

## CAMILLA BARATTO

Citizenship: Italian

Email: [camilla.baratto@ino.cnr.it](mailto:camilla.baratto@ino.cnr.it)

Web site: [https://prismlab.ino.cnr.it/?page\\_id=44](https://prismlab.ino.cnr.it/?page_id=44)



### Professional experience

**March 2021** – Current - Responsible of CNR-INO Unit of Brescia.

**October 2020 - Current** – Senior Researcher at PrismLab, CNR-INO (National Research Council - National Institute of Optics), Brescia, Italy

**2012 - 2020** Researcher at CNR-INO, Brescia

**2000 - 2012** – Research assistant at University of Brescia - Sensor Lab

**1998** - Research fellow from National Institute of Matters at Sensor Lab-Dipartimento di Chimica e Fisica per i Materiali dell'Università di Brescia.

### Institutional Roles

**2021** – Head of Unit of Brescia CNR-INO

**2015** – Responsible of technology transfer for CNR-INO Unit of Brescia.

### Education

**2002** – Ph.D. in Material Science.

University of Brescia.

Thesis on optical and electrical gas sensors based on porous semiconductors. Tutor: Prof. G. Sberveglieri.

**1997** – M.S. degree in Physics magna cum laude.

University of Parma. Thesis on Raman spectroscopy of iron oxides. Tutor: Prof. P.P. Lottici

### Research interests

Camilla Baratto is the responsible for the Spectroscopy Section of the Prism Lab of CNR-INO in Brescia. She has twenty years of experience in the realization and testing of both electrical and optical gas sensors. She is expert in deposition of semiconductor materials and Raman spectroscopy. Recent interests include the development of innovative recyclable sensors (paper sensors), the analysis of bioplastics and foods with Raman spectroscopy and correlative microscopy for the characterization of bone mineralization in regenerative medicine. A non-exhaustive list of her research interest is reported below.

- Photoluminescence and Raman spectroscopy;
- Application of Raman spectroscopy to agri-food field;
- Preparation and functional characterization of gas sensor devices based on nanostructured metal oxides;
- Optical gas sensors based on changes of photoluminescence properties of nanostructures;
- Characterization of metal oxides nanowires and nanostructures by SEM, photoluminescence and Raman spectroscopy;
- Deposition by magnetron sputtering of transparent conducting oxides;
- Development of sensors for Electronic Nose;
- Plasmonic gas sensor;
- Graphene and 2D materials;
- Resonant chemical sensing.

### Funding ID

She has been involved in a series of national and international research/industrial projects since 2000 in basic and applied physics. The list reports the most recent projects:

- **Scientific Responsible** of INO contribution for Project “SpatialS3 - Improvement of agri-food production and innovative technologies for a healthier, safer and more sustainable diet” Financed by Lombardia Region (2020-2022)  
Activity: Raman Spectroscopy for the characterization of compostable packaging and flour.
- **Industrial PhD:** jointly financed by CNR / Antares Vision srl on the topic "The traceability of quality in the production process in the Agrifood sector". (Coordinator: C. Baratto)  
Activity: C. Baratto is coordinating the activity of the PhD student on the development of quality traceability systems in the agrifood sector, through research on ad hoc instrumentation and sensors. The research will be carried out in strict collaboration with University of Brescia and Antares Vision (2020-2023).
- **Coordinator** of project NANEOS “Multi Sensor System for Rapid Detection of hazardous agents” (2016-2019), Financed from NATO Science for Peace and Security Program.  
Activity: Project coordinator and scientific manager of the CNR-INO activity which consists in the development of semiconductor oxide nanowire gas sensors for the detection of harmful gases and gas simulants used in terrorist attacks; the gas sensors are used in electronic nose type arrays.
- **Scientific Responsible** of INO Contribution for Project “Cybert Sort” Financed by Lombardia Region. (2017-2019).  
Activity: Raman spectroscopy for the detection of flame retardant compounds contained in the plastic waste to be recycled.

