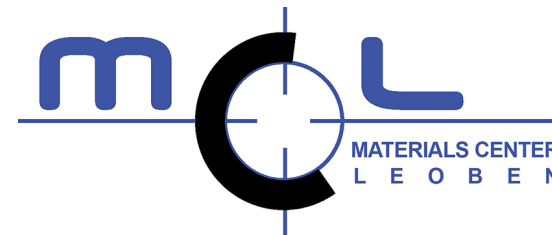
# 4<sup>th</sup> WORKSHOP EuNetAir at Vienna

*Innovations and Challenges for Air Quality Control Sensors*

hosted at FFG - Austrian COST Office, Vienna (Austria), 25 - 26 February 2016



organized by:



**44 Participants from 18 Countries:**  
**Contributed/Invited/Keynote Talks**  
**Poster Session**  
**SMEs and Industry participation**

**Local Co-Organizers:**

**Dr. Anton Kock, MCL, AT MC Member**

**Dr. Margit Malatschnig, Techkonnex-High-tech Promotion**



# 4<sup>th</sup> TRAINING SCHOOL EuNetAir at Copenhagen

*Modelling, Methods and Technologies for Air Quality Control*

**Aarhus University, Copenhagen** (Denmark), 19 - 22 April 2016

*5 ECTS PhD course by Department of Environmental Science, Aarhus University*



AARHUS  
UNIVERSITET



**21 Trainees from 13 Countries**  
**11 Trainers (10 local + 1 foreign)**

**Local Organizer:**

**Prof. Ole Hertel, Aarhus University, DK MC Member**

# 11. Scientific planning

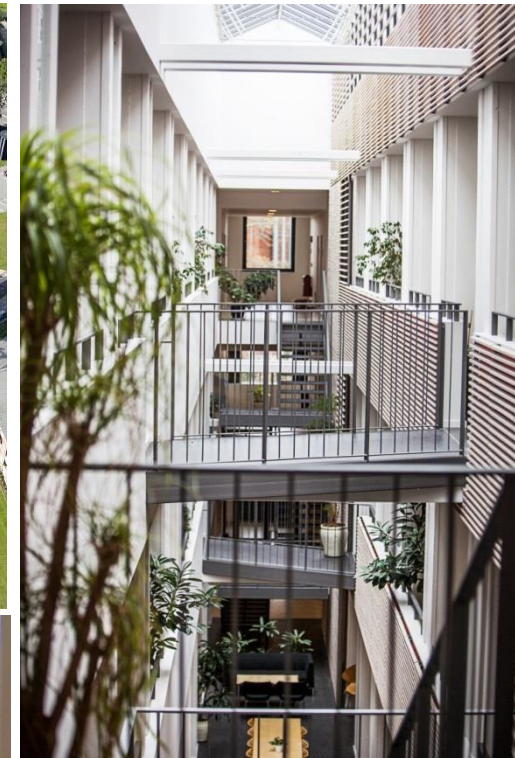
c4: **4<sup>th</sup> TRAINING SCHOOL *EuNetAir*** at Emdrup Campus - Copenhagen

*Modelling, Methods and Technologies for Air Quality Control*

organized by Aarhus University, **Copenhagen** (Denmark), 19 - 22 April 2016 (1/2)

## Local Organizer:

Prof. Ole Hertel,  
Aarhus University,  
Aarhus (Denmark)



# Year 5 (Extension): Scientific Planning of *EuNetAir* (1/1)

(Year 4: 1 July 2015 - 15 May 2016): EXTENSION: 15 Nov. 2016

- **DISSEMINATION MEETING at European Materials Research Society (EMRS) on Functional Materials for Environmental Sensors and Energy Systems** at EMRS Spring Meeting 2016, Lille (France), 2 - 6 May 2016. Symposium organizers: Michele Penza, Anita Lloyd Spetz, Albert Romano-Rodriguez and Meyya Meyyappan
- **CORE-GROUP MEETING at SENSOR+TEST 2016 on Novel Sensor Solutions for Indoor Air Quality** at AMA Conference 2016, Nuremberg (Germany), 10 - 12 May 2016. Symposium organizers: Michele Penza, Andreas Schuetze, Anton Kock and Mathias Holz.

- **6<sup>th</sup> SCIENTIFIC MEETING: WGs Meeting and 9<sup>th</sup> MC Meeting on New Sensing Technologies for Outdoor Air Quality Monitoring** at Academy of Sciences of the Czech Republic, Prague (**Czech Republic**), 5 - 7 October 2016. Local Organizers: Prof. Zdenek Zelinger, Dr. Vera Kurkova, Dr. Roman Neruda, ASCR

# EuNetAir at EMRS Spring Meeting 2016 in Lille

**Symposium X: Functional Materials for Environmental Sensors and Energy Systems**

hosted at Lille Congress Center, **Lille** (France), 2 - 6 May 2016



**200 Participants - 160 Abstracts:**

**Contributed/Invited Talks  
2 Poster Sessions**

## **Symposium Organizers:**

**Dr. Michele Penza, ENEA, Action Chair**

**Prof. Anita Lloyd Spetz, Linköping University, Action Vice-Chair**

**Prof. Albert Romano-Rodriguez, Barcelona University, MC Member**

**Dr. Meyya Meyyappan, NASA Ames Research Center, IPC Member**



# ***EuNetAir* at SENSOR+TEST 2016 in Nuremberg**

## ***Session: Novel Sensor Solutions for Indoor Air Quality Control***

hosted at NCC - AMA Conference 2016, **Nuremberg** (Germany), 10 - 12 May 2016



[www.eunetair.it](http://www.eunetair.it)



[www.cluster-essc.eu](http://www.cluster-essc.eu)



[www.multisensorplatform.eu](http://www.multisensorplatform.eu)



[www.iaqsense.eu](http://www.iaqsense.eu)



[www.sensindoor.eu](http://www.sensindoor.eu)



***40+ Participants to Special Session:  
Contributed/Invited Talks  
SMEs and Industry participation***

### **Organizers:**

**Dr. Michele Penza, ENEA, Action Chair**

**Dr. Anton Kock, MCL, AT MC Member**

**Dr. Mathias Holz, Nanoanalytik GmbH, WG Member**

**Prof. Andreas Schuetze, DE MC Member**

# SIXTH SCIENTIFIC MEETING: WG & 9<sup>th</sup> MC Meeting

*New Sensing Technologies for Outdoor Air-Pollution*

**Czech Republic Academy of Sciences**

**Prague** (Czech Republic), 5 - 7 October 2016

## Local Organizers:

Dr. Vera Kurkova, MC Member

Dr. Zdenek Zelinger, MC Member

Dr. Roman Neruda, MC Substitute

CZ Academy of Sciences

Prague (CZ)



