

EUROPEAN
CURRICULUM VITAE
FORMAT



PERSONAL INFORMATION

Name **ZAPPA DARIO**
Nationality Italian
Date of birth 09/10/1982

Work Address **VIA VALOTTI 9,
SENSOR LABORATORY
I-25133 BRESCIA - ITALY**
Work Telephone **Work: +39 030 3715767**
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EDUCATION AND TRAINING

- Dates (from – to) 2010 – 2013
• Name and type of organization providing education and training Department of Mechanical Engineering, Faculty of Engineering, University of Brescia, Italy
• Principal subjects/occupational skills covered
PhD in Materials for Engineering.
Involved as affiliated of CNR-IDASC in the European Project “S³: Surface ionization and novel concepts in nano-MOX gas sensors with increased Selectivity, Sensitivity and Stability for detection of low concentrations of toxic and explosive agents” (NMP-2009-1.2-3; 247768).
Supervisor: Prof. Elisabetta Comini
- Title of qualification PhD in Materials for Engineering
• Level in national classification Doctor of Philosophy (PhD)
• Thesis title and authors “Metal Oxide Nanostructures for Sensing Applications”, Dario Zappa, Supervisor: Prof. Elisabetta Comini
- Dates (from – to) 2006 – 2009
• Name and type of organization providing education and training Faculty of Engineering, University of Brescia, Italy
• Principal subjects/occupational skills covered
Master Course in “Electronics Engineering for Industrial Automation” – curriculum “Integrated Systems & Devices”
• Title of qualification awarded Master Degree (Second Degree) in “Electronics Engineering for Industrial Automation” – curriculum “Integrated Systems & Devices” with evaluation of 105/110
• Level in national classification Master level degree
• Thesis title and authors “Current Transport in OLED”, Dario Zappa, Supervisors Prof. Luigi Colalongo & Dr. Fabrizio Torricelli. (Thesis written in Italian)
- Dates (from – to) 2001 – 2005
• Name and type of organization providing education and training Faculty of Engineering, University of Brescia, Italy
• Principal subjects/occupational skills covered
Graduate Course in “Information Engineering” – curriculum “Industrial Electronics”
• Title of qualification awarded Bachelor Degree (First Degree) in “Information Engineering - curriculum Industrial Electronics” with evaluation of 92/110
• Level in national classification Bachelor level degree
• Thesis title and authors “Experimental valuation of Texas Instruments MSP430 microcontroller for wireless applications”, Dario Zappa, Supervisors: Prof. Paolo Ferrari & Prof. Emiliano Sisinni. (Thesis written in Italian)

- Dates (from – to)
- Name and type of organization providing education and training
- Principal subjects/occupational skills covered
- Title of qualification awarded
- Level in national classification

1996 – 2001
 High school “Liceo Scientifico Statale Leonardo”, Brescia, Italy
 Humanistic culture and deep scientific-technological preparation
 Scientific Technological Diploma with evaluation of 82/100
 College level

WORK EXPERIENCE

- Dates (from – to)
- Name and address of employer
 - Type of business or sector
 - Occupation or position held
- Main activities and responsibilities

August 2017 – Ongoing
 SENSOR Lab, University of Brescia (Brescia, Italy)
 Research Laboratory
 Fixed Time Researcher (RTD Legge 240 art. 24 comma 3 lettera a)
 Fixed-term researcher working on the synthesis and characterization of MOX materials for sensing applications (3 years contract).

- Dates (from – to)
- Name and address of employer
 - Type of business or sector
 - Occupation or position held
- Main activities and responsibilities

June 2014 – July 2017
 SENSOR Lab, CNR-INO (Brescia, Italy)
 Research Laboratory
 Researcher
 Researcher working on the synthesis of MOX materials for different applications.

- Dates (from – to)
- Name and address of employer
 - Type of business or sector
 - Occupation or position held
- Main activities and responsibilities

January 2013 – May 2014
 SENSOR Lab, Department of Information Engineering, University of Brescia (Brescia, Italy)
 Research Laboratory
 Post Doc
 Post Doc researcher working on the synthesis of MOX materials for FIRB project RBAP115AYN “Oxides at the nanoscale: multifunctionality and applications”.
 Supervisor: Prof. Elisabetta Comini

- Dates (from – to)
- Name and address of employer
 - Type of business or sector
 - Occupation or position held
- Main activities and responsibilities

March 2008 – February 2009
 Provincia di Brescia & Massachusetts Institute of Technology (Boston, USA)
 Mobile Experience Lab – Design Lab
 Visiting Collaborator
 Collaborator with Mobile Experience Lab (MEL) from MIT to develop a social networking platform for Provincia di Brescia called “RIDE.LINK”.
 For a short time in Boston to assist the development.
 (<http://mobile.mit.edu/projects/ridelink/>)

MOTHER TONGUE

ITALIAN

OTHER LANGUAGES

ENGLISH

- Reading skills
- Writing skills
- Verbal skills

GOOD (*)

GOOD (*)


GOOD (*)

(*) SELF-ASSESSMENT

In 2004 acquired “P.E.T - Preliminary English Test” with Distinction issued by “Cambridge University” (equal to B2 Level)

SOCIAL SKILLS

Good social skills and high inclination on team working matured during previous work and

AND COMPETENCES	<p>research experiences. Many experiences in public speaking, matured during conferences, workshops and as university lecturer.</p> <p>Open minded, friendly and interested in meeting people of different nations and cultures.</p>
TECHNICAL SKILLS AND COMPETENCES	<p>Currently I'm working on the synthesis of Metal Oxide (MOX) nanostructured materials, mainly for Gas Sensing Devices but also for solar cells, thermoelectric devices and field emitters. I frequently use Field Emission Scanning Electron Microscope, Electron Diffraction X-Ray Spectroscopy (EDS), X-Ray Spectroscopy (XRD), Raman Spectroscopy, Tubular Furnaces, Magnetron Sputtering Systems, Gas Testing Chambers and other physical laboratory equipments.</p> <p>Very good understanding of solid state physics for electronic devices, especially metal oxides and organic semiconductors and devices (OLED), thanks to my PhD and Master Degree thesis.</p> <p>Very good fundamental computer science competences and deep knowledge of PC x86 hardware. Good knowledge of microcontrollers hardware (my Bachelor Degree thesis focused on this topic), in particular MSP430 from Texas Instruments and PIC18 from Microchip.</p> <p>Strong experiences with Microsoft product, like Windows (all versions), Visual Studio 2008, MS Office and MS-DOS, and on PC maintainance. In the past I worked with MacOSX and Linux (Ubuntu) and their C/C++ development environments (Xcode and Eclipse) also.</p> <p>Programming experiences in many languages like C/C++, Java, MatLab, VHDL and microcontrollers Assembly. Experiences also in parallel and nVidia CUDA programming.</p> <p>During my master degree course I worked with the most common CADs for ICs design like Cadence Virtuoso, Magic VLSI, Cadence OrCAD, ISE-TCAD, LabWindows CVI and Eagle (for electronics).</p> <p>Good competences with electronics laboratory instruments, like oscilloscope, multimeter, functions generator, DC/AC generator and basic GPIB instruments knowledge.</p> <p>National Instruments Certified LabVIEW Associate Developer (CLAD): Serial Number: 100-312-2733. Issue Date: July 20, 2012.</p> 
DRIVING LICENSE(S)	Italian (European) Driving License type B (cars)

PROJECTS AND RESEARCH ACTIVITIES:

(01/09/2010-31/08/2012)

Project "S³: Surface ionization and novel concepts in nano-MOX gas sensors with increased Selectivity, Sensitivity and Stability for detection of low concentrations of toxic and explosive agents" (NMP-2009-1.2-3; 247768).

The objective of S³ is developing breakthrough technologies in gas sensing that will provide higher sensitivity and selectivity at reduced cost. This objective is pursued by bringing together excellence and complementary skills of European Union and Russian groups, studying sensors and sensing principles based on metal oxide semiconductor nanowires (NWs) molecularly engineered.

Role: PhD Student involved in research activities

(01/02/2010-31/01/2012)

Metal oxide NANOWires as efficient high-temperature THERmoelectric Materials

Bando: Fondazione Istituto Italiano di Tecnologia (IIT) bando Progetti Seed anno 2009

NANOTHER objective is to assess the thermoelectric performances of quasi 1D MOX nanowires prepared by a simple and low cost evaporation condensation method and to build innovative thermoelectric modules to be employed in radioisotope thermoelectric generators and in the automotive industry in terms of fuel economy improvements by generating electricity from high temperature waste heat and enhancing air conditioning efficiency. Beside developed modules could have a significant impact on low power portable electronics.

Role: Researcher

(05/05/2010-04/05/2013)

XNANO: Emettitori di elettroni a base di nanotubi di carbonio e nanostrutture di ossidi metallici quasi monodimensionali per lo sviluppo di sorgenti di raggi X

Bando: MiUR e Regione Lombardia

(01/10/2010-30/09/2014)

FP7-NMP-2009-LARGE-3 ORAMA : Oxide Materiale Towards a Matured Post-Silicon Electronics Era

Orama is on the development of new high performance multifunctional oxide based electronic materials, processable at low temperatures, including flexible substrates that have the potential to catapult the electronics industry into a new era of growth. Orama will develop, analyze and utilize these new materials and techniques to investigate into device concepts highlighting the potential of oxides as electronic materials in the automotive industry – a highly competitive environment being of high importance for Europe's industry with challenging demands on information, sensor and resource efficient energy technology to provide sustainable mobility for the European society.