### Awards & Membership

**Italian Habilitation for Full Professor** in 02/B1- Physics of Matter (*Abilitazione Scientifica Nazionale* validity from **27/07/2017 to 27/07/2026**)

**Italian Habilitation for Associate Professor in 02/B1- Physics of Matter**  
(*Abilitazione Scientifica Nazionale* validity from **11/12/2018 to 26/07/2027**)

**Member of the Scientific Board for the Ph.D. School in Materials Engineering**  
University of Brescia (since 2013)

**Member of SPIE**

**Member of IEEE**

### Teaching and Supervision

Since 2004, she supervised 3 undergraduate students, 6 PhD students (S. Todros, R. Kumar, N. Cattabiani, R. Maiti, A. Tognazzi, E. Musaev), and a post doc (G. Ambrosio) at University of Brescia and CNR-INO.

Since 1998, Lessons and Exams to students of Electronic Engineering with responsibility of evaluation in the final examination board. (Courses of General Physics 1). University of Brescia

Tutorials and Lectures:

- C. Baratto, Guest Lecture for EMIMEO Erasmus Mundus Students, *"Introduction to spectroscopy (Raman/PL) and to optical sensors"*, December 2020 (6 hours) (University of Brescia, online)
- C. Baratto, *"RAMAN spectroscopy: basic principles"*, at Winter School organized by The Italian Society for Near InfraRed Spectroscopy – SISNIR and Crea, April 10th -14th 2017, Milano. (2 hours).
- C.Baratto, Tutorial *"Sensing at The Nanoscale – Chemical Gas Sensors Based on Quasi 1D Nanowires"* Conferenza IEEE Sensors 2016, Orlando Florida.
- C.Baratto, *"Metal oxide gas sensors based quasi one dimensional metal oxide semiconductors"* Tutorial to postgraduate students, Sensor Technologies Workshop, Jožef Stefan International Postgraduate School, Ljubljana, Slovenia, Sensor Technologies Workshop, 3rd - 5th June 2015
- C. Baratto *"Functional Oxides for gas sensors"* Summer School 2014 del Progetto Europeo ORAMA, presso E-MRS - Spring Meeting 2014, May 26 - 30, Lille Congress Center, France.
- C. Baratto, training course addressed to staff of the CO.RI.CAM consortium as part of the project PON *"Studio, sviluppo ed applicazione di sistemi basati su sensori ed analizzatori innovativi per l'analisi della qualità dell'aria ed il trasferimento dei dati"* 2005
- C.Baratto: Tutorial on *"Porous Silicon Sensors"*, 1st EUROPEAN SHORT COURSE OF THE NOSE II NETWORK, Bressanone (BZ) 24 Febbraio – 1 Marzo 2002

### Professional Activities

### Editorial Activity

She is **Topical Editor** of IEEE Sensor Journal - Chemical & Biosensors Sensor Materials

### Membership in the Scientific/Program Committee of Conferences

CIMTEC 2016 - Programme Chair of Symposium J “Functional Nanomaterials for New Generation Solid State Gas Sensors”

INO Annual Symposium 2015 – Scientific Committee

IMCS2006, 11th International Meeting on Chemical Sensors *Local publication chair*, Brescia, July 2006

### Review for National and international funding agency

2015-2020 European Commission

2015 National Scientific Agency

2021 FNRS (Fund for Scientific Research-FNRS, Belgium-2021).

### Review for international journals

She is peer reviewer for many international journals: Advanced Functional Materials (Wiley) Nanotechnology (IOP), Measurement Science and Technology (IOP) Sensors and Actuators B (Elsevier), Materials Chemistry and Physics (Elsevier), The Journal of Physical Chemistry (ACS), IEEE Sensors Journal, Nanoscale Research Letters (Springer), Applied Surface Science (Elsevier), Optical Materials, Journal Optics and Laser Technology, RSC Advances, ACS Applied Materials & Interfaces.

### External assessor for PhD student

External assessor for evaluation of PhD thesis of Renheng Bo, Australian National University, Canberra, Thesis title “From nanoparticle networks to metal-organic frameworks”. January 2020.

### Languages

Italian – Native  
English - Fluent

### Publication and bibliometric records

During her career Camilla Baratto has published 75 articles on International Journals with referee and 3 book chapter. Her **h-index** is 29 on ISI-WoS (January 2022) and 31 on Scopus (January 2022) with 3319 citazioni.

Researcher ID: <http://www.researcherid.com/rid/A-1571-2010>.