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# SIXTH SCIENTIFIC MEETING: WG & 9<sup>th</sup> MC Meeting

## New Sensing Technologies for Outdoor Air-Pollution

### Czech Republic Academy of Sciences

**Prague** (Czech Republic), 5 - 7 October 2016

#### Local Organizers:

**Dr. Vera Kurkova, MC Member**

**Dr. Zdenek Zelinger, MC Member**

**Dr. Roman Neruda, MC Substitute**

**CZ Academy of Sciences**

**Prague (CZ)**



EUROPEAN COOPERATION IN SCIENCE AND TECHNOLOGY

Letter of invitation to host a COST Action TD1105 WG meeting and MC meeting in Prague, Czech Republic, on 8-10 June, 2016

Dear Michele,

I am delighted to be able to offer the J. Heyrovský Institute of Physical Chemistry of the Czech Academy of Sciences, Prague as the host for a COST Action TD1105 WG and MC meeting to be held in Prague on 8-10, June 2016.

The intention is that this meeting will be formally hosted by me in collaboration with V. Kůrková and R. Neruda, but local arrangements will be made through the J. Heyrovský Institute of Physical Chemistry of the Czech Academy of Sciences, Prague.

This invitation is based on the assumption that the main costs will be covered by the COST Action TD1105, with administrative management as ruled by COST Vademecum by activation of the Local Organizing Support (LOS) tool, if needed.

I look forward to a very successful meeting in highly conducive surroundings, matching those of Action EuNetAir last years.

Best wishes



*Prof. Ing. Zdeněk Zelinger, CSc.  
Czech Republic MC Member  
J. Heyrovský Institute of Physical Chemistry  
of the Czech Academy of Sciences,  
Dolejškova 3  
182 26 Prague  
Czech Republic*

Academy of Sciences of the Czech Republic  
The J. Heyrovský Institut. of Physical Chemistry, v.v.i.  
182 23 Prague 8, Dolejškova 3  
CZECH REPUBLIC

# 11. Scientific planning

d. Dissemination Planning (Publications and outreach activities).

d1: Action website: [www.cost.eunetair.it](http://www.cost.eunetair.it)



Action website:

[www.cost.eunetair.it](http://www.cost.eunetair.it)

*hosted by ENEA*

**Dr. Marco Alvisi, Webmaster Coordinator**

**Sebastiano Dipinto, Valerio Pfister, Gianfranco Zingarelli, Webmaster Team**



# OUTREACH ACTIVITIES from Action TD1105

## COST Action TD1105 - EuNetAir

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

Action website:

[www.cost.eunetair.it](http://www.cost.eunetair.it)

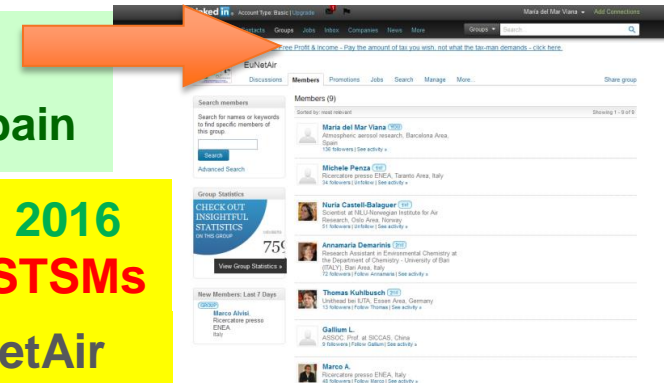
hosted by ENEA

Dr. Marco Alvisi, *Webmaster Coordinator*

Sebastiano Dipinto, Valerio Pfister, Gianfranco Zingarelli, *Webmaster Team*

Social Scientific ESRs Network (SSEN) by LinkedIn

Members: >100 - Moderators: M. Viana, M. Minguillon, CSIC, Spain



Short Term Scientific Mission Year 4: 4 Funded by 15 Nov. 2016  
STSMs funded by EuNetAir in 2012-2016: 43 Beneficiaries/STSMs

Dr. Jan Theunis, VITO, Belgium, STSM Coordinator EuNetAir



EuNetAir Newsletter

COST Action TD1105 Iss. 1/Dec 2012

Opening Editorial

- Issue 1: published on Dec. 2012 ✓
- Issue 2: published on June 2013 ✓
- Issue 3: published on Dec. 2013 ✓
- Issue 4: published on June 2014 ✓
- Issue 5: published on Dec. 2014 ✓
- Issue 6: published on June 2015 ✓
- Issue 7: published on Dec. 2015 ✓
- Issue 8: published on Sept. 2016 ✓

Leaflet 1: Jan 2013  
Leaflet 2: Sept 2016

Brochure 1: Jan 2013  
Brochure 2: Sept 2016

Prof. Ralf Moos, Univ. of Bayreuth, DE, *Editor-in-Chief*

Dr. Daniela Schonauer-Kamin, *Editorial Board Manager*

# Video/Interview: [www.cost.eunetair.it](http://www.cost.eunetair.it) - Section VIDEO

- **Alena Bartonova**, Coordinator FP7 Project CITI-SENSE, NILU, Kjeller, Norway
- **Margurite Nyhan**, The Senseable City Lab, MIT, Boston, USA
- **Hans-Guido Muecke**, Manager at WHO CC and Federal Environment Agency
- **Oliver von Sicard**, Researcher at Siemens AG, Munich
- **Thu-Hoa Tran-Thi**, Research Director on Indoor Sensors, CEA-CNRS, France
- **Tim Watkins**, Deputy Director US EPA Air, Climate & Energy Programme, USA
- **Andrea C. Ferrari**, Chairman of Executive Board of Graphene Flagship, UK
- **Cristina Guerreiro**, Coordinator of EEA AQ Report 2012-2013, Norway
- **Meyya Meyyappan**, Chief Scientist, NASA Ames Research Center, USA
- **Michele Penza**, Action Chair at RAI3 Italian TV Show GeO&GeO, Italy



# 11. Scientific planning

## d. Dissemination Planning (Publications and outreach activities).

### d2: NEWSLETTER, LEAFLET, BROCHURE (1/2)



**COST**  
EUROPEAN COOPERATION  
IN SCIENCE AND TECHNOLOGY

**EuNetAir** Newsletter  
COST Action TD1105 Iss. 1/Dec 2012

Opening Editorial

- Issue 1:** published on Dec. 2012 ✓
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- Issue 4:** published on June 2014 ✓
- Issue 5:** published on Dec. 2014 ✓
- Issue 6:** published on June 2015 ✓
- Issue 7:** published on Dec. 2015 ✓
- Issue 8:** published on Sept. 2016 ✓