Role: Researcher

(22/02/2012-22/02/2016)

FIRB project RBAP115AYN "Oxides at the nanoscale: multifunctionality and applications".

Oxides at the nanoscale offer new and largely unexplored opportunities to establish novel advanced technologies or to improve existing technologies based on oxide materials.

Role: Researcher

(25/07/2013-24/07/2015)

CNR – Lombardia Region SUSBIOREM: New approaches and methodologies for bioremediation of water contaminated by chlorinated aliphatic solvents

From 25/07/2013 to 24/07/2015.

Role: Researcher

(01/09/2013-28/02/2017)

FP7 MSP: "Multi-Sensor-Platform for Smart Building Management"

Grant agreement no: 611887

The concept of the MSP project is based on a multi-project wafer approach that enables the development of highly innovative components and sensors based on Key Enabling Technologies (KETs). The central objective of the MSP-project is the development of a technology and manufacturing platform for the 3D-integration of sophisticated components and sensors with CMOS technology being the sound foundation for cost efficient mass fabrication.

Role: Researcher

(01/01/2014-31/12/2016)

Project acronym: **SNOOPY**

Project full title: "Sniffer for concealed people discovery"

Grant agreement n. 313110

THEME: SEC-2012.34-4, Innovative, cost-efficient, and reliable technology to detect humans hidden in vehicles / closed compartments

Starting date: January 1st, 2014. Duration: 3 years (till december 31st, 2016)

The SNOOPY project aims to the development of a handheld artificial sniffer system for customs/police inspection purposes, e.g. the control of freight containers. The artificial system should be able to seek hidden, living persons. The instrument consists of a vapor sampling pump unit, an enrichment unit, a desorption unit, a detection unit (sensor array) and an alarm indicator unit. Different kinds of sensors will be used together with pattern recognition software, so that each target can be detected as selective as possible. The sniffer instrument will be benchmarked towards dogs and towards ion mobility spectrometry.

Role: Researcher

(01/03/2015-ongoing)

BSL- Brescia Smart Living

Proposal full title: Brescia Smart Living: Energie e servizi integrati per la valorizzazione del benessere

Proposal number: SCN

Role: Researcher

(01/03/2015-ongoing)

Virtual-Gateway

Proposal full title: Gateway domestico per la gestione interattiva dei flussi di energia. Virtual-Gateway

Proposal number: SIN_00665

Incorrect management of the renewable source of energy causes great problems, which could bring to black outs. A better and more integrated management of the distributed energy sources is needed, in order to help also end-users to modulate in better way their consumes. The heart of the proposed approach consists of a data collection system (energy consumption data) and the synthesis of the information in order to be presented to end-users. The virtual energy gateway is realized using a multiplatform approach in order to have the same end-user interface regardless of the platform (iOS, Android, Windows and so on). If it's used in manual input mode, users can periodically enter consumption data from different meters: periodic warnings on smart-phone calendar could help remembering the dates. Otherwise, information-supplying devices (such as smart meters) can continuously transfer data to the Virtual Gateway, realized with cloud technologies.

Role: Proposer

(2016)

CERIC Proposal

Proposal full title: Electronic, chemical, microstructural interface properties of metal oxide nanowires and heterojunctions for gas sensing applications

Proposal number: 20162029

The aim of proposers is to characterize the surface of nanostructured heterostructures of different metal oxides, synthesized using Vapor-Liquid-Solid (VLS) techniques, to optimize the synthesis process and evaluate the effect of atmosphere composition on material surface. In particular, core-shell structures different oxides will be mainly investigated, in order to determine the crystallographic growth phase, growth direction, surface defects, oxygen vacancies and generally surface properties. Moreover, the effect of gas interaction on heterojunction surface will be exploited.

Role: Researcher

(2017)

CERIC Proposal

Proposal full title: Structural and in-operando investigation on metal oxide nanowire-based hydrogen sensors

Proposal number: 20172018

The aim of this proposal is to characterize the surface of nanostructured metal oxides and heterostructures, synthesized using Vapor-Liquid-Solid (VLS) techniques, to evaluate the effect of atmosphere composition, in particular the presence of hydrogen, on material surface properties. Nanowires and core-shell structures made of different metal oxides will be investigated, in order to determine the crystallographic growth phase, growth direction, surface defects, oxygen vacancies and generally surface properties. Moreover, the effect of gas interaction, specifically hydrogen, on material surface will be exploited. Information about the sensing mechanism will be collected by performing simultaneous conductometric and NAP-XPS investigations.

Role: Researcher

(2018)

CERIC Proposal

Proposal full title: Surface doping of nanostructured MOX chemical sensors by ion beam irradiation

Proposal number: 20182054

The aim of this proposal is to investigate the effect of doping with ion beam illumination on the structure and chemical sensing performances of metal oxide nanowires (MOX) devices, synthesized using Vapor-Liquid-Solid (VLS) techniques. Ion beam illumination, performed at FAMA (Belgrade), will be used to dope the surface of the MOX nanowires with Nitrogen and Iron ions. Morphological characterization, as well as some structural characterizations, will be performed in house at University of Brescia. At the same time, NAP-XPS and HRTEM will be performed on illuminated devices to confirm the structural modifications due to ions injection, at Charles University (Prague) and NIMP (Bucharest) respectively. The chemical sensing performances of these doped devices will be investigated at University of Brescia using state-of-the-art facilities, and will be compared to pristine (not illuminated) devices, to correlate the chemical sensing performances with surface structural changes.

Role: Researcher

Scientific Results Summary (at 21/06/2018):

- Hirsch Index (H-Index): 11 (SCOPUS)
- Documents: 55 (SCOPUS)
- Citations: 390 (SCOPUS)

Publications in international refereed journals:

(2010)

1. F. Torricelli, D. Zappa, L. Colalongo, "Space-Charge-Limited Current in Organic Light Emitting Diodes", Appl. Phys. Lett. 96, 113304 (2010)

(2012)

2. Eric R. Waclawik, Jin Chang, Andrea Ponzoni, Isabella Concina, Dario Zappa, Elisabetta Comini, Nunzio Motta, Guido Faglia and Giorgio Sberveglieri, "Functionalised zinc oxide nanowire gas sensors: Enhanced NO₂ gas sensor response by chemical modification of nanowire surfaces", Beilstein J. Nanotechnol. 2012, 3, 368–377. doi:10.3762/bjnano.3.43 -
3. Elisabetta Comini, Guido Faglia, Matteo Ferroni, Andrea Ponzoni, Dario Zappa, Giorgio Sberveglieri, "Applicazione Di Nanofili Di Ossidi Metallici Nel Campo Prevenzione/Sicurezza", Il Nuovo Saggiatore Vol. 28, Anno 2012, No. 3-4

(2013)

4. Elisabetta Comini, Camilla Baratto, Andrea Ponzoni, Guido Faglia, Matteo Ferroni, Alberto Vomiero, Dario Zappa, Isabella Concina, Matteo Falasconi, Veronica Sberveglieri, Giorgio Sberveglieri, "Metal oxide nanoscience and nanotechnology for chemical sensors", Sensors and Actuators: B, Chemical 179, pp. 3-20
5. D. Zappa, E Comini, R Zamani, J Arbiol, J R Morante and G Sberveglieri, "Preparation and integration of copper oxide nanowires in sensing devices", Sensors and Actuators B: Chemical 182 , pp. 7-15 - (IF 4.758 - SCOPUS: 25 Times Cited)