ORCID : <http://orcid.org/0000-0003-3130-363X>

Camilla Baratto is co-author of about 150 presentations at national and international conferences, of which 51 presented personally.

Among these she personally held 1 key-note presentation and 10 invited presentations to international conferences. She also contributed to 23 invited papers and one plenary; she was invited and presenting herself 6 invited communications and 1 keynote presentation.

She deposited a patent on *Thin semiconductor film gas sensor device* Filing number: US, N°7441440 Request number 10/830,133 publication date Oct 28, 2008 Filing date Apr. 23 2004

### Publication on International Journals

- 1 C. Baratto, G. Faglia, L. Carletti and C. De Angelis, "New trends in optical resonant biochemical sensing," *IEEE Sens. J.* 21 (2021) 12856–12867. <https://doi.org/10.1109/JSEN.2021.3055423>.
- 2 F. Re, L. Sartore, E. Borsani, M. Ferroni, C. Baratto, A. Mahajneh, A. Smith, K. Dey, C. Almici, P. Guizzi, S. Bernardi, G. Faglia, F. Magni, D. Russo, Mineralization of 3D osteogenic model based on gelatin-dextran hybrid hydrogel scaffold bioengineered with mesenchymal stromal cells: A multiparametric evaluation, *Materials (Basel)*. 14 (2021) 1–23. <https://doi.org/10.3390/ma14143852>.
- 3 M. Celebrano, D. Rocco, M. Gandolfi, A. Zilli, F. Rusconi, A. Tognazzi, A. Mazzanti, L. Ghirardini, E.A.A. Pogna, L. Carletti, C. Baratto, G. Marino, C. Gigli, P. Biagioni, L. Duò, G. Cerullo, G. Leo, G. Della Valle, M. Finazzi, C. De Angelis, Optical tuning of dielectric nanoantennas for thermo-optically reconfigurable nonlinear metasurfaces, *Opt. Lett.* 46 (2021) 2453. <https://doi.org/10.1364/ol.420790>.
- 4 G. Ambrosio, G. Faglia, S. Tagliabue, C. Baratto, "Study of the Degradation of Biobased Plastic after Stress Tests in Water" *Coatings Coatings*. 11 (2021) 1–18. <https://doi.org/10.3390/coatings11111330>
- 5 C. Baratto, V. Golovanova, G. Faglia, H. Hakola, T. Niemi, N. Tkachenko, B. Nazarchuk, V. Golovanov "On the alignment of ZnO nanowires by Langmuir – Blodgett technique for sensing application" *Applied Surface Science* 528 (2020) 146959
- 6 G. Faglia, M. Ferroni, T. T. Le Dang, M. Donarelli, F. Rigoni and C. Baratto, "Vertically Coupling ZnO Nanorods onto MoS<sub>2</sub> Flakes for Optical Gas Sensing," *Chemosensors*, vol. 8, no. 1, pp. 12, Mar, 2020.
- 7 V. Demontis, M. Rocci, M. Donarelli, R. Maiti, V. Zannier, F. Beltram, L. Sorba, S. Roddaro, F. Rossella, C. Baratto, "Conductometric Sensing with Individual InAs Nanowires" *SENSORS*, 19, 13 (2019)
- 8 D. Rocco, A. Tognazzi, L. Carletti, C. Baratto, C. De Angelis, "Sensing through the optical radiation pattern in dielectric metastructures," *Proc. SPIE 11332, International Conference on Quantum, Nonlinear, and Nanophotonics 2019 (ICQNN 2019)*, 1133202 (30 December 2019);
- 9 N. Cattabiani, C. Baratto, D. Zappa, E. Comini, M. Donarelli, M. Ferroni, A. Ponzoni, G.