**Brochure**

**Leaflet**

**Release 1:**  
published on January 2013

**Release 2:**  
published on October 2016  
**Final Edition**



## 11. Scientific planning - d4: DISSEMINATION PLAN

*Dr. Fabio Galatioto*  
*Dissemination Committee*

### Upcoming Events

**TCM 2016** - International Symposium on Transparent Conductive Oxides  
October 9-13, 2016, Crete, Greece  
[www.tcm2016.org/](http://www.tcm2016.org/)

**ISES Meeting - International Society of Exposure Science**  
October 9-13, 2016, Utrecht, The Netherlands  
[www.ises2016.org/](http://www.ises2016.org/)

**IEEE SENSORS 2016**  
October 30 – November 2, 2016, Orlando, FL, USA  
[www.ieee-sensors2016.org/](http://www.ieee-sensors2016.org/)

**MRS Fall Meeting and Exhibit 2016**  
November 27-December 2016, Boston, Massachusetts.  
<http://mrs.org/fall2016/>

**IMCS 2018 - International Meeting on Chemical Sensors**  
July 15-19, 2018, Vienna, Austria  
<http://www.imcs2016.wien/>

# COST Action TD1105: Past Related EVENTS

*New Sensing Technologies for Air-Pollution Control and Environmental Sustainability*

- **COST Domain-Specific CMST Strategic Event**

COST Actions: A Great Opportunity as Incubators for Molecular Science and Technology

**Brussels (Belgium), 27-28 March 2014**

Action TD1105 represented as **Invited Speaker** by Dr. Marco Alvisi, MC Substitute and SIG1 (*Network of Spin-offs*) Leader, ENEA, Brindisi, Italy.

- **COST Domain ESSEM, ISCH, ICT Strategic Event**

**Cities of Tomorrow**

**Turin (Italy), 24-27 September 2014**

Action TD1105 represented as **Invited Speaker** by Prof. Anita Lloyd-Spetz, Action Vice-Chair, Linköping University (Sweden) and Oulu University (Finland).

# COST Action TD1105: Past Related EVENTS

*New Sensing Technologies for Air-Pollution Control and Environmental Sustainability*

- **Air Sensors 2014: A New Frontier**

**Workshop Series US EPA: Workshop in the Next Generation Air Monitoring (NGAM)**

**EPA Campus in Research Triangle Park, North Carolina (USA), 9-10 June 2014**

Action TD1105 represented as **Invited Speaker** by Dr. Michele Penza, Action Chair, ENEA, Brindisi, Italy.

- **NATO Advanced Research Workshop**

**NATO ARW on Nanotechnology to Aid Chemical and Biological Defense**

**organized by Prof. Terri A. Camesano, Chemical Engineering, Worcester Polytechnic Institute, USA**

**Antalya (Turkey), 22-26 September 2014**

Action TD1105 represented as **Invited Speaker** by Dr. Michele Penza, Action Chair, ENEA, Brindisi, Italy.

Prof. G. Sberveglieri, University of Brescia, Invited Speaker.

# COST Action TD1105: Past Related EVENTS

*New Sensing Technologies for Air-Pollution Control and Environmental Sustainability*

- **Eurosensors 2014**

**XXVIII Edition of Conference Series: *European Forum to cover the entire field of Sensors, Actuators, Microsystems and Nanosystems***

**Brescia, (Italy), 7-10 September 2014**

**General Conference Chair: Prof. G. Sberveglieri**

Action TD1105 represented as **Technical Program Committee (TPC)**

**Member** by Dr. Michele Penza, Action Chair, ENEA, Brindisi, Italy

- **IEEE SENSORS 2014**

**2014 Edition of Conference Series: *Worldwide Forum***

**Valencia (Spain), 2-5 November 2014**

**Technical Program Chair: Prof. Ignacio R. Matias**

Action TD1105 represented as **Track Co-Chair for Europe/Africa (**Track 9: Materials, Processes, Circuits, Signals & Interfaces**)** by Dr. Michele Penza, Action Chair, ENEA, Brindisi, Italy.

**Track 4 Chemical Sensors** Co-Chair: Prof. Eduard Llobet, MC Member.

# COST Action TD1105: Past Related EVENTS

## *New Sensing Technologies for Air-Pollution Control and Environmental Sustainability*

- **ECTP 2014 - Brussels, 17-19 June 2014**

COST Action TD1105 **EuNetAir** and FP7 project **SensIndoor** represented Prof. Anita Lloyd-Spetz, Action Vice-Chair, Linköping University (Sweden) and Oulu University (Finland), and Partner of SensIndoor project.

**Thursday 19th June 2014, 09:00 to 10:30**

PARALLEL SESSIONS: How the Built Environment will meet Europe Needs and its Societal Challenges - Foreseen Innovation & Future Horizons

### **09:00 to 10:30 INDOOR ENVIRONMENT QUALITY (Parallel Session)**

**Chairs:** Jürgen Frick (MPA University of Stuttgart), Monique Levy - Maria Yeroyanni - Ugo Guarnacci (EC DG Research and Innovation)

**ECTP** Construction and Built Environment: Future Horizons  
17-19 June 2014, Brussels

Organized by: **ECTP** **encord** **ENBRI** Supported by: **ECCREDI** Co-located with: **BUILDING TEST EXPO**

<http://www.ectp.org/Conference2014.asp>

After Paris, Versailles, Amsterdam, Brussels and Warsaw, the European Construction Technology Platform is organizing its 6<sup>th</sup> Conference at SQUARE BRUSSELS Meeting Centre in central Brussels, jointly with ENCORN (European Network of Construction Companies for Research and Development) and ENBRI (European Network of Building Research Institutes), and with the support of ECCREDI (European Council for Construction Research, Development and Innovation).

This event co-locates with Building Test Expo 2014. ECTP Conference delegates and Expo Exhibitors will thus benefit from exclusive networking opportunities.