6. D. Zappa, E. Comini and G. Sberveglieri, « *Thermally oxidized zinc oxide nanowires for use as chemical sensors* », *Nanotechnology* 24 (2013) 444008 (8pp)
 7. Elisabetta Comini, Camilla Baratto, Guido Faglia, Matteo Ferroni, Andrea Ponzoni, Dario Zappa, and Giorgio Sberveglieri, « *Metal oxide nanowire chemical and biochemical sensors* », *J. Mater. Res.*, Vol. 28, No. 21, Nov 14, 2013
- (2014)**
8. M. Sitarz, M. Kwoka, E. Comini, D. Zappa, J. Szuber, « *Surface chemistry of SnO₂ nanowires on Ag-catalyst-covered Si substrate studied using XPS and TDS methods* », *Nanoscale Research Letters* 9, (2014), 1-6
 9. V. Sberveglieri, E. Nunez Carmona, Elisabetta Comini, Andrea Ponzoni, Dario Zappa, Onofrio Pirrotta, and A. Pulvirenti, « *A Novel Electronic Nose as Adaptable Device to Judge Microbiological Quality and Safety in Foodstuff* », *BioMed Research International*, 529519 (2014)
 10. Dario Zappa, Simone Dalola, Guido Faglia, Elisabetta Comini, Matteo Ferroni, Caterina Soldano, Vittorio Ferrari and Giorgio Sberveglieri, « *Integration of ZnO and CuO nanowires into a thermoelectric module* », *Beilstein J. Nanotechnol.* 2014, 5, 927-936
 11. Comini, E.; Zappa, D.; Cerqui, C.; Ponzoni, A.; Sberveglieri, V.; Sberveglieri, G.. « *Array of Metal Oxide Nanostructures for Nerve Agent Detection and Food Quality* », *Sensor Letters*, Volume 12, Numbers 6-7, June 2014, pp. 985-989(5)
- (2015)**
12. D. Zappa, A. Bertuna, E. Comini, M. Molinari, N. Poli, G. Sberveglieri "Tungsten oxide nanowires for chemical detection", *Anal. Methods*, 2015, 7, 2203–2209
- (2016)**
13. Mazhar, M.E., Faglia, G., Comini, E., Zappa, D., Baratto, C., Sberveglieri, G., « *Kelvin probe as an effective tool to develop sensitive p-type CuO gas sensors* », *SENSORS AND ACTUATORS B-CHEMICAL*, Vol. 222, 1257-1263, 2016
 14. Kaur, N., Comini, E., Zappa, D., Poli, N., Sberveglieri, G., "Nickel oxide nanowires: Vapor liquid solid synthesis and integration into a gas sensing device", 2016, *Nanotechnology* 27 (20), 205701
- (2017)**
15. Núñez Carmona, E.; Sberveglieri, V.; Ponzoni, A.; Galstyan, V.; Zappa, D.; Pulvirenti, A.; Comini, E.; « *Detection of food and skin pathogen microbiota by means of an electronic nose based on metal oxide chemiresistors* », *SENSORS AND ACTUATORS B-CHEMICAL*, Vol. 238, 1224-1230, 2017
 16. Ponzoni, A., Baratto, C., Cattabiani, N., Falasconi, M., Galstyan, V., Nunez-Carmona, E., Rigoni, F., Sberveglieri, V., Zambotti, G., Zappa, D., "Metal Oxide Gas Sensors, a Survey of Selectivity Issues Addressed at the SENSOR Lab, Brescia (Italy)", *Sensors (Switzerland)* Volume 17, Issue 4, April 2017, Article number 714
 17. Zappa, D., Bertuna, A., Comini, E., Kaur, N., Poli, N., Sberveglieri, V., Sberveglieri, G., "Metal oxide nanostructures: Preparation, characterization and functional applications as chemical sensors", *Beilstein Journal of Nanotechnology*, Volume 8, Issue 1, 2017, Pages 1205-1217
 18. Zappa, D., « *Molybdenum Dichalcogenides for Environmental Chemical Sensing* », *Materials* 2017, 10(12), 1418; doi:10.3390/ma10121418
- (2018)**
19. Andreas Helwig, Angelika Hackner, Gerhard Müller, Dario Zappa, Giorgio Sberveglieri, « *Self-Test Procedures for Gas Sensors Embedded in Microreactor Systems* », *Sensors* 2018, 18(2), 453; doi:10.3390/s18020453
 20. Navpreet Kaur, Dario Zappa, Matteo Ferroni, Nicola Poli, Marco Campanini, Raluca Negrea, Elisabetta Comini, « *Branch-like NiO/ZnO heterostructures for VOC sensing* », *Sensors and Actuators B: Chemical*, 262, pages 477-485, DOI: 10.1016/j.snb.2018.02.042
 21. Nicola Cattabiani, Camilla Baratto, Dario Zappa, Elisabetta Comini, M. Donarelli, Matteo Ferroni, Andrea Ponzoni, and Guido Faglia, « *Tin Oxide Nanowires Decorated With Ag Nanoparticles for Visible Light-Enhanced Hydrogen Sensing at Room Temperature: Bridging Conductometric Gas Sensing and Plasmon-Driven Catalysis* », *J. Phys. Chem. C*, 2018 122(9), pp. 5026-5031, DOI: 10.1021/acs.jpcc.7b09807
 22. Hashitha M.M.Munasinghe Arachchige, Dario Zappa, Nicola Poli, Nanda Gunawardhana, Elisabetta Comini, « *Gold functionalized MoO₃ nano flakes for gas sensing applications* », *Sensors and Actuators B: Chemical*, Volume 269, 15 September 2018, Pages 331-339. DOI : 10.1016/j.snb.2018.04.124
 23. Marco Abbatangelo, Estefanía Núñez-Carmona, Veronica Sberveglieri, Dario Zappa, Elisabetta Comini and Giorgio Sberveglieri « *Application of a Novel S3 Nanowire Gas Sensor Device in Parallel with GC-MS for the Identification of Rind Percentage of Grated Parmigiano Reggiano* », *Sensors* 2018, 18(5), 1617; <https://doi.org/10.3390/s18051617>

Publications in international proceeding journals:

(2010)

1. E. Comini, G. Faglia, M. Ferroni, D. Zappa, G. Sberveglieri, "Physical Vapor Deposition of Copper Oxide Nanowires", *Procedia Engineering* 5 (2010) 1051–1054

(2011)

2. Simone Dalola, Guido Faglia, Elisabetta Comini, Matteo Ferroni, Caterina Soldano, Dario Zappa, Vittorio Ferrari, Giorgio Sberveglieri, "Seebeck effect in ZnO nanowires for micropower generation", *Procedia Engineering* Volume 25, 2011, Pages 1481–1484
3. D. Zappa, E. Comini, R. Zamani, J. Arbiol, J.R. Morante, G. Sberveglieri, "Copper oxide nanowires prepared by thermal oxidation for chemical sensing", *Procedia Engineering* Volume 25, 2011, Pages 753–756

(2012)

4. Andrea Ponzoni, Dario Zappa, Elisabetta Comini, Veronica Sberveglieri, Guido Faglia, Giorgio Sberveglieri, "Metal Oxide Nanowire Gas Sensors: Application of Conductometric and Surface Ionization Architectures", *CHEMICAL ENGINEERING TRANSACTIONS*, Vol 30, 2012, ISBN 978-88-95608-21-1; ISSN 1974-9791
5. D. Zappa, D. Briand, E. Comini, J. Courbat, N.F. de Rooij, G. Sberveglieri, "Zinc oxide nanowires deposited on polymeric hotplates for low-power gas sensors", *Procedia Engineering* 47, pp. 1137-1140
6. Dario Zappa, Elisabetta Comini, Giorgio Sberveglieri "Gas-sensing properties of thermally-oxidized metal oxide nanowires", *Procedia Engineering* 47, pp. 430-433
7. S. Dalola, G. Faglia, E. Comini, M. Ferroni, C. Soldano, D. Zappa, V. Ferrari, G. Sberveglieri "Planar thermoelectric generator based on metal-oxide nanowires for powering autonomous microsystems", *Procedia Engineering* 47, pp. 346-349

(2013)

8. Sberveglieri V., Comini E., Zappa D., Pulvirenti A., Carmona E.N., « *Electronic nose for the early detection of different types of indigenous mold contamination in green coffee*», Proceedings of the International Conference on Sensing Technology, ICST, 2013 7th International Conference on Sensing Technology, ICST 2013; Wellington; New Zealand; 3 December 2013 through 5 December 2013

(2014)

9. Simone Dalola, Guido Faglia, Elisabetta Comini, Matteo Ferroni, Caterina Soldano, Dario Zappa, Vittorio Ferrari, Giorgio Sberveglieri, « *Investigation of Seebeck Effect in ZnO Nanowires for Micropower Generation in Autonomous Sensor Systems* », *Lecture Notes in Electrical Engineering* Volume 162, 2014, pp 245-249
10. Simone Dalola, Vittorio Ferrari, Guido Faglia, Elisabetta Comini, Matteo Ferroni, Caterina Soldano, Dario Zappa, Giorgio Sberveglieri, « *Investigation of Seebeck Effect in metal oxide Nanowires for powering autonomous microsystems* », *Lecture Notes in Electrical Engineering* Volume 268, 2014, pp 3-7
11. V. Sberveglieri, E. Nunez, D. Zappa, E. Comini, A. Pulvirenti, "Classification of different roasting processes by MOX nanowire", *Procedia Engineering* 87, pp. 572-575
12. E. Nunez, V. Sberveglieri, E. Comini, D. Zappa, A. Pulvirenti, "Nanowire technology for the detection of microorganisms in potable water", *Procedia Engineering* 87, pp. 1453-1456
13. M. E. Mazhar, G. Faglia, C. Baratto, E. Comini, D. Zappa, R. Kumar, G. Sberveglieri "P-type CuO nanowires and thin film for highly sensitive kelvin probe gas sensing applications", *Procedia Engineering* 87, pp. 16-19
14. D. Zappa, A. Bertuna, E. Comini, M. Molinari, N. Poli, G. Sberveglieri "Tungsten oxide nanowires chemical sensors", *Procedia Engineering* 87, pp. 696-699
15. C. Cerqui, A. Ponzoni, D. Zappa, E. Comini, G. Sberveglieri "Copper oxide nanowires for surface ionization based gas sensors", *Procedia Engineering* 87, pp. 1023-1026
16. A. Bertuna, E. Comini, N. Poli, D. Zappa, G. Sberveglieri "Niobium oxide nanostructures for chemical sensing", *Procedia Engineering* 87, pp. 807-810
17. Ponzoni, A., Zappa, D., Cerqui, C., Comini, E., Sberveglieri, G., « *Metal oxide gas sensors technologies for hidden people detection* », Proceedings - 2014 IEEE Joint Intelligence and Security Informatics Conference, JISIC 2014, 6975607, pp. 324

(2015)