- 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* 122(9), pp. 5026-5031 (2018)
- 10 C. Baratto "Growth and properties of ZnO nanorods by RF-sputtering for detection of toxic gases", *RSC Advances*, 8 2018, 32038-32043
- 11 M. Donarelli, R. Milan, F. Rigoni, G. Drera, L. Sangaletti, A. Ponzoni, C. Baratto, G. Sberveglieri and E. Comini, "Anomalous gas sensing behaviour to reducing agents of hydrothermally grown alpha-Fe<sub>2</sub>O<sub>3</sub> nanorods" *Sensors and Actuators B-Chemical*, 2018, 273, 1237-1245.
- 12 C. Baratto, R. Kumar, E. Comini, M. Ferroni, M. Campanini, Bottle-brush-shaped heterostructures of NiO-ZnO nanowires: growth study and sensing properties. *Nanotechnology*, 46, 28, 465502 (2017).
- 13 F. Rigoni, R. Maiti, C. Baratto, M. Donarelli, J. MacLeod, B. Gupta, M. Lyu, A. Ponzoni, G. Sberveglieri, N. Motta, G. Faglia, Transfer of CVD-grown graphene for room temperature gas sensors, *Nanotechnology*, 28, 414001 (2017)
- 14 S. H. Saheedabad, C. Baratto, F. Rigoni, S. M. Rozati, G. Sberveglieri, K. Vojisavljevic, B. Malic, Gas sensing applications of the inverse spinel zinc tin oxide, *Materials Science in Semiconductor Processing* 71, 461-469 (2017).
- 15 A. Ponzoni, C. Baratto, N. Cattabiani, M. Falasconi, V. Galstyan, E. Nunez-Carmona, et al., Metal Oxide Gas Sensors, a Survey of Selectivity Issues Addressed at the SENSOR Lab, Brescia (Italy), *Sensors (Basel)*, 17(2017).
- 16 M.E. Mazhar, G. Faglia, E. Comini, D. Zappa, C. Baratto, G. Sberveglieri "Kelvin probe as an effective tool to develop sensitive p-type CuO gas sensors" *Sensors & Actuators B*, 222 2016, 1257-1263.
- 17 C. Baratto, M. Ferroni, E. Comini, G. Faglia, S. Kaciulis, S.K. Balijepalli, G. Sberveglieri, "Vapour phase nucleation of ZnO nanowires on GaN: growth habit, interface study and optical properties" *RSC Advances*, 2016, 6, 15087 - 15093,
- 18 R. Ciprian, C. Baratto, A. Giglia, K. Koshmak, G. Vinai, M. Donarelli, M. Ferroni, M. Campanini E. Comini A. Ponzoni and G. Sberveglieri "Magnetic gas sensing exploiting the magneto-optical Kerr effect on ZnO nanorods/Co layer system" *RSC Adv.*, 2016, 6, 42517- 42521
- 19 R. Ciprian, P. Torelli, A. Giglia, B. Gobaut, B. Ressel, G. Vinai, M. Stupar, A. Caretta, G. De Ninno, T. Pincelli, B. Casarin, G. Adhikary, G. Sberveglieri, C. Baratto and M. Malvestuto, "New strategy for magnetic gas sensing", *RSC Adv.*, 2016, 6, 83399-83405.
- 20 R. Milan, S. Cattarin, N. Comisso, C. Baratto, K. Kaunisto, N.V. Tkachenko and I. Concina "Compact hematite buffer layer as a promoter of nanorod photoanode performances", *Scientific Report*, 6 (2016) 35049.
- 21 V Galstyan, E. Comini, C. Baratto, A. Ponzoni, M. Ferroni, N. Poli, E. Bontempi, M. Brisotto, G. Faglia, G. Sberveglieri "Large surface area biphasic titania for chemical sensing" *Sensors and Actuators B* 209 (2015) 1091–1096
- 22 V Galstyan, E. Comini, C. Baratto, G. Faglia, G. Sberveglieri "Nanostructured ZnO chemical gas sensors" *CERAMICS INTERNATIONAL*, 41, 10 14239-14244
- 23 C. Baratto, R. Kumar, G. Faglia, G. Sberveglieri, K. Vojisavljevic, B. Malic "p-Type copper aluminum oxide thin films for gas-sensing application " *Sensors and Actuators B* 209 (2015) 287–296
- 24 Karakuscu, A., Hu, L.-H., Ponzoni, A., Baratto, C., Ceccato, R., Sberveglieri, G., Raj, R. "SiOCN Functionalized Carbon Nanotube Gas Sensors for Elevated Temperature Applications" *JOURNAL OF THE AMERICAN CERAMIC SOCIETY*, 98, 1142-1149, 2015
- 25 G. Salvinelli, G. Drera, C. Baratto, A. Braga, L. Sangaletti "Stoichiometry Gradient, Cation Interdiffusion, and Band Alignment between a Nanosized TiO<sub>2</sub> Blocking Layer and a Transparent Conductive Oxide in Dye-Sensitized Solar Cell Front Contacts" *Appl.*