# Other Past Related Events

- **European Cluster CHARACTERIZATION - Sensors Kick-off MEETING: Brussels, 27 November 2014**  
European Commission - DG Research & Innovation  
Directorate Key Enabling Technologies  
Unit Advanced Materials and Nanotechnologies  
*EuNetAir* Participants: Michele Penza, Andreas Schuetze, Corinna Hahn  
**Nominated Chair of the EU Cluster SENSORS:** Michele Penza, ENEA, Italy
- **European Conference**  
***Renaturing Cities: Systemic Urban Governance for Social Cohesion***  
**Milan, 1 - 2 December 2014**  
***Under the auspices*** of the *2014 Italian Presidency of the Council of the EU*  
European Commission - DG Research & Innovation  
Unit Sustainable Management of Natural Resources  
***EuNetAir* Participants as Main Discussants:** Jurgen Frick, Michele Penza

# Upcoming Event: EuroNanoForum 2015 - *Riga, 10 - 12 June 2015*

**Invited Speaker: Michele Penza, ENEA, Brindisi, Italy**

*The European Sensor-Systems Cluster (ESSC):*

*High Impact EC Initiative on Sensor Technologies for Sustainable Applications*



10-12 June 2015, Riga, Latvia

[www.euronanoforum2015.eu](http://www.euronanoforum2015.eu)

**The seventh ENF is Europe's largest conference on nanotechnologies, advanced materials science, innovations and business.**

**3 days of conference and networking:**

**1000 Delegates**

**100 Speakers**

**50 Countries**

**under Latvian Presidency of the EU Council  
hosted and organized by University of Latvia  
supported by EC DG R&I**

**EuNetAir at 2<sup>nd</sup> Consultation Meeting on  
the Global Platform on Air Quality and Health**

WHO Geneva, 18-20 August 2015, *Meeting Report - DRAFT 23.09.2015*



**Session 3, cont.** Low cost AQ monitoring

- Portable Sensor-Systems for Air Quality Monitoring: The case-study of EuNetAir (*M. Penza – remote presentation*)
- Experiences of USEPA (*T. Watkins – remote presentation*)

*Discussion: Perspectives for application of low cost sensors for AQ monitoring*

# EuNetAir at **WEBINAR on CLIMATE ADAPT**

Copenhagen, **16 Dec. 2015**, 11:30-13:00 (CET) **Webinar**

European Environment Agency



Hereby I would like to invite the European climate change adaptation research community and related funding organisations to a second webinar on the progress in and the development of the European Climate Adaptation Platform (Climate-ADAPT). I would also like to invite the national reference centres on climate change impacts, vulnerability and adaptation in EEA member countries and experts from the European Commission, international organisations, transnational initiatives and cities networks on adaptation.

André Jol

EEA Head of Group Climate change impacts, vulnerability and adaptation

## EU funded research initiatives:

Climate-KIC (Innovation Pillar, Policy), Cost Action (Actions ES1404, **TD 1105**, ES1102, ES1106)

# ***EuNetAir at ISES 2016 Meeting***

## ***International Society of Exposure Science***



**European ISES Chapter**

**<http://ises2016.org/>**

**Tu-SY-F4: Advancing Exposure Science to Address Complex Environmental Issues**

**Chair:** Annette Guiseppi-Elie, US Environmental Protection Agency, Research Triangle Park, NC, United States

**Title of Talk:** **Advancing exposure science through technology: Focus on sensors**

**Speaker:** Tim Watkins<sup>1</sup> and Michele Penza<sup>2</sup>, <sup>1</sup>US EPA, RT Park, NC, USA; <sup>2</sup>ENEA, Italy

# Symposium planned at EMRS Spring Meeting 2016

**Lille (France), 2 - 6 May 2016**

## *Functional Materials for Environmental Sensors and Energy Systems*

*Proceedings of Symposium EMRS Spring Meeting 2016 to be published under peer-review process in **Beilstein Journal of Nanotechnologies** (IF 2015: 2.6)*

• **Peer-review process** Open Access journal without publication fee

(<http://www.beilstein-journals.org/bjnano>).

### • **Symposium Organizers:**

✓ Michele Penza, ENEA, Italy

✓ Anita Lloyd Spetz, Linköping University, Sweden

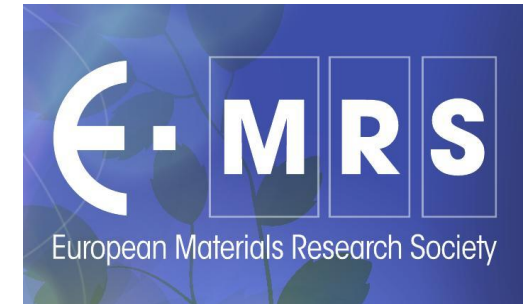
✓ Albert Romano-Rodriguez, Barcelona University, Spain

✓ Meyya Meyyappan, NASA Ames Research Center, USA

• **Deadline for abstract submission: 22 January 2016**

• **166 Abstracts Received (Top-8 over 31 Symposia)**

• **Open Access BJNANO Publication expected on December 2016**



BEILSTEIN JOURNAL OF NANOTECHNOLOGY



**MATERIALS RESEARCH SOCIETY**

*Advancing materials. Improving the quality of life.*

## **Symposium PM4 at 2016 MRS Fall Meeting & Exhibit**

**Boston (USA), 27 November - 2 December 2016**

*Novel Materials, Fabrication Routes and Devices for Environmental Monitoring*

• *Symposium Organizers:*

<http://www.mrs.org/fall2016>

- ✓ Michele Penza, ENEA, Italy
- ✓ Ruby Ghosh, Michigan State University, USA
- ✓ Albert Romano-Rodriguez, Barcelona University, Spain
- ✓ Meyya Meyyappan, NASA Ames Research Center, USA

• **Deadline for abstract submission: 16 June 2016**

• **Symposium Programme online: 65 Talks + 15 Posters**



2016 **MRS**<sup>®</sup>  
FALL MEETING & EXHIBIT

November 27 – December 2, 2016 | Boston, Massachusetts

**CALL FOR PAPERS**

**Abstract Deadline: June 16, 2016**

REMINDER: In fairness to all potential authors,  
late abstracts will not be accepted.

[www.mrs.org/fall2016](http://www.mrs.org/fall2016)

Symposium PM4: Novel Materials, Fabrication Routes and Devices for Environmental Monitoring

In the 9 MCMs, EuNetAir has approved the affiliation of about 50 new members from all Countries that have signed MoU COST Action TD1105

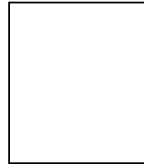


# 12. Requests for new members - List of New WGs Members (2/2)



## COST Action TD1105 Affiliation/Information Form

Photo is optional.