18. Zambotti G., Falasconi M., Ponzoni A., Zappa D., Sberveglieri V. « *Detection of chlorinated compounds in ground water by a novel electronic nose*», Proceedings of the 2015 18th AISEM Annual Conference, AISEM 2015, 18th Conference on Sensors and Microsystems, AISEM 2015; Fondazione Bruno Kessler Trento; Italy; 3 February 2015 through 5 February 2015
19. Veronica Sberveglieri, Estefania Nunez Carmona, Andrea Ponzoni, Vardan Galstyan, Dario Zappa, Elisabetta Comini, Andrea Pulvirenti, "Skin microbiota monitoring by Nanowire MOS Sensors", *Procedia Engineering*, Volume 120, 2015, Pages 756-759
20. Navpreet Kaur, Elisabetta Comini, Nicola Poli, Dario Zappa, Giorgio Sberveglieri, "Nickel oxide nanowires growth by VLS technique for gas sensing application », *Procedia Engineering*, Volume 120, 2015, Pages 760-763
21. Angela Bertuna, Elisabetta Comini, Navpreet Kaur, Nicola Poli, Dario Zappa, Veronica Sberveglieri, Giorgio Sberveglieri, "Nanostructures of tungsten trioxide, nickel oxide and niobium oxide for chemical sensing applications», *Procedia Engineering*, Volume 120, 2015, Pages 803-806
22. Angela Bertuna, Elisabetta Comini, Nicola Poli, Dario Zappa, Giorgio Sberveglieri, "Niobium and tungsten oxide nanowires for chemical sensor», *Procedia Engineering*, Volume 120, 2015, Pages 1149-1152
23. D. Zappa, A. Bertuna, E. Comini, M. Herold, N. Poli, G. Sberveglieri, "Tungsten Oxide Nanowires on micro hotplates for gas sensing applications», *Procedia Engineering*, Volume 120, 2015, Pages 439-442

24. D. Zappa; V. Sberveglieri; E. Comini; F. Barisani; G. Sberveglieri, "Synthesis and characterization of Zinc and Tin Oxide nanowires for the detection of Parmigiano Reggiano cheese ", 2015 9th International Conference on Sensing Technology (ICST), Year: 2015, Pages: 178 - 182, DOI: 10.1109/ICSensT.2015.7438387
25. E. N. Carmona; V. Sberveglieri; A. Ponzoni; D. Zappa; A. Pulvirenti, "Small Sensor Sistem S3 device to control the microbial contamination in water", 2015 9th International Conference on Sensing Technology (ICST), Year: 2015, Pages: 246 - 250, DOI: 10.1109/ICSensT.2015.7438401

(2016)

26. V. Sberveglieri, E. Nunez Carmona, D. Zappa, R. De Leo, A. Ponzoni, "Sweat for the Discrimination of Human's Habit using NWs Gas Sensors Technology", *Materials Today: Proceedings*, Volume 3, Issue 2, 2016, Pages 603–607
27. Zappa, D., Sberveglieri, V., Comini, E., Barisani, F., Sberveglieri, G., "Synthesis and characterization of Zinc and Tin Oxide nanowires for the detection of Parmigiano Reggiano cheese" ,*Proceedings of the International Conference on Sensing Technology, ICST 2016-March*, 7438387, pp. 178-182
28. Carmona, E.N., Sberveglieri, V., Ponzoni, A., Zappa, D., Pulvirenti, A., "Small Sensor Sistem S3 device to control the microbial contamination in water" , *Proceedings of the International Conference on Sensing Technology, ICST 2016-March*, 7438401, pp. 246-250
29. Bertuna, A., Comini, E., Poli, N., Zappa, D., Sberveglieri, G., "Titanium Dioxide Nanostructures Chemical Sensor", *Procedia Engineering* Volume 168, 2016, Pages 313-316, 30th Eurosensors Conference, Eurosensors 2016; Budapest; Hungary; 4 September 2016 through 7 September 2016; Code 125797
30. Munasinghe, M.A.H.M., Comini, E., Zappa, D., Poli, N., Sberveglieri, G., "Low Temperature Gas Sensing Properties of Graphene Oxide/SnO₂ Nanowires Composite for H₂", *Procedia Engineering* Volume 168, 2016, Pages 305-308 30th Eurosensors Conference, Eurosensors 2016; Budapest; Hungary; 4 September 2016 through 7 September 2016; Code 125797
31. Kaur, N., Comini, E., Poli, N., Zappa, D., Sberveglieri, G., "NiO/ZnO Nanowire-heterostructures by Vapor Phase Growth for Gas Sensing", *Procedia Engineering* Volume 168, 2016, Pages 1140-1143, 30th Eurosensors Conference, Eurosensors 2016; Budapest; Hungary; 4 September 2016 through 7 September 2016; Code 125797
32. Zappa, D., Bertuna, A., Comini, E., Poli, N., Sberveglieri, G., Influence of Nb-doping on Hydrogen Sensing Performance of WO₃ Nanowires, *Procedia Engineering* Volume 168, 2016, Pages 317-320, 30th Eurosensors Conference, Eurosensors 2016; Budapest; Hungary; 4 September 2016 through 7 September 2016; Code 125797
33. Donarelli, M., Ferroni, M., Ponzoni, A., Rigoni, F., Zappa, D., Baratto, C., Faglia, G., Comini, E., Sberveglieri, G., "Single Metal Oxide Nanowire devices for Ammonia and Other Gases Detection in Humid Atmosphere", *Procedia Engineering* Volume 168, 2016, Pages 1052-1055, 30th Eurosensors Conference, Eurosensors 2016; Budapest; Hungary; 4 September 2016 through 7 September 2016; Code 125797

(2017)

34. Angela Bertuna, Elisabetta Comini, Nicola Poli, Dario Zappa and Giorgio Sberveglieri, "Acetone Detection by Chemical Sensors Based on Tungsten and Titanium Oxide Nanowires" *Proceedings 2017*, 1(4), 434; doi:10.3390/proceedings1040434
35. Hashitha M. M. Munasinghe Arachchige, Elisabetta Comini, Dario Zappa and Giorgio Sberveglieri "Gas Sensing Properties of MoO₃", *Proceedings 2017*, 1(4), 449; doi:10.3390/proceedings1040449
36. Ettore Massera, Veronica Sberveglieri, Estefania Núñez-Carmona, Saverio De Vito, Vardan Galstyan, Dario Zappa, Maria Lucia Miglietta, Brigida Alfano and Girolamo Di Francia, "Chili Pepper Scent: Study and Recognition with Chemiresistors Array", *Proceedings 2017*, 1(4), 597; doi:10.3390/proceedings1040597
37. Dario Zappa, Rebecca Belloni, Valentin-Adrian Maraloiu, Nicola Poli, Marco Rizzoni, Veronica Sberveglieri, Orhan Sisman, Matteo Soprani and Elisabetta Comini, "Influence of Metal Catalyst on SnO₂ Nanowires Growth and Gas Sensing Performance", *Proceedings 2017*, 1(4), 460; doi:10.3390/proceedings1040460
38. Baratto, C., Rigoni, F., Faglia, G., Comini, E., Zappa, D., Sberveglieri, G., "ZnO and SnO₂ one-dimensional sensors for detection of hazardous gases", *Proceedings of IEEE Sensors* Volume 2017-December, 21 December 2017, Pages 1-3. DOI: 10.1109/ICSENS.2017.8234326

Participations at international conferences as presenting author:

(2010)

1. ORAL: E. Comini, G. Faglia, M. Ferroni, A. Ponzoni, D. Zappa and G. Sberveglieri, "Copper oxide nanowires as chemical sensors", VII International Workshop on Semiconductor Gas Sensors, Krakow, Poland, 12-16 September 2010

(2011)

2. ORAL: D. Zappa, E. Comini, R. Zamani, J. Arbiol, J.R. Morante, G. Sberveglieri: "Copper Oxide Nanowires Prepared by Thermal Oxidation for Chemical Sensing", Eurosensors 2011, Athens (Greece), 4-7 September 2011

(2012)

3. POSTER: D. Zappa, E. Comini, G. Sberveglieri, "Thermally oxidized nanowires for chemical sensing", IMCS 2012, Nuremberg (Germany), 20-23 May 2012
4. ORAL: D. Zappa, D. Briand, E. Comini, J. Courbat, N. de Rooij, G. Sberveglieri: "Zinc Oxide Nanowires deposited on Polymeric Hotplates for Low-Power Gas Sensors", Eurosensors 2012, Krakow (Poland), 9-12 September 2012

5. ORAL: D. Zappa, E. Comini, G. Sberveglieri, "Gas Sensing Properties of Thermally-Oxidized Metal Oxide Nanowires", Eurosensors 2012, Krakow (Poland), 9-12 September 2012
6. ORAL: D. Zappa, E. Comini, A. Ponzoni, G. Sberveglieri, "FP7 EU-RF S3 Project", COST Action TD1105 Meeting, Rome (Italy), 4-6 December 2012

(2013)

7. ORAL: D. Zappa, E. Comini, G. Sberveglieri, "Metal oxide nanowires grown by thermal oxidation for chemical sensing", AISEM 2013, Brescia (Italy), 5-7 February 2013
8. ORAL: D. Zappa, C. Cerqui, E. Comini, A. Ponzoni, G. Sberveglieri, "Influence of metal functionalizations on SnO₂ nanowires chemical sensing performances", 5th GOSPEL Workshop, Yufuin Sansuikan, Oita (Japan), 26th-29th May 2013