- Mater. Interfaces 2015, 7, 765–773
- 26 R. Kumar, C. Baratto, G. Faglia, G. Sberveglieri, E. Bontempi, L. Borgese “Tailoring the textured surface of porous nanostructured NiO thin films for the detection of pollutant gases”, *Thin Solid Films*, 583 (2015) 233-238
- 27 C. Baratto, R. Kumar, E. Comini, G. Faglia and G. Sberveglieri, “Visible electroluminescence from a ZnO nanowires/p-GaN heterojunction light emitting diode”, *Optics Express*, 23 (2015) 18937
- 28 A. Braga, C. Baratto, E. Bontempi, P. Colombi, G. Sberveglieri, “Transparent front contact optimization in dye sensitized solar cells: Use of cadmium stannate and titanium oxide by sputtering” *Thin Solid Films*, 555 (2014) 18-20
- 29 V. Galstyan, E. Comini, C. Baratto, A. Ponzoni, E. Bontempi, M. Brisotto, G. Faglia and G. Sberveglieri “Synthesis of self-assembled chain-like ZnO nanostructures on stiff and flexible substrates” *CrystEngComm*, 2013,15, 2881-2887
- 30 C. Baratto, E. Comini, M. Ferroni, G. Faglia, G. Sberveglieri “Plasma-induced enhancement of UV photoluminescence in ZnO nanowires”, *CrystEngComm*, 2013, 15, 7981
- 31 M. Corradini, R. Hayano, M. Hori, M. Leali, E. Lodi Rizzini, V. Mascagna, A. Mozzanica, M. Prest, K. Todoroki, E. Vallazza, L. Venturelli, N. Zurlo, C. Baratto, M. Ferroni, A. Vomiero “Experimental apparatus for annihilation cross-section measurements of low energy antiprotons” *Nuclear Instruments and Methods in Physics Research A*, 711, 12-20 (2013)
- 32 E. Comini, C. Baratto, I. Concina, G. Faglia, M. Falasconi, M. Ferroni, V. Galstyan, E. Gobbi, A. Ponzoni, A. Vomiero, D. Zappa, V. Sberveglieri, G. Sberveglieri, “Metal oxide nanoscience and nanotechnology for chemical sensors”, *Sensors & Actuators B*, 179,2013, 3-20.
- 33 A. Braga, C. Baratto, P. Colombi, E. Bontempi, G. Salvinelli, G. Drera, L. Sangaletti “An ultrathin TiO<sub>2</sub> blocking layer on Cd stannate as highly efficient front contact for dye-sensitized solar cells, *Phys. Chem. Chem. Phys.*,15 (2013) 16812-16818
- 34 E. Comini, C. Baratto, G. Faglia, M. Ferroni, A. Ponzoni, D. Zappa, G. Sberveglieri “Metal oxide nanowire chemical and biochemical sensors” *Journal of Materials Research* 28 (2013) 2911-2931 .
- 35 C. Baratto, A. Ponzoni, M. Ferroni, L. Borgese, E. Bontempi, G. Sberveglieri “Sputtering deposition of amorphous cadmium stannate as transparent conducting oxide” *Thin Solid Films* 520 (2012) 2739-2744
- 36 C. Soldano, E. Comini, C. Baratto, M. Ferroni, G. Faglia, G. Sberveglieri “Metal Oxides Mono-Dimensional Nanostructures for Gas Sensing and Light Emission”, *Journal of the American Ceramic Society*, 95 (2012) 831-850
- 37 G. Jacopin, L. Rigutti, A.D.L. Bugallo, F.H. Julien, C. Baratto, E. Comini, M. Ferroni, M. Tchernycheva, “High degree of polarization of the near-band-edge photoluminescence in ZnO nanowires” *Nanoscale Research Letters*, 6 (2011) , 501.
- 38 C. Baratto, S. Todros, G. Faglia, E. Comini, G. Sberveglieri, S. Lettieri, L. Santamaria, P. Maddalena, “Luminescence response of ZnO nanowires to gas adsorption” *Sensors and Actuators B* 140 (2009) 461–466
- 39 E. Comini, C. Baratto, G. Faglia, M. Ferroni, A. Vomiero, G. Sberveglieri, “Quasi-one dimensional metal oxide semiconductors: Preparation, characterization and application as chemical sensors” *Progress in Materials Science* 54 (1) (2009) 1-67
- 40 S. Lettieri, L.S. Amato, P. Maddalena, E. Comini, C. Baratto, S. Todros, “Recombination dynamics of deep defect states in zinc oxide nanowires” *Nanotechnology* 20 (17) (2009) 175706
- 41 G. Sberveglieri, C. Baratto, E. Comini, G. Faglia, M. Ferroni, M. Pardo, A. Ponzoni, A. Vomiero “Semiconducting tin oxide nanowires and thin films for Chemical Warfare