COST Action TD1105 Information Form for New Action Participants and New Working Group Members

Personal Details	
1. Surname	
2. First name(s)	
3. Email	
4. Institute/company	
5. Address	
6. Postal address	
7. Telephone	
8. Fax	
9. Mobile	
Background related to the COST Action (research activities, institute/company background in relation to COST Action, etc) (Max 10 lines)	
Personal Activities related to the COST Action (Max 10 lines)	
Planned contribution to the COST Action (Max 10 lines)	
Involved member of:	
MC	<input type="checkbox"/>
CG	<input type="checkbox"/>
SC	<input type="checkbox"/>
WG 1	<input type="checkbox"/>
WG 2	<input type="checkbox"/>
WG 3	<input type="checkbox"/>
WG 4	<input type="checkbox"/>
SIG 1	<input type="checkbox"/>
SIG 2	<input type="checkbox"/>
SIG 3	<input type="checkbox"/>
SIG 4	<input type="checkbox"/>
OTHER	<input type="checkbox"/>
Remarks (Max 10 lines)	

**Application Form  
filled by New Members  
asked by email and replied filled.**

**Please, New WG Member and/or Action Participant should provide own CV (max 1 page)**

# 13. Non-COST applications to the Action

(1/2)

## List of Non-COST Members: New NNC and IPC

### ***EuNetAir: List of Experts from NNC and IPC***



**200** EXPERTS from **31** COST Countries and **7** Non-COST Countries



**AU - Australia**

Dr. Phil MARTIN



**MA - Morocco**

Dr. Radouane LEGHRIB  
Dr. Houda LAHLOU



**CA - Canada**

Prof. John YEOW



**UA - Ukraine**

Dr. Olena TUROS  
Dr. Arina PETROSIAN  
Dr. Oksana ANANYEVA  
Dr. Liudmyla MYKHINA  
Dr. Liliia PETRUK  
Dr. Tetiana MAREMUKHA



**CN - China**

Dr. Yongxiang LI  
Dr. Zhifu LIU



**RU - Russian Federation**

Dr. Alexey VASILIEV



**US - United States**

Prof. Andrei KOLMAKOV  
Dr. Meyya MEYYAPPAN

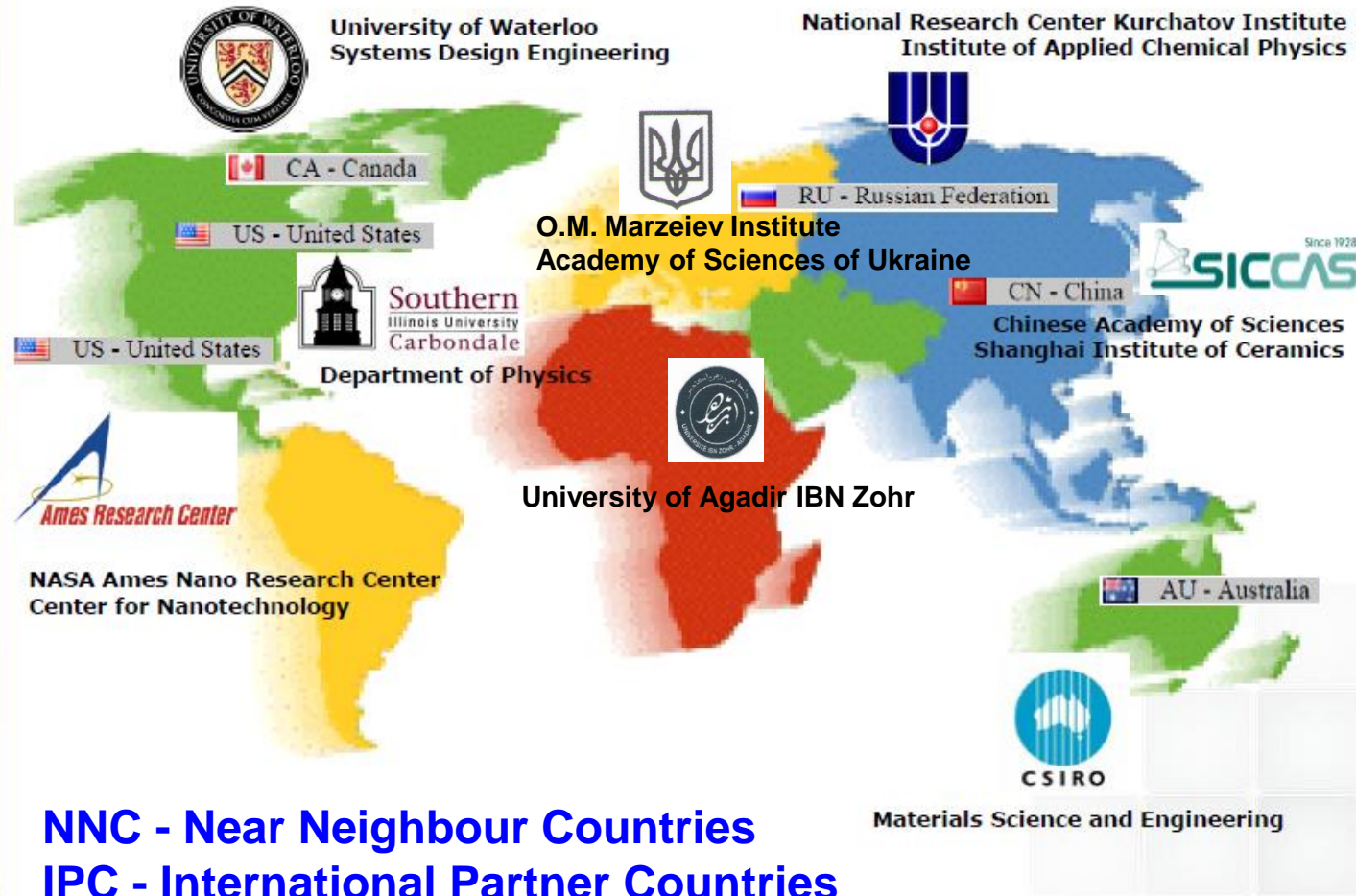
## 7 Non-COST Countries and 8 Non-COST Institutions

**GEORGIA as NNC is interested to join EuNetAir**

**Non-COST Countries:**  
Australia, Canada, China,  
**Morocco**, Russia, **Ukraine**,  
USA

**Non-COST Institutions:**  
CSIRO (**Australia**);  
University of Waterloo  
(**Canada**); Chinese Academy  
of Sciences, Shanghai  
Institute of Ceramics  
(**China**); University of Agadir  
IBN Zohr (**Morocco**);  
National Research Center  
Kurchatov Institute (**Russia**);  
O.M. Marzeiev Institute for  
Hygiene and Medical  
Ecology of Academy of  
Science of Ukraine  
(**Ukraine**); Southern Illinois  
University Carbondale,  
NASA Ames Research  
Center (**USA**).