(2014)

9. ORAL: D. Zappa, A. Bertuna, E. Comini, M. Molinari, N. Poli, G. Sberveglieri, "Tungsten Oxide Nanowires Chemical Sensors", XXVIII Eurosensors Conference, Brescia (Italy), 7-10 September 2014
10. POSTER: D. Zappa, A. Bertuna, E. Comini, M. Molinari, N. Poli, G. Sberveglieri, "Tungsten Oxide Nanowires Chemical Sensors", INO Symposium 2014, Brescia (Italy), 1-3 October 2014
11. INVITED: D. Zappa, "Metal oxide nanowires for new generations of chemical sensors", IBERSENSOR 2014, 15-18 October 2014, Bogota' DC, Colombia
12. INVITED: Dario Zappa, Elisabetta Comini, Angela Bertuna, Guido Faglia, Giorgio Sberveglieri, « Metal Oxides Nanowires Chemical Sensors: Preparation and Electrical Characterization », MRS Fall, Boston (USA), 30 November - 05 December 2014

(2015)

13. INVITED: Dario Zappa, Elisabetta Comini, Angela Bertuna, Guido Faglia, Giorgio Sberveglieri, "Metal oxides nanowires chemical sensors", SPIE Photonics West, San Francisco (USA), 8 - 11 February 2015
14. ORAL: D. Zappa, A. Bertuna, E. Comini, M. Herold, N. Poli, G. Sberveglieri, "Tungsten Oxide Nanowires on micro hotplates for gas sensing applications", XXIX Eurosensors Conference, Freiburg (Germany), 6-9 September 2015
15. ORAL: D. Zappa, A. Bertuna, E. Comini, V. Galstyan, N. Kaur, N. Poli, G. Sberveglieri, "Metal Oxide Nanowires preparation and integration in chemical sensing devices", FisMat 2015 Conference, Palermo (Italy), 28 September 2015 – 2 October 2015

(2016)

16. POSTER: D. Zappa, A. Bertuna, E. Comini, N. Poli, G. Sberveglieri, « Influence of Nb-Doping on hydrogen sensing performance of WO₃ nanowires », Eurosensors 2016, Budapest (Hungary), 4-7 September 2016
17. INVITED: E. Comini, A. Bertuna, N. Poli, N. Kaur, D. Zappa, G. Sberveglieri, "Metal oxide nanostructures preparation and their integration into chemical sensors", E-MRS 2016 Fall Meeting, Warsaw (Poland), September 19 - 22, 2016

(2017)

18. ORAL: D. Zappa, "Synthesis and characterization of Multifunctional metal oxides nanowires for sensing applications", INO Symposium 2017, Trento (Italy), 9-10 February 2017
19. INVITED: E. Comini, A. Bertuna, N. Kaur, M.A.H.M. Munasinghe, N. Poli, M. Rizzoni, O. Sisman, D. Zappa, G. Sberveglieri, "Nanostructured metal oxides for chemical sensors", E-MRS 2017 Fall Meeting, Warsaw (Poland), September 18 - 21, 2017

Contributed papers at international conferences:

(2010)

1. E. Comini, Guido Faglia, Matteo Ferroni, Dario Zappa, Giorgio Sberveglieri, *Physical vapour deposition of copper oxide nanorods and nanowires*, XV Conferenza Nazionale Associazione Italiana Sensori e Microsistemi UNIVERSITA' DI MESSINA 8-10 FEBBRAIO 2010
2. E. Comini, G. Faglia, M. Ferroni, A. Ponzoni, D. Zappa, G. Sberveglieri, *From n- to p-type metal oxides chemical sensors: towards hetero-junctions*, IMCS 13th, Perth, Australia, July 12-14, 2010
3. E. Comini, Guido Faglia, Matteo Ferroni, Dario Zappa, Giorgio Sberveglieri, *Physical vapour deposition of copper oxide nanorods and nanowires*, Eurosensors 2010, Linz, Austria, Sept 5 - Sept 8, 2010
4. E. Comini, G. Faglia, M. Ferroni, A. Ponzoni, D. Zappa, G. Sberveglieri, *Metal oxide chemical sensors and homeland security*, E-MRS fall meeting 2010, Warsaw Poland 14 – 16 September 2010
5. E. Comini, G. Faglia, M. Ferroni, A. Ponzoni, D. Zappa and G. Sberveglieri, *Application of n- and p-type metal oxides nanowires as chemical sensors*, SGS 2010, Krakow, Poland, 12-15 September, 2010
6. E. Comini, G. Faglia, M. Ferroni, A. Vomiero, D. Zappa, G. Sberveglieri, *Growth of p-type and n-type metal oxide nanowires and junction formations*, 5th Workshop on Nanowire Growth, Rome, Italy 4-5 November 2010

(2011)

7. G. Faglia, S. Dalola, E. Comini, M. Ferroni, C. Soldano, D. Zappa, V. Ferrari, G. Sberveglieri, "Seebeck effect in ZnO(n) and CuO(p) nanowires for micropower generation", MRS Fall 2011, Boston (USA)
8. Elisabetta Comini, Guido Faglia, Matteo Ferroni, Andrea Ponzoni, Dario Zappa, Giorgio Sberveglieri, "Metal oxide nanowires as n- and p-type semiconductor chemical sensors", MRS Fall 2011, Boston (USA)

9. Simone Dalola, Guido Faglia, Elisabetta Comini, Matteo Ferroni, Caterina Soldano, Dario Zappa, Vittorio Ferrari, Giorgio Sberveglieri, "Seebeck effect in ZnO nanowires for micropower generation", Eurosens 2011, Athens (Greece), 4-7 September 2011
10. E. Comini, G. Faglia, M. Ferroni, A. Ponzoni, D. Zappa, and G. Sberveglieri, *Nanoscience and Nanotechnology of Metal Oxides for Gas Sensing*, PacRim 9 "The 9th International Meeting of Pacific Rim Ceramic Societies" 10th – 14th July 2011 Cairns, North Queensland, Australia
11. E. Comini, G. Faglia, M. Ferroni, A. Ponzoni, D. Zappa, G. Sberveglieri, *Applications of metal oxides nanowires in safety and security*, ISOEN, Rockefeller University, New York City, USA, May 2 – 5, 2011
12. G.Faglia, C. Baratto A. Braga, I. Concina, E. Comini, M. Ferroni, A. Ponzoni, C. Soldano, G. Vardan, D. Zappa and G. Sberveglieri, *Metal Oxide Nanowires for Sensing and Energy Applications*, Nanostructures for Sensors, Electronics, Energy and Environment (NanoS-E3) International Workshop and School on Nanotechnology Stradbroke Island – Queensland 12-16 September 2011

(2012)

13. "Preparation of n- and p-type metal oxide nanowires and nanostructures for chemical sensing" Comini, Elisabetta; Faglia, Guido; Ferroni, Matteo; Ponzoni, Andrea; Zappa, Dario; Sberveglieri, Giorgio; 36th International Conference and exposition on Advanced ceramics and composite January 22-27, 2012 Hilton Daytona Beach resort and ocean Center Daytona Beach Florida, Usa
14. E. Comini, A. Ponzoni, D. Zappa and G. Sberveglieri Q1D Metal Oxides (MOX) for chemical sensing al congresso 10th Asia Pacific Microscopy Conference (APMC 10), the International Conference on Nanoscience and Nanotechnology (ICONN 2012) and the 22nd Australian Conference on Microscopy and Microanalysis (ACMM 22) Perth, Western Australia, 5th { 9th February 2012.
15. G. Sberveglieri, E. Comini, G. Faglia, M. Ferroni, D. Zappa, A. Ponzoni, "Metal oxide nanoscience and nanotechnology for chemical sensors", at 2012 Asia-Pacific Conference on Analytical Science (APCAS) and 3rd Regional Electrochemistry Meeting of South- East Asia (REMSEA) held jointly with the 27th Philippine Chemistry Congress, 11 – 13 April 2012, EDSA Shangri-La Hotel, Manila, Philippines.
16. "Surface Ionization on Metal Oxide Gas Sensors", A. Ponzoni, D. Zappa, E. Comini, G. Faglia, G. Sberveglieri, COST Session, IMCS 2012, Nuremberg (Germany), 20-23 May 2012.
17. Simone Dalola, Guido Faglia, Elisabetta Comini, Matteo Ferroni, Caterina Soldano, Dario Zappa, Vittorio Ferrari, Giorgio Sberveglieri, "Planar Thermoelectric Generator based on Metal-Oxide Nanowires for Powering Autonomous Microsystems", Eurosens 2012, Krakow (Poland), 9-12 September 2012
18. "Advances in metal oxides nanostructure preparation and their application in chemical sensing", E. Comini, V. Galstyan, G. Faglia, M.Ferroni, A. Ponzoni, D. Zappa and G. Sberveglieri, Semiconductor Gas Sensors workshop, 11-15 September 2012, Krakow
19. M.Kwoka, M.Sitarz, L.Ottaviano, E.Comini, D.Zappa, J.Szuber XPS AND TDS COMPARATIVE STUDIES OF THE SURFACE CHEMISTRY OF Ag-doped L-CVD SnO2 ULTRATHIN FILMS AND SnO2 NANOWIRES AFTER AIR EXPOSURE, Semiconductor Gas Sensors workshop, 11-15 September 2012, Krakow
20. M.Sitarz, E. Comini, M.Kwoka, D. Zappa, P.Koscielniak, J. Szuber SEM, XPS AND TDS STUDIES OF SURFACE PROPERTIES OF SnO2 NANOWIRES PREPARED ON Ag AND Au CATALYST LAYERS DEPOSITED ON Si SUBSTRATE, Semiconductor Gas Sensors workshop, 11-15 September 2012, Krakow
21. Ponzoni A., Zappa D., Comini E., Sberveglieri V., Faglia G., Sberveglieri G. METAL OXIDE NANOWIRE GAS SENSORS: APPLICATION OF CONDUCTOMETRIC AND SURFACE IONIZATION ARCHITECTURES al congresso 3rd International Conference on Environmental Odour Monitoring and Control NOSE2012 Palermo, Italy 23-26 September, 2012
22. E. Comini, V. Galstyan, G. Faglia, M.Ferroni, A. Ponzoni, D. Zappa, G. Sberveglieri Metal oxides nanowires as chemical sensors, Nanoforum, Roma, 24-26 Settembre 2012
23. Faglia Guido, Baratto C., Braga A., E. Comini, Concina I., Ferroni M., Gobbi E., Ponzoni A., Soldano C., Vardan G., Karakuscu A., Vomiero A., Zappa D., Sberveglieri G. Oxide Nanowires for Opto electronics and Nanomedicine al congresso TCM 2012 4th International Symposium on Transparent Conductive Materials, Crete, 21-26 October 2012
24. E. Comini, C. Baratto, V. Galstyan, G. Faglia, M.Ferroni, A. Ponzoni, D. Zappa and G. Sberveglieri Metal oxides nanostructures preparation and their optical and electrical characterization for chemical sensing, MRS Fall meeting 2012, Boston 25-30 November 2012
25. E. Comini, D. Zappa, G. Faglia, M. Ferroni, A. Ponzoni and G. Sberveglieri Nano structured MOX for high selective multiparametric gas sensors. 6th International Conference on Sensing Technology (ICST 2012) will be held on December 18 to 21, 2012 at Kolkata, India.