- Agents detection" *Thin Solid Films* 517, (2009) 6156-6160
- 42 A. Setaro, A. Bismuto, S. Lettieri, P. Maddalena, E. Comini, S. Bianchi, C. Baratto, G. Sberveglieri, "Optical sensing of NO<sub>2</sub> in tin oxide nanowires at sub-ppm level" *Sensors and Actuators B* 130 (1) (2008) 391-395
- 43 A. Sutti, C. Baratto, G. Calestani, C. Dionigi, M. Ferroni, G. Faglia, G. Sberveglieri, "Inverse opal gas sensors: Zn(II)-doped tin dioxide systems for low temperature detection of pollutant gases" *Sensors and Actuators B* 130 (1) (2008) 567-57
- 44 S. Lettieri, A. Setaro, C. Baratto, E. Comini, G. Faglia, G. Sberveglieri, P. Maddalena (2008) "On the mechanism of photoluminescence quenching in tin dioxide nanowires by NO<sub>2</sub> adsorption" *New Journal of Physics* 10 (2008) 043013
- 45 A. Ponzoni, C. Baratto, S. Bianchi, E. Comini, M. Ferroni, M. Pardo, M. Vezzoli, A. Vomiero, G. Faglia, G. Sberveglieri "Metal oxide nanowire and thin-film-based gas sensors for chemical warfare simulants detection" *IEEE Sensors Journal* 8 (5-6) (2008) 735-742
- 46 S. Lettieri, A. Setaro, Bismuto A., Maddalena P., C. Baratto, E. Comini, Todros S., G. Faglia, G. Sberveglieri, P. Maddalena, "Light emission properties of SnO<sub>2</sub> nanowires for applications in gas sensing", *Sensors Letters* 6 (2008) 596-600
- 47 G. Sberveglieri, C. Baratto, E. Comini, G. Faglia, M. Ferroni, A. Ponzoni, A. Vomiero, "Synthesis and characterization of semiconducting nanowires for gas sensing" *Sensors and Actuators B* 121 (2007) 208-213
- 48 G. Neri, A. Bonavita, S. Ipsale, G. Rizzo, C. Baratto, G. Faglia, G. Sberveglieri, "Pd- and Ca-doped iron oxide for ethanol vapor sensing" *Materials Science and Engineering B - Solid State Materials for Advanced Technology* 139 (1) (2007) 41-47
- 49 G. Sberveglieri, C. Baratto, E. Comini, G. Faglia, M. Ferroni, A. Ponzoni, A. Vomiero, "Synthesis and characterization of semiconducting nanowires for gas sensing" *Sensors and Actuators B* 121 (1) (2007) 208-213
- 50 E. Comini, C. Baratto, G. Faglia, et al. "Single crystal ZnO nanowires as optical and conductometric chemical sensor" *Journal of Physics D - Applied Physics* 40 (23) (2007) 7255-7259
- 51 S. Lettieri, A. Bismuto, P. Maddalena, C. Baratto, E. Comini, G. Faglia, G. Sberveglieri, L. Zanotti, "Gas sensitive light emission properties of tin oxide and zinc oxide nanobelts", *Journal of Non-Crystalline Solids* 352 (9-20) (2006) 1457-1460
- 52 A. Bismuto, S. Lettieri, P. Maddalena, C. Baratto, E. Comini, G. Faglia, G. Sberveglieri, L. Zanotti "Room-temperature gas sensing based on visible photoluminescence properties of metal oxide nanobelts" *Journal of Optics A-Pure and Applied Optics* 8 (7) (2006) S585-S588
- 53 C. Baratto, M. Ferroni, G. Faglia, G. Sberveglieri, "Iron-doped indium oxide by modified RGTO deposition for ozone sensing" *Sensors and Actuators B* 118 (2006) 221-225
- 54 E. Comini, C. Baratto, M. Ferroni, G. Faglia, G. Sberveglieri "Metal oxide nanocrystals multi-parametric gas sensors" *Rare Metal Materials and Engineering* 35 (3) (2006) 17-20
- 55 P. Candeloro, A. Carpentiero, S. Cabrini, E. Di Fabrizio, E. Comini, C. Baratto, G. Faglia, G. Sberveglieri, A. Gerardino, "SnO<sub>2</sub> sub-micron wires for gas sensors" *Microelectronic Engineering* 78-79 (2005) 178-184
- 56 C. Baratto, E. Comini, G. Faglia, G. Sberveglieri, M. Zha, A. Zappettini, "Metal oxide nanocrystals for gas sensing" *Sensors and Actuators B* 109 (2005) 2-6
- 57 G. Faglia, C. Baratto, G. Sberveglieri, M. Zha, A. Zappettini, "Adsorption effects of NO<sub>2</sub> at ppm level on visible photoluminescence response of SnO<sub>2</sub> nanobelts" *Applied Physics Letters* 86 (2005) 011923
- 58 C. Baratto, G. Faglia, M. Pardo, M. Vezzoli, L. Boarino, M. Maffei, S. Bossi, G.