### Non-COST EuNetAir PARTICIPANTS



**NNC - Near Neighbour Countries**  
**IPC - International Partner Countries**

# 14. AOB of the Action - List of AOB

- **Joint-Publications** should be encouraged more.
  - PAPERS
  - A **List of Joint-Publications** (Year 2: 2013-14) from Action is downloadable at Action webpages ([www.cost.eunetair.it](http://www.cost.eunetair.it)) in the Section **LIBRARY - Publications**
  - A **List of Joint-Publications** (Year 3: 2014-15) from Action is downloadable at Action webpages ([www.cost.eunetair.it](http://www.cost.eunetair.it)) in the Section **LIBRARY – Publications**
  - **Link to Special Issues edited by Action in Open Access**
  - **Other JOINT-PUBLICATIONS are HIGHLY welcomed for:**
    - **Final Achievement Report**
    - **Action webpages**

### List of publications related to EuNetAir

M.C. Mingullón, M. Viana, C. Reche, X. Querol, J. García Vidal, O. Trullols, J.M. Barceló, M. Viader, P. Speranza  
Is the performance of sensor technologies for air quality monitoring improving?  
European Aerosol Conference EAC 2015  
Milan, Italy, 6-11 September 2015

R. Popek, H. Gawrońska, S.W. Gawroński  
The level of particulate matter on foliage depends on the distance from the source of emission  
International Journal of Phytoremediation 17 (2015) 1262-1268

N. Weyens, S. Thijs, R. Popek, N. Witters, A. Przybysz, J. Espenshade, H. Gawronska, J. Vangonsveld, S.W. Gawronski  
The role of plant-microbe interactions and their exploitation for phytoremediation of air pollutants  
International Journal of Molecular Sciences 16 (2015) 1-x

C. Borrego, M. Coutinho, A.M. Costa, J. Ginja, C. Ribeiro, A. Monteiro, I. Ribeiro, J. Valente, J.H. Amorim, H. Martins, D. Lopes, A.J. Miranda  
Challenges for a New Air Quality Directive: The role of monitoring and modelling technique  
Urban Climate 14 (2015) 328-341

C. Hummelgard, I. Bryntse, M. Bryzgalov, J. Henning, H. Martin, M. Norén, H. Rödjegard  
Low-cost NDIR based sensor platform for sub-ppm gas detection  
Urban Climate 14 (2015) 342-350

M. Penza, D. Suriano, G. Cassano, V. Pfister, M. Amodio, L. Trizio, M. Brattoli, G. De Gennaro  
A case-study of microsensors for landfill air-pollution monitoring applications  
Urban Climate 14 (2015) 351-369

N. Castell, M. Kobernus, H.-Y. Liu, P. Schneider, W. Lahoz, A. J. Berre, J. Noll  
Mobile technologies and services for environmental monitoring: The Citi-Sense-MOB approach  
Urban Climate 14 (2015) 370-382

J. Brink  
Boundary tracking and estimation of pollutant plumes with a mobile sensor in a low-density static sensor network  
Urban Climate 14 (2015) 383-395

S. N. Behera, M. Sharma, P.K. Mishra, P. Nayak, B. Damez-Fontaine, R. Tahon  
Passive measurement of NO<sub>2</sub> and application of GIS to generate spatially-distributed air monitoring network in urban environment  
Urban Climate 14 (2015) 396-413

C.A. Skjath, P. Baker, M. Sadyś, B. Adams-Groom  
Pollen from alder (*Alnus* sp.), birch (*Betula* sp.) and oak (*Quercus* sp.) in the UK originate from small woodlands  
Urban Climate 14 (2015) 414-428

M. Sadyś, C.A. Skjath, R. Kennedy  
Determination of *Alternaria* spp. habitats using 7-day volumetric spore trap, Hybrid Single Particle Lagrangian Integrated Trajectory model and geographic information system  
Urban Climate 14 (2015) 429-440

A. Järvinen, H. Kuuluvainen, J.V. Niemi, S. Saari, M. Dal Maso, L. Pirjola, R. Hillamo, K. Janka, J. Keskinen, T. Rönkkö  
Monitoring urban air quality with a diffusion charger based electrical particle sensor  
Urban Climate 14 (2015) 441-456

P.V. Ørby, R.G. Peel, C. Skjath, V. Schlüßner, J.H. Bønløkke, T. Ellermann, A. Brændholt, T. Sigsgaard, O. Hertel  
An assessment of the potential for co-exposure to allergenic pollen and air pollution in Copenhagen, Denmark  
Urban Climate 14 (2015) 457-474

G.G. Mandayo, J. Gonzalez-Chavari, E. Hammes, H. Newton, I. Castro-Hurtado, I. Ayerdi, H. Knapp, A. Sweetman, C.N. Hewitt, E. Castaño  
System to control indoor air quality in energy efficient buildings  
Urban Climate 14 (2015) 475-485

A. Mendes, S. Bonassi, L. Aguiar, C. Pereira, P. Neves, S. Silva, D. Mendes, L. Guimarães, R. Moroni, J.P. Teixeira  
Indoor air quality and thermal comfort in elderly care centers  
Urban Climate 14 (2015) 486-501

B. de Fonseca, J. Rossignol, D. Stuerger, P. Pribetich  
Microwave signature for gas sensing: 2005 to present  
Urban Climate 14 (2015) 502-515

- **5 Special Issues:**
- **JSSS, Copernicus, 2014**
- **Urban Climate, Elsevier, 2015**
- **AMA Science Proceed. 2015**
- **AMA Science Proceed. 2016**
- **Beilstein Journal**
- **of Nanotechnology, 2016**

### List of publications related to EuNetAir

D. Puglisi, J. Eriksson, J. Huotari, M. Bastuck, A. Lloyd Spetz, M. Andersson

Exploring the gas sensing performance of catalytic metal/ metal oxide 4H-SiC field effect transistors  
Mat. Sci. Forum 858 (2016) 997-1000

J. Huotari, J. Lappalainen, R. Bjorklund, E. Heinonen, I. Miinalainen, J. Puustinen, A. Lloyd Spetz

Synthesis of Nanostructured Solid-State Phases of  $V_2O_5$  and  $V_2O_6$  Compounds for ppb-Level Detection of Ammonia  
J. Alloys and Compounds, 675 (2016) 433-440

J. Huotari, W. Cao, Y. Niu, J. Lappalainen, J. Puustinen, V. Pankratov, A. Lloyd Spetz, M. Huhtala

Separation of valence states in thin films with mixed  $V_2O_5$  and  $V_2O_6$  phases  
J. Electron Spectroscopy and Related Phenomena 211 (2016) 47-54

M. Bastuck, D. Puglisi, J. Huotari, T. Sauerwald, J. Lappalainen, A. Lloyd Spetz, M. Andersson, A. Schütze

Exploring the selectivity of  $WO_3$  with Iridium catalyst in an ethanol/naphthalene mixture using multivariate statistics  
Thin Solid Films, Special Issue SGS 2015

D. Puglisi, J. Eriksson, M. Andersson, J. Huotari, M. Bastuck, C. Bur, Jy. Lappalainen, A. Schütze, A. Lloyd Spetz

Exploring the Gas Sensing Performance of Catalytic Metal/Metal Oxide 4H-SiC Field Effect Transistors  
Materials Science Forum 858 (2016) 997-1000