(2013)

26. "Gas Sensing Properties of Metal Oxide Gas Sensors Prepared by Means of a Combination of Sputtering and Thermal Treatment Techniques", C. Mazzotta, A. Ponzoni, D. Zappa, E. Comini, M. Ferroni, G. Sberveglieri; AISEM 2013, Brescia (Italy), 5-7 February 2013
27. G. Faglia, C. Baratto, E. Comini, I. Concina, M. Ferroni, A. Ponzoni, G. Vardan, D. Zappa, G. Sberveglieri, *Oxide Nanowires for Opto-electronics*, S7: 7th International Symposium on Nanostructured Materials and Nanocomposites, 37th International Conference on Advanced Ceramics and Composites, Daytona Beach, Jan 27-Feb 1
28. Matteo Ferroni, Camilla Baratto, Elisabetta Comini, Isabella Concina, Guido Faglia, Vardan Galstyan, Aylin Karakuscu, Andrea Ponzoni, Gurpreet Singh Selopal, Alberto Vomiero, Dario Zappa, Giorgio Sberveglieri, "METAL OXIDE NANOWIRES FOR ADVANCED APPLICATIONS", 4rd IC4N – 2013 4rd International Conference from Nanoparticles & Nanomaterials to Nanodevices & Nanosystems, Corfu, Greece, June 16 – 20, 2013

29. A Ponzoni, E. Comini, D. Zappa, C Cerqui, V Sberveglieri, G Sberveglieri Array of metal oxide quasi 1D nano structures for security application al congresso 15th International Symposium on Olfaction and Electronic Nose, July 2-5, 2013 EXCO, Daegu, Korea
30. *Metal oxide nanowires chemical sensors for security*; E. Comini, A. Ponzoni, D. Zappa and G. Sberveglieri, EUROMAT 2013 (European Congress and Exhibition on Advanced Materials and Processes), Sept. 8-13, 2013, Sevilla (Spain)
31. E. Comini, C. Baratto, I. Concina, G.Faglia, M. Ferroni, E. Gobbi, A. Ponzoni, V. Galstyan, A. Karakuscu, A. Vomiero, D. Zappa, G. Sberveglieri Oxide Nanowires for opto-electronics and energy harvestin, Italian National Conference on Condensed Matter Physics (Including Optics, Photonics, Liquids, Soft Matter) Milan (Italy), 09-13 september 2013
32. *Metal oxide nanowire based gas sensors in security applications*; A. Ponzoni, D. Zappa, C. Cerqui, A. Karakuscu, E. Comini, G. Sberveglieri; The 10th Asian Conference on Chemical Sensors (ACCS 2013), November 11-14, 2013, Chiang Mai (Thailand)

(2014)

33. G. Faglia, S. Dalola, E. Comini, M. Ferroni, D. Zappa, V. Ferrari, G. Sberveglieri, "Thermoelectrical Properties Of ZnO(N) And CuO(P) Nanowires For Micropower Generation" al congresso Giornate sulla Termoelettricità, 19-20 FEBBRAIO 2014, Padova
34. Andrea Ponzoni, Cristina Cerqui, Dario Zappa, E. Comini, Giorgio Sberveglieri "Gas sensors based on metal oxide nanowires: chemiresistors and surface ionization devices" al congresso Convegno Nazionale Sensori 2014 Roma (Italy)-Universit a La Sapienza 19 - 21 Febbraio 2014
35. C. Cerqui, A. Ponzoni, D. Zappa, E. Comini, M. Ferroni, G. Faglia, G. Sberveglieri, "Effects of metal nanoparticles functionalization on tin oxide nanowires gas sensors", The 15th International meeting on chemical sensors IMCS 2014 March 16th-19th 2014 Buenos Aires, Argentina.
36. Andrea Ponzoni, Cristina Cerqui, Dario Zappa, E. Comini, Giorgio Sberveglieri "Surface Ionization and Gas Sensors for Detection of Low Concentrations of Toxic and Explosive Agents" al congresso NATO Advanced Research Workshop on Nanotechnology to Aid Chemical and Biological Defence , Antalya (Turkey) The European Day for Border Guards. Warsaw, Poland, May 22-23, 2014.
37. Muhammad Ehsan Mazhar, Guido Faglia, Elisabetta Comini, Camilla Baratto, Dario Zappa, Raj Kumar, Giorgio Sberveglieri, "P-type CuO nanowires and Thin films for highly sensitive Kelvin Probe Gas Sensing Applications", XXVIII Eurosensors Conference, Brescia (Italy), 7-10 September 2014,
38. Veronica Sberveglieri, Estefania Nunez Carmona, Dario Zappa, Elisabetta Comini, Andrea Pulvirenti, "Classification of Different Roasting Processes by MOX Nanowires", XXVIII Eurosensors Conference, Brescia (Italy), 7-10 September 2014,
39. A. Bertuna, E. Comini, N. Poli, D. Zappa, G. Sberveglieri, "Niobium Oxide nanostructures for Chemical Sensing », XXVIII Eurosensors Conference, Brescia (Italy), 7-10 September 2014
40. C. Cerqui, A. Ponzoni, D. Zappa, E. Comini, G. Sberveglieri, "Copper Oxide nanowires for surface ionization based gas sensors », XXVIII Eurosensors Conference, Brescia (Italy), 7-10 September 2014
41. Estefania Nunez Carmona, Veronica Sberveglieri, Elisabetta Comini, Dario Zappa Andrea Pulvirenti, "Nanowire Technology for the detection of Microorganism in Potable Water", XXVIII Eurosensors Conference, Brescia (Italy), 7-10 September 2014,
42. E. Comini, A. Bertuna, D. Zappa, G. Faglia, G. Sberveglieri "Metal oxide nanowires chemical sensors" al congresso 100 Congresso Nazionale SIF, Pisa (Italy) 22-26 Settembre 2014
43. A. Ponzoni, D. Zappa, C. Cerqui, E. Comini, G. Sberveglieri "Metal oxide gas sensors technologies for hidden people detection" al congresso IEEE Joint Intelligence and Security Informatics Conference (JISIC) 2014, September 24-26, 2014, the Hague, the Netherlands
44. C. Baratto, E. Comini, I. Concina, M. Ferroni, G. Faglia, R. Kumar, D. Zappa, G. Sberveglieri "ZnO nanowires for sensing and optoelectronic applications", al congresso TCM 2014, Platanias Crete, 12-17 October 2014

(2015)