- Sberveglieri, "Monitoring Plants Health in Greenhouse For Space Missions" *Sensors and Actuators B* 108 (2005) 278-284
- 59 P. Candeloro, E. Comini, C. Baratto, G. Faglia, G. Sberveglieri, R. Kumar, A. Carpentiero, E. Di Fabrizio, "SnO<sub>2</sub> lithographic processing for nanopatterned gas sensors" *Journal of Vacuum Science & Technology B* 23 (6) (2005) 2784-2788
- 60 C. Baratto, G. Sberveglieri, A. Onischuk, B. Caruso, S. di Stasio, "Low temperature selective NO<sub>2</sub> sensors by nanostructured fibres of ZnO" *Sensors B* 100 (1-2) (2004) 261-265
- 61 A. Setkus, C. Baratto, E. Comini, G. Faglia, A. Galdikas, Kancleris, G. Sberveglieri, D. Senulien, "Influence of Metallic Impurities on Response Kinetics in Metal Oxide Thin Film Gas Sensors", *Sensors and Actuators B-Chemical* 103 (1-2) (2004) 448-456
- 62 S. Picozzi, S. Santucci, L. Lozzi, C. Cantalini, C. Baratto, G. Sberveglieri, I. Armentano, J.M. Kenny, L. Valentini, B. Delley, "Ozone adsorption on carbon nanotubes: Ab initio calculations and experiments" *Journal of Vacuum Science & Technology A* 22 (4) (2004) 1466-1470
- 63 PG. Merli, V. Morandi, A. Migliori, C. Baratto, E. Comini, G. Faglia, M. Ferroni, A. Ponzoni, N. Poli, G. Sberveglieri, "Investigation of dopant profiles in nanosized materials by scanning transmission electron microscopy", *Nuovo Cimento della Società Italiana di Fisica C-Geophysics and Space Physics* 27 (5) (2004) 467-472
- 64 C.J. Oton, L. Pancheri, Z. Gaburro, L. Pavesi, C. Baratto, G. Faglia, G. Sberveglieri, "Multiparametric porous silicon gas sensors with improved quality and sensitivity" *Phys. Stat. Sol. (a)* 197 (2) (2003) 523-527
- 65 C. Baratto, G. Faglia, G. Sberveglieri, Z. Gaburro, L. Pancheri, C. Oton, L. Pavesi "Multiparametric porous silicon sensors" *Sensors* 2 (2002) 121-126
- 66 C. Baratto, G. Faglia, E. Comini, G. Sberveglieri, A. Taroni, V. La Ferrara, L. Quercia, G. Di Francia, "A novel porous silicon sensor for detection of sub-ppm NO<sub>2</sub> concentrations", *Sensors & Actuators B* 77 (2001) 62-66
- 67 C.Baratto, G.Faglia, G.Sberveglieri, L.Boarino, A.M.Rossi, G.Amato, "Front-side micromachined porous silicon nitrogen dioxide gas sensor" *Thin Solid Films* 391-392 (2001) 261-264
- 68 Z. Gaburro, N. Daldosso, and L. Pavesi, G. Faglia, C. Baratto, G. Sberveglieri, "Monitoring penetration of ethanol in a porous silicon microcavity by photoluminescence interferometry" *Applied Physics Letters* 78 (23) (2001) 3744-3746
- 69 C. Baratto, E. Comini, G. Faglia, G. Sberveglieri, G. Di Francia, V. La Ferrara, F. De Filippo, L. Quercia, L. Lancellotti, "Gas detection with a porous silicon based sensor" *Sensors and Actuators B*, 65 (2000) 257-259
- 70 L. Boarino, C. Baratto, F. Geobaldo, G. C. Amato, E. Comini, A.M. Rossi, G Faglia, G. Lerondel, G. Sberveglieri, "NO<sub>2</sub> monitoring at room temperature by a Porous Silicon Gas Sensor" *Materials Science and Engineering B* 69-70 (2000) 210-214
- 71 C. Baratto, G. Sberveglieri, E. Comini, G. Faglia, G. Benussi, V. La Ferrara, L. Quercia, G. Di Francia, V. Guidi, D. Vincenzi, D. Boscarino, V. Rigato, "Gold-catalysed porous silicon for NO<sub>x</sub> sensing", *Sensors and Actuators B*, 68 (2000) 74-80
- 72 L. Boarino, M. Rocchia, C. Baratto, A. M. Rossi, E. Garrone, S. Borini, F. Geobaldo, E. Comini, G. Faglia, G. Sberveglieri, G. Amato, "Towards a deeper comprehension of the interaction mechanism between mesoporous silicon and NO<sub>2</sub>" *Phys. Stat. Sol. (a)* 182 (2000) 465
- 73 L. Quercia, F. Cerullo, V. La Ferrara, G. Di Francia, C. Baratto and G. Faglia "Fabrication and Characterization of a Sensing Device Based on Porous Silicon", *Phys. Stat. Sol. (a)* 182 (2000) 473
- 74 P.P. Lottici, C. Baratto, D. Bersani, G. Antonioli, A. Montenero, G. Gnappi "Fe<sub>2</sub>O<sub>3</sub> films