M. Leidinger, M. Rieger, T. Sauerwald, C. Alépée, A. Schütze

Integrated pre-concentrator gas sensor microsystem for ppb level benzene detection  
Sens. Act. B: Chem. 236 (2016) 988-996

J. Huotari, V. Kekkonen, T. Haapalainen, M. Leidinger, T. Sauerwald, J. Puustinen, J. Liimatainen, J. Lappalainen

Pulsed Laser Deposition of Metal Oxide Nanostructures for Highly Sensitive Gas Sensor Applications  
Sens. Act. B: Chem. 236 (2016) 978-987

M. Leidinger, J. Huotari, T. Sauerwald, J. Lappalainen, A. Schütze

Selective Detection of Naphthalene with Nanostructured  $WO_3$  Gas Sensors prepared by Pulsed Laser Deposition  
J. Sens. Sens. Syst. 5 (2016) 147-156

O. Monereo, S. Illera, A. Varea, M. Schmidt, T. Sauerwald, A. Schütze, Al. Cirera, J. D. Prades

Localized self-heating in large arrays of 1D nanostructures  
Nanoscale 8 (2016) 5082-5088

J. Huotari, J. Lappalainen, J. Puustinen, T. Baur, C. Alépée, T. Haapalainen, S. Komulainen, Ju. Pylvänäinen, A. Lloyd Spetz

Pulsed laser deposition of metal oxide nanoparticles, agglomerates, and nanotrees for chemical sensors  
Procedia Engineering 120 (2015) 1158-1161

E. Dilonardo, M. Penza, M. Alvisi, C. DiFranco, F. Palmisano, L. Torsi, N. Cioffi

Evaluation of gas-sensing properties of ZnO nanostructures electrochemically doped with Au nanophases  
Beilstein J. Nanotechnol. 7 (2016) 22-31

E. Dilonardo, M. Penza, M. Alvisi, C. DiFranco, R. Rossi, F. Palmisano, L. Torsi, N. Cioffi

Electrophoretic deposition of Au NPs on MWCNT-based gas sensor for tailored gas detection with enhanced sensing properties  
Sens. Act. B: Chem. 223 (2016) 417-428

A. Kumar, A. J. Brunet, C. Varenne, A. Ndiaye, A. Pauly, M. Penza, M. Alvisi

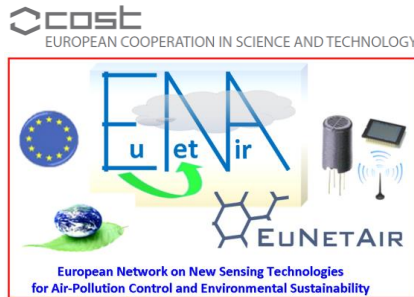
Tetra-tert-butyl copper phthalocyanine-based QCM sensor for toluene detection in air at room temperature  
Sens. Act. B: Chem. 210 (2015) 398-407

S. Öztürk, A. Kösemen, Z. A. Kösemen, N. Kılınc, Z. Z. Öztürk, M. Penza

Electrochemically growth of Pd doped ZnO nanorods on QCM for room temperature VOC sensors  
Sens. Act. B: Chem. 222 (2016) 280-289

- **5 Special Issues:**
- **JSSS, Copernicus, 2014**
- **Urban Climate, Elsevier, 2015**
- **AMA Science Proceed. 2015**
- **AMA Science Proceed. 2016**
- **Beilstein Journal**
- **of Nanotechnology, 2016**

# COST Action TD1105 *EuNetAir*: Snapshot of Outcome



**16 May 2012 - 15 November 2016**

- **N.r of Workshops: 4**
- **N.r of Training Schools (+ Short Course): 4 (+ 2)**
- **N.r of Working Groups Meetings: 4**
- **N.r of Focus Group & Dissemination Meetings: 11**
- **N.r of Scientific Meetings: 6**
- **N.r of Management Committee Meetings: 9**
- **N.r of Strategic COST events participated: 3**
- **N.r of funded STSMs: 43**

# COST Action TD1105 *EuNetAir*: Significant Achievements

- Joint-exercise *Sensors-vs-analyzers* in real city environment and related joint-publication in **ATMOSPHERIC ENVIRONMENT** (IF = 3.45). Online: <http://www.sciencedirect.com/science/article/pii/S1352231016307610>
- Report on *Innovation in Sensor Technology for Air Quality Control*
- Funded international (**3**) and national (**>10**) research projects in air quality control
- **5** Special Issues of archival papers and conference proceedings
- Organization of international conferences (**>3**) and symposia (**>5**)
- Invited Talks (**>20**) and Plenary Talks (**>5**) of the EuNetAir members
- International Participation in Conference Steering Committee of EuNetAir members (**>30**)
- Advising of EC in the field of sensor-systems (ESSC)



# Proposal for Follow-up of **EuNetAir**

*New Sensing Technologies for Air-Pollution Control and Environmental Sustainability*

## **COST OPEN CALL**

The next collection date is set for **7 December 2016**, 12:00 noon (CET).  
The final decision on the approval and funding of the Action proposals collected on **7 December 2016** is expected in **June 2017**.  
**The Call is open to ideas in all fields of science and technology including humanities and social sciences. Multi- and interdisciplinary proposals are encouraged.**

### **Some Ideas:**

**IDEA 1: Citizen Observatory for Environmental Sustainability**

**IDEA 2: Green Routes in City**

**IDEA 3: Health monitoring & related technologies**

**IDEA 4: .....**

**IDEA 5: Checking H2020 Calls for Supporting Actions**

# 17. Closing

9<sup>th</sup> MC Meeting, 7 October 2016, Prague, Czech Republic, hosted at ASCR

**WELCOME from Chair addressing the 9<sup>th</sup> MC Meeting, Prague**

**PRAGUE, 5 - 7 October 2016**

*Czech Republic Academy of Sciences*



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# NEXT MC MEETING:

**SIXTH SCIENTIFIC MEETING: WG & 9<sup>th</sup> MC Meeting**

***New Sensing Technologies for Outdoor Air-Pollution***

**Czech Republic Academy of Sciences, Prague (CZ), 5 - 7 October 2016**

## Local Organizers:

**Dr. Vera Kurkova, MC Member**

**Dr. Zdenek Zelinger, MC Member**

**Dr. Roman Neruda, MC Substitute**

**CZ Academy of Sciences**

**Prague (CZ)**



EUROPEAN COOPERATION IN SCIENCE AND TECHNOLOGY

Letter of invitation to host a COST Action TD1105 WG meeting and MC meeting in Prague, Czech Republic, on 8-10 June, 2016

Dear Michele,

I am delighted to be able to offer the J. Heyrovský Institute of Physical Chemistry of the Czech Academy of Sciences, Prague as the host for a COST Action TD1105 WG and MC meeting to be held in Prague on 8-10, June 2016.