45. C. Cerqui, A. Ponzoni, D. Zappa, E. Comini, N. Poli, G. Sberveglieri, "Study of surface ionization based gas sensor from an acidity/basicity point of view", XVIII AISEM Annual Conferences, Trento, Italy, 3rd-5th February 2015 (poster)
46. C. Cerqui, A. Ponzoni, D. Zappa, E. Comini, N. Poli, G. Sberveglieri, "Effects of copper functionalization on SnO2 nanowires in H2S detection" 16th International Symposium on Olfaction and Electronic Noses, Dijon, Burgundy, France, 28th June - st1 July, 2015 (poster)
47. G. Zambotti, A. Ponzoni, M. Falasconi, C. Cerqui, D. Zappa, E. Comini, V.Sberveglieri, G. Sberveglieri, "Groundwater pollution: electronic nose as diagnostic tool for chlorinated compound detection" 16th International Symposium on Olfaction and Electronic Noses, Dijon, Burgundy, France, 28th June - st1 July, 2015 (poster)
48. E. Comini, A. Bertuna, D. Zappa, M. Donarelli, A.Ponzoni, V.Sberveglieri and G. Sberveglieri "Advanced One Dimensional Metal Oxides for Chemical Sensors", al congresso Advances in Functional Materials 2015 29 June - 3 July 2015 | Stony Brook University, NY State, USA
49. Veronica Sberveglieri, Estefania Nunez Carmona, Andrea Ponzoni, Vardan Galstyan, Dario Zappa, Elisabetta Comini, Andrea Pulvirenti, "Skin microbiota monitoring by Nanowire MOS Sensors", XXIX Eurosensors Conference, Freiburg (Germany), 6-9 September 2015
50. Navpreet Kaur, Elisabetta Comini, Nicola Poli, Dario Zappa, Giorgio Sberveglieri, "Nickel oxide nanowires growth by VLS technique for gas sensing application », XXIX Eurosensors Conference, Freiburg (Germany), 6-9 September 2015
51. Angela Bertuna, Elisabetta Comini, Navpreet Kaur, Nicola Poli, Dario Zappa, Veronica Sberveglieri, Giorgio Sberveglieri, "Nanostructures of tungsten trioxide, nickel oxide and niobium oxide for chemical sensing applications», XXIX Eurosensors Conference, Freiburg (Germany), 6-9 September 2015

52. Angela Bertuna, Elisabetta Comini, Nicola Poli, Dario Zappa, Giorgio Sberveglieri, "Niobium and tungsten oxide nanowires for chemical sensor», XXIX Eurosensors Conference, Freiburg (Germany), 6-9 September 2015
53. D. Zappa; V. Sberveglieri; E. Comini; F. Barisani; G. Sberveglieri, "Synthesis and characterization of Zinc and Tin Oxide nanowires for the detection of Parmigiano Reggiano cheese ", 2015 9th International Conference on Sensing Technology (ICST), Dec. 8 - Dec. 10, 2015, Auckland, New Zealand
54. E. N. Carmona; V. Sberveglieri; A. Ponzoni; D. Zappa; A. Pulvirenti, "Small Sensor Sistem S3 device to control the microbial contamination in water", 2015 9th International Conference on Sensing Technology (ICST), Year: 2015, Dec. 8 - Dec. 10, 2015, Auckland, New Zealand

(2016)

55. E. Comini, V. Sberveglieri, A. Bertuna, A. Ponzoni, D. Zappa, and G. Sberveglieri, « Metal oxides nanowires for gas sensing towards real applications », 6th International Conference on Nanostructures (ICNS6) Kish Island- Iran, March 7-10, 2016.
56. INVITED : E. Comini, A. Bertuna, N. Kaur, D. Zappa, G. Sberveglieri « Metal oxides nanowires:preparation and characterization", 2016 E-MRS Spring Meeting and Exhibit, Symposium AA "Solution processing and properties of functional oxide thin films and nanostructures", Lille (France) 2 - 6 May 2016
57. INVITED: "Nanowires Metal Oxides as Environmental Chemical Sensors", E.Comini, A. Bertuna N. Kaur , D. Zappa, V. Sberveglieri and G. Sberveglieri, Symposium X; Functional materials for environmental sensors and energy systems, E-MRS 2016 Spring Meeting , Lille – France 2-6 May 2016
58. Navpreet Kaur, Elisabetta Comini, Nicola Poli, Dario Zappa, Giorgio Sberveglieri, "Epitaxial NiO/ZnO nanowire-heterostructures by vapor phase growth", 2016 E-MRS Spring Meeting and Exhibit, Symposium X, Lille (France) 2 - 6 May 2016
59. M. Donarelli, M. Ferroni, A. Ponzoni, F. Rigoni, D. Zappa, C. Baratto, G. Faglia, E. Comini, G. Sberveglieri, « Single metal oxide nanowire devices for ammonia and other gases detection in humid atmosphere », Eurosensors 2016, Budapest (Hungary), 4-7 September 2016
60. M.A.H.M. Munasinghe, E. Comini, D. Zappa, N. Poli, G. Sberveglieri, « Low temperature gas sensing properties of Graphene Oxide/SnO2 nanowires composite for H2 », Eurosensors 2016, Budapest (Hungary), 4-7 September 2016
61. A. Bertuna, E. Comini, N. Poli, D. Zappa, G. Sberveglieri, « Titanium dioxide nanostructures chemical sensor », Eurosensors 2016, Budapest (Hungary), 4-7 September 2016
62. N. Kaur, E. Comini, N. Poli, D. Zappa, G. Sberveglieri, « NiO/ZnO nanowire heterostructures by vapor phase growth for gas sensing », Eurosensors 2016, Budapest (Hungary), 4-7 September 2016
63. F. Rigoni, C. Baratto, R. Maiti, M. Donarelli, N. Cattabiani, E. Comini, M. Ferroni, D. Zappa, A. Ponzoni, G. Sberveglieri and G. Faglia, « ZnO/graphene hybrid system: optical, electrical and gas sensing properties», 6th International Symposium on Transparent Conductive Materials, Crete (Greece), 9-13 October 2016

(2017)

64. Elisabetta Comini, Angela Bertuna, Navpreet Kaur, M.A.H.M. Munasinghe, Nicola Poli, Marco Rizzoni, Orhan Sisman, Dario Zappa, Giorgio Sberveglieri, « Metal oxides nanowires: technologies for chemical sensors», 21th International Conference on Solid State Ionics, Padova (Italy), 18-23 June 2017
65. E Comini, D Zappa, V. Galstyan, V.Sberveglieri and G Sberveglieri, «NANOWIRES OF METAL OXIDES FOR GAS SENSING APPLICATIONS », International Conference on Semiconductor Micro- & Nanoelectronics (ICSMN-2017), Yerevan (Armenia), 2017
66. Angela Bertuna, Elisabetta Comini, Nicola Poli, Dario Zappa and Giorgio Sberveglieri, « Acetone detection by chemical sensors based on tungsten and titanium oxide nanowires», Eurosensors 2017, Paris (France), 3-6 September 2017
67. D. Zappa, R. Belloni, V.A. Maraloiu, N. Poli, M. Rizzoni, V. Sberveglieri, O. Sisman, M. Soprani, E. Comini, « Influence of metal catalyst on SnO2 nanowires growth and gas sensing performance», Eurosensors 2017, Paris (France), 3-6 September 2017
68. M.A.H.M. Munasinghe, N. Poli, E. Comini, D. Zappa, G. Sberveglieri «Gas sensing properties of MoO3», Eurosensors 2017, Paris (France), 3-6 September 2017
69. V.A. Maraloiu, C. Ghica, D. Zappa, E. Comini, «Microstructural and analytical investigations of SnO2 nanowires for gas sensing applications », 9th International Conference on Nanomaterials NANOCON, Brno (Czech Republic), 18-20 October 2017
70. C. Baratto, F. Rigoni, G. Faglia, E. Comini, D. Zappa, G. Sberveglieri, « ZnO and SnO2 one-dimensional sensors for detection of hazardous gases », IEEE Sensors 2017, Glasgow (UK), October 30 – November 1, 2017
71. D. Zappa, A. Bertuna, N. Kaur, H.M.M. Munasinghe Arachchige, N. Poli, G. Sberveglieri, E. Comini, « Metal oxides nanowires: technologies for chemical sensors preparation » 7th GOSPEL Workshop, Seoul, Republic of Korea, 8th - 10th November 2017

(2018)

72. Elisabetta Comini, Vardan Galstyan, Navpreet Kaur, M.A.H.M. Munasinghe, Nicola Poli, Marco Rizzoni, Orhan Sisman, Dario Zappa, "Metal oxides nanowires: technologies for chemical sensors preparation", ISRAEL- ITALY SCIENTIFIC WORKSHOP IN NANO-MATERIALS & NANO TECHNOLOGIES IN CLEAN-TECH APPLICATIONS, Tel-Aviv (Israel), 15 March 2018.