75 for  $c^{(3)}$  optics: Raman and XAS characterization", *Optical Materials* 9 (1998) 368-372  
C. Baratto, P.P. Lottici, D. Bersani, G. Antonioli, A. Montenero, G. Gnappi, "Sol-gel  
preparation of  $\alpha$ -Fe<sub>2</sub>O<sub>3</sub> thin films: structural characterisation by XAFS and Raman", *J.*  
76 *Sol - Gel Sci. Technol.* 13 (1998) 667

### Book chapters

E. Comini, C. Baratto, G. Faglia, M. Ferroni, A. Vomiero, G. Sberveglieri  
Chapter title: Metal oxide nanowires chemical sensors  
Book title: Metal Oxide Nanostructures and Their Applications  
Ottobre 2009 ISBN: 1-58883-170-1  
Publisher: American Scientific Publishers

C. Baratto, E. Comini, G. Faglia, M. Ferroni, A. Ponzoni, A. Vomiero, G. Sberveglieri  
Chapter title: Transparent metal oxide semiconductors as gas sensors  
Book title: Transparent electronics. From synthesis to applications  
Publisher: Wiley & Sons Ltd. (2010)

C. Baratto, E. Comini, G. Faglia, G. Sberveglieri  
Chapter title: The Power of Nanomaterial Approaches in Gas Sensors  
Book title: Solid State Gas Sensors: Industrial Application  
Publisher: Springer-Verlag Berlin Heidelberg 2011  
Ottobre 2009 ISBN: 1-58883-170-1  
DOI 10.1007/5346\_2011\_3,  
M. Fleischer and M. Lehmann (eds.)  
Springer Series on Chemical Sensors and Biosensors