The intention is that this meeting will be formally hosted by me in collaboration with V. Kůrková and R. Neruda, but local arrangements will be made through the J. Heyrovský Institute of Physical Chemistry of the Czech Academy of Sciences, Prague.

This invitation is based on the assumption that the main costs will be covered by the COST Action TD1105, with administrative management as ruled by COST Vademecum by activation of the Local Organizing Support (LOS) tool, if needed.

I look forward to a very successful meeting in highly conducive surroundings, matching those of Action EuNetAir last years.

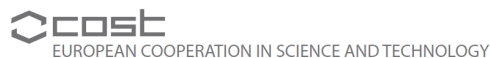
Best wishes



*Prof. Ing. Zdeněk Zelinger, CSc.  
Czech Republic MC Member  
J. Heyrovský Institute of Physical Chemistry  
of the Czech Academy of Sciences,  
Dolejškova 3  
182 26 Prague  
Czech Republic*

Academy of Sciences of the Czech Republic  
The J. Heyrovský Institut. of Physical Chemistry, v.v.i.  
182 23 Prague 8, Dolejškova 3  
CZECH REPUBLIC

# Contact Details



**CSO Approval:** 01 Dec. 2011  
**Kick-off Meeting:** 16 May 2012  
**Start of Grant:** 01 July 2012  
**End of Grant:** 15 Nov. 2016

[www.cost.eunetair.it](http://www.cost.eunetair.it)

**MC Chair:**

Dr. Michele Penza, ENEA, IT  
[michele.penza@enea.it](mailto:michele.penza@enea.it)

**MC Vice Chair:**

Prof. Anita Lloyd Spetz  
Linköping University, SE  
[spetz@ifm.liu.se](mailto:spetz@ifm.liu.se)

**Grant Holder:**

Dr. Corinna Hahn, Dr. Juliane Rossbach  
Eurice GmbH, DE  
[c.hahn@eurice.eu](mailto:c.hahn@eurice.eu); [j.rossbach@eurice.eu](mailto:j.rossbach@eurice.eu)

**Scientific Secretary:**

Dr. Annamaria Demarinis Loiotile  
[annamaria.demarinis@uniba.it](mailto:annamaria.demarinis@uniba.it)

**Science Officer:**

Dr. Deniz Karaca  
[deniz.karaca@cost.eu](mailto:deniz.karaca@cost.eu)

**Administrative Officer:**

Dr. Tania Gonzalez-Ovin  
[tania.gonzalezovin@cost.eu](mailto:tania.gonzalezovin@cost.eu)

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**Juliane Rossbach**  
Grant Holder Manager  
Eurice, Germany



**Corinna Hahn**  
Grant Holder MC Member  
Eurice, Germany



**Annamaria Demarinis**  
Scientific Secretary  
UNIBA, Italy



**Daniela Schounauer**  
Editorial Board Manager  
UNIV of Bayreuth, Germany



**Marco Alvisi**  
Webmaster, SIG1 Leader  
ENEA, Italy



**Jan Theunis**  
STSMs Coordinator  
VITO, Belgium

# SPECIAL THANKS to WGs Leaders:

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**Anita Lloyd Spetz**  
Action Vice-Chair  
Linköping Univ., Sweden



**Juan Ramon Morante**  
WG1 Leader  
IREC, Spain



**Jyrki Lappalainen**  
WG1 Vice-Leader  
Oulu Univ., Finland



**Andreas Schuetze**  
WG2 Leader  
Saarland Univ., Germany



**Ole Hertel**  
WG3 Leader  
Aarhus Univ., Denmark



**Ingrid Bryntse**  
WG4 Leader  
SenseAir, Sweden

# SPECIAL THANKS to SIGs Leaders:

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**Marco Alvisi**  
SIG1 Leader  
ENEA, Italy



**Rod Jones**  
SIG2 Leader  
Cambridge Univ., UK



**Eduard Llobet**  
SIG3 Leader  
URV, Spain



**Iveta Steinberga**  
GB Team Leader  
Latvia Univ., Latvia



**Carlos Borrego**  
SIG4 Leader  
IDAD, Portugal



**Kostas Karatzas**  
SIG2 Vice-Leader  
Aristotle Univ. Th., Greece



**Nuria Castell**  
SIG4 Vice-Leader  
NILU, Norway

# SPECIAL THANKS to Active Members:

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**Marcel Bouvet**  
**WG1 - SIG3 Member**  
**Univ. of Burgundy, FR**



**Jerome Brunet**  
**WG1-2 - SIG3 Member**  
**Univ. Blaise Pascal, FR**



**Albert Romano-Rodriguez**  
**WG1 - WG2 Member**  
**Univ. of Barcelona, Spain**



**John Saffell**  
**WG4 Member**  
**Alphasense, UK**



**Donatella Puglisi**  
**WG2 Member**  
**Linkoping Univ., Sweden**



**Jens Eriksson**  
**WG2 Member**  
**Linkoping Univ., Sweden**



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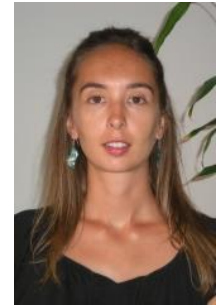
**Wolfhard Reimringer**  
WG1-SIG2 Member  
3S GmbH, Germany



**Oliver von Sicard**  
WG2-SIG2 Member  
Siemens, Germany



**Tran-Thi Thu-Hoa**  
WG1-WG2 Member  
CNRS-CEA, France



**M. Minguillon**  
WG3 Member  
CSIC, Spain



**Zafer Z. Ozturk**  
WG1-WG2 Member  
GEBZA, Turkey



**Dimiter Syrakov**  
WG3 Member  
NIMH, Bulgaria



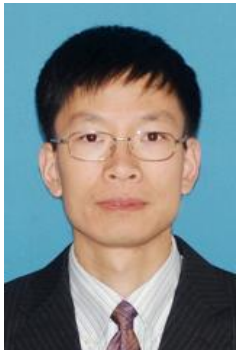
**Ivan Nedkov**  
WG1 Member  
BAS, Bulgaria



**Joao Paulo Teixeira**  
WG3 Member  
NIH, Portugal

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# ACKNOWLEDGEMENTS

Prague, Czech Republic, 5 - 7 October 2016



**THANK YOU VERY MUCH FOR YOUR KIND ATTENTION !**



**Institute of Computer Science - ASCR**



**The Czech Academy  
of Sciences**



**J. Heyrovský Institute of Physical Chemistry - ASCR**