Teaching and Tutor Activities:

(2012)

1. Teaching assistant (25 hours) of FISICA SPERIMENTALE (ELETTR., OTTICA., ONDE EM) – SSD FIS/01 Bachelor Degree Course: ETELT2Tel & INFLT2, University of Brescia, Italy. From 17/09/2012 to 07/06/2013 Contract N° 0016867
(2013)
2. Teaching assistant (35 hours) of FISICA SPERIMENTALE (ELETTR., OTTICA., ONDE EM) – SSD FIS/01 Bachelor Degree Course: ETELT2Tel & INFLT2, University of Brescia, Italy. From 16/09/2013 to 15/09/2014 Contract N° 21517
3. Co-Tutor of Angela Bertuna, Master Degree in Electronic Engineering for Automation, University of Brescia
(2014)
4. Teaching assistant (35 hours) of FISICA SPERIMENTALE (ELETTR., OTTICA., ONDE EM) – SSD FIS/01 Bachelor Degree Course: ETELT2Tel & INFLT2, University of Brescia, Italy. From 15/09/2014 to 14/09/2015 Contract N° 21681
(2015)
5. Lecturer at ISOCS Short Course Winter 2015, 8-13 March, Ponte di Legno, Italy
(<https://www.olfactionsociety.org/event/isocs-short-course-winter-2015>)
(2016)
6. Teaching assistant (35 hours) of FISICA SPERIMENTALE (ELETTR., OTTICA., ONDE EM) – SSD FIS/01 Bachelor Degree Course: ETELT2Tel & INFLT2, University of Brescia, Italy. From 22/02/2016 to 10/06/2016 Contract N° 264
7. Lecturer at “Nanoscience and Nanotechnology” PhD Course, 12 and 14 July 2016, University of Brescia, Italy:
 - Introduction to nanoscience and nanotechnology
 - Preparation of nanowires
 - Surface and structural Characterization
8. Co-Tutor of Angela Bertuna, PhD in Information Engineering, University of Brescia, FIS/01, with a thesis titled “Growth of niobium, titanium and tungsten oxides nanostructures and their integration into chemical sensing devices”.
9. Co-Tutor of Navpreet Kaur, PhD in Information Engineering, University of Brescia, FIS/01, with a thesis titled “Vapor phase growth of NiO, WO₃ nanowires and NiO/ZnO heterostructures for gas sensing applications”.
- (2017)**
10. Teaching assistant (40 hours) of FISICA SPERIMENTALE (ELETTR., OTTICA., ONDE EM) – SSD FIS/01 Bachelor Degree Course: ETELT2Tel & INFLT2, University of Brescia, Italy. From 20/02/2017 to 15/09/2017 Contract N° 105 Anno VIII 13/02/2017
11. Teaching assistant (60 hours) of FISICA SPERIMENTALE (MECC., TERM.) – SSD FIS/01 Bachelor Degree Course: ETELT, University of Brescia, Italy. From 20/02/2017 to 15/09/2017 Contract N° 106 Anno VIII 13/02/2017
12. Lecturer of FISICA SPERIMENTALE (ELETTR., OTTICA., ONDE EM) – SSD FIS/01 Bachelor Degree Course: ETELT2Tel & INFLT2, University of Brescia, Italy. A.A. 2017/2018
13. Lecturer of FISICA APPLICATA – SSD FIS/07 Bachelor Degree Course: TPALL, University of Brescia, Italy. A.A. 2017/2018
(2018)
14. Lecturer at “Nanoscience and Nanotechnology” PhD Course, 13 and 20 June 2018, University of Brescia, Italy:
 - Synthesis of nanostructures: Physical and Chemical Vapour Deposition (PVD, CVD), Atomic Layer Deposition (ALD)
 - Surface and structural Characterization: Scanning Electron Microscopy (SEM), Transmission Electron Microscopy (TEM), X-Ray Diffraction (XRD), Energy Dispersion X-Ray Spectroscopy (EDX).

Referee Activities:

Associate Editor:

- *Nanomaterials and Nanotechnology* – Nanosensors topic
From 01/02/2016
(<https://uk.sagepub.com/en-gb/eur/nanomaterials-and-nanotechnology/journal202571>)

Guest editor:

- *Materials* – Special Issue on “Nanostructured Materials for Chemical Sensing Applications”
From 15/02/2015 to 31/08/2015
(http://www.mdpi.com/journal/materials/special_issues/chemical-sensing)
- *Chemosensors* – Special Issue on “Hierarchical Nanostructures for Gas Sensors”
From 08/03/2018 to 30/11/2018
(http://www.mdpi.com/journal/chemosensors/special_issues/Hierarchical_Nanostructures_for_Gas_Sensors)

Peer reviewer for international journals:

- *Thin Solid Films*
- *Material Letters*
- *Materials Chemistry and Physics*

- *Sensors & Actuators B: Chemical*
- *Applied Surface Science*
- *Advances in Materials Science and Engineering*
- *Nanomaterials and Nanotechnology*

Awards and Certifications:

1. National Instruments Certified LabVIEW Associate Developer (CLAD) Serial Number: 100-312-2733. Issue Date: July 20, 2012.
2. Declared Eligible in the following open recruitment:
 - 13th ranking in CNR open recruitment for Full-Time Researcher III Level n. 368.18 "Area Strategica Micro - nanoelettronica, sensoristica, micro-nanosistemi"
3. Declared Eligible for the FFABR 2017 funding program "Finanziamento delle attività base di ricerca" from MIUR (Italy) (<http://www.anvur.org/attachments/article/1204/BeneficiariFFABRRicerca~.pdf>)

Short-Term Collaborations:

1. PhD internship in Moscow State University, from March 2011 to April 2011, in the framework of FP7 EU-RF S3 project.
2. One week in Prague in the framework of CERIC proposal (n° 20162029) for the use of a Near-Ambient Pressure XPS, from 25th September 2016 to 1st October 2016).
3. One week in Bucharest in the framework of CERIC proposal (n° 20162029) for the use of a Transmission Electron Microscope (TEM), from 6th November 2016 to 12th November 2016).
4. One week in Prague in the framework of CERIC proposal (n° 20172018) for the use of a Near-Ambient Pressure XPS, from 20th November 2017 to 25th November 2017).

Other Activities:

1. Reviewer for NOSE 2012 Conference, 3rd International Conference on Environmental Odour Monitoring and Control, Palermo (Italy), 23-26 September 2012.
2. Reviewer for ISOEN 2013 Conference, 15th International Symposium on Olfaction and Electronic Nose, Deagu, Korea July 2-5, 2013.
3. Local Organizer Committee member of XVII AISEM Conference, Brescia (Italy), 5-7 February 2013 (<http://www.aisem2013.it>)
4. Local Organizer Committee member of XXVIII Eurosensors Conference, Brescia (Italy), 7-10 September 2014 (<http://www.eurosensors2014.eu>)
5. Committee member:
 - n° 1 Post Doc Position, duration 12 months, call CNR-INO ASS/INO/017/2014/BS, deadline: 28/11/2014, titled "Development of dye sensitized solar cells (DSSCs) sensitized with dyes other than Ru-based complexes" (2014)
 - n° 1 Post Doc Position, duration 12 months, call CNR-INO ASS/INO/006/2015/BS, deadline: 05/03/2015, titled "Sviluppo di sensori di gas e sistemi olfattivi a base di ossidi metallici per applicazioni nel settore safety and security" (2015)
 - n° 2 Post Doc Position, duration 12 months, call DII2017-AR-COFIN-001, titled "Studio dell'antimateria per la verifica delle simmetrie fondamentali della Natura" & "Fabbricazione e caratterizzazione morfologica, strutturale e funzionale di nanofili ed eterostrutture di ossidi metallici per applicazioni sensoristiche" (deadline 17/10/2017)
 - n° 1 Post graduate contract, duration 8 months, call DII2017-B011, titled "Progetto e sviluppo di un'elettronica di controllo di un array di sensori di gas" (deadline 12/11/2017)
 -

Previous projects:

(2005)

"Experimental valuation of Texas Instruments MSP430 microcontroller for wireless applications"- Bachelor's Degree Thesis (in Italian). Supervisors Ing. Paolo Ferrari & Ing. Emiliano Sisinni.

Understand the Texas Instruments MSP430 test board and link it with a ZigBee Transceiver. Write a firmware for MSP430 implementing the first two levels of 802.15.4 stack protocol. Measure the power consumption of the entire system in transmission and compare it with similar devices with different transceiver or microcontrollers. Build a test network with different devices.

(2009)

"A study of Current Transport in OLED" – Master's Degree Thesis (in Italian). Supervisors Prof. Luigi Colalongo & Ing. Fabrizio Torricelli.

Analysis of state-of-art carrier mobility models for organic semiconductors by comparing them with the exact numerical solution of the Master Pauli Equation. It has been proposed an analytical model for DC current transport of single carrier Organic Light Emitting Diodes.

(2008-2009)

- **“An integrated 2.0GHz DPLL Design”**. Design and layout of a integrated stable high-performance Digital Phase Locked Loop in both CMOS UMC 0.18um (using Cadence Virtuoso) and CMOS TSMC 0.18um (using Magic VLSI)
- **“A VHDL 8bit miniCPU with 16bit Timer”**. Implementation of a 16bit Timer in a mini CPU in VHDL with a ROM and a RAM. Writing of a simple assembly code resident in ROM to measure an external clock.
- **“A Booth 16bit Multiplier”**. Design of 16bit Multiplier with the Booth algorithm in Symphony EDA VHDL and full synthesis with Alliance CAD. Simulation of the device with different input patterns.
- **“Simple 3D scene in OpenGL”**. A very simple 3D winter scene with a snow-like effect written in C++ using OpenGL library. Code written with DevC++ with GLUT package.
- **“Simple distorter for electric guitar”**. Design and layout of a discreet distorter with 4-channel equalizer for an electric guitar. Design and layout in CadSoft EAGLE.
- **“Low Voltage CMOS bandgap circuit design”**. Design of a state-of-art bandgap voltage reference. Low operating voltage range and good temperature stability were required. Design in Cadence Virtuoso.
- **“Analog frequency 2x multiplier”**. Use of trigonometric functions to design a discreet electronic multiplier to double the frequency of a sin wave signal.

I authorize the treatment and the divulgation of data contained in this applications for every legal use.

Dario Zappa