

Vittorio Ferrari, Ph.D.

Professor of Electronics
at the University of Brescia, Italy

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Scopus ID: 57194493639

General:

- *Date and place of birth:* October 3, 1962; Milan, Italy.
- *Citizenship:* Italian

Education:

- 1988: Laurea degree *cum laude* in Physics at the University of Milan, Italy.
- 1993: Research Doctorate (PhD) degree in Electronic Instrumentation at the University of Brescia, Italy.

Employment and positions:

- 1988-1989: Postgraduate research scholar with Istituto Nazionale di Fisica Nucleare at the University of Pavia, Italy.
- 1993-2001: Assistant Professor with the Department of Electronics for Automation (DEA) at the University of Brescia.
- 1994: Visiting fellow at the HP Laboratories, Palo Alto, CA, USA.
- 2001-2006: Associate Professor of Electrical and Electronic Measurements with the DEA at the University of Brescia.
- 2006-present: Full Professor of Electronics with the DEA (DII since 2010) at the University of Brescia.
- 2017: Visiting Professor at the Institut Polytechnique de Grenoble, France.
(July; December)

Research activity:

- ▣ The research activity of Vittorio Ferrari deals with the design and characterization of sensors, microsystems, and the related signal-conditioning interface electronics.
- ▣ Present topics of interest include thick-film piezoelectric acoustic-wave devices and

sensors, energy harvesting techniques and devices for autonomous and wearable sensors, MEMS and microsystems, passive resonant sensors with contactless interrogation, low-noise electronic circuits for sensors, circuit interfaces and instrumentation for quartz-crystal microbalances and microresonator sensors, sensing systems for fluidics, microfluidics and biomedical applications.

▣ Since 1990, participation in national and international research projects on sensors and electronic instrumentation with both academic and industrial presence, often with coordination roles.

▣ From 1994 to 1996, involvement in the working group that at HP Laboratories started the activity on what lately became the IEEE 1451.2 *Standard for a Smart Transducer Interface for Sensors and Actuators*.

▣ Author of more than 200 publications in international peer-reviewed journals and conference proceedings, invited presentations, book chapters, edited books and journal issues, 7 patent applications (5 of which are under industrial exploitation).

▣ Recent and ongoing research collaborations with:

CERN – Geneva. / Danube University Krems. / Institute of Microelectronics A*STAR - Singapore. / Johannes Kepler University - Linz. / Otto-von-Guericke Universität - Magdeburg. / Politecnico di Milano. / SPAWAR San Diego. / Universidad Politècnica de Catalunya (UPC). / Universidad Politècnica de Valencia (UPV). / Università di Catania. / VU University Amsterdam. / Vienna University of Technology (TUW). / Institut Polytechnique de Grenoble (INP). // City University of Hong Kong.

▣ Selected funded projects based on competitive evaluations:

- Linz Center of Mechatronics (LCM), Austria, project K2-COMET center (2018-2021) on sensors for mechatronics,
- EU project PETRA II (2004-2007) on piezoelectric transducers and applications,
- MIUR-PRIN Italian projects (2009-2010) on nonlinear energy harvesting techniques for sensor applications (2011-2013) on energy harvesting from broadband vibrations,
- MISE Italian project (2011-2013) on ICT for territorial security,
- Regione Lombardia project (2020-2022) on infrastructures and ICT for sustainable mobility.
- Regione Lombardia project (2018-2020) on sensor systems for indoor air quality monitoring,
- Regione Lombardia project (2006-2008) on smart kitchenware based on sensors.

▣ Selected funded collaborative research with companies:

Accent, Angelo Po Grandi Cucine, Beretta, Bialetti Industrie, Camozzi, CESI, COBO, CSMT, Entech, Finmek, Geca, Gefran, Hewlett Packard, HUAWEI, Intellimech, Logimec, Markos Mefar-Air Liquide, Meggit-Ferropem, OMAL, Raccorderie Metalliche, ST-Microelectronics, Technobiochip, Tecnint HTE, Tenaris-Dalmine, Zinco Global.

□ Teaching activity:

▣ Vittorio Ferrari has been teaching several university courses in the field of sensors, microsystems, electronics and measuring instrumentation, including class lectures, laboratory activities and project-based learning.

▣ He is in charge of the following courses at the University of Brescia:

- Fundamentals of Electronics and Instrumentation;
- Instrumentation Electronics, Sensors and Microsystems;
- Electronics and Sensorics in Healthcare and Wellness (until a.y. 2018/19);

plus one additional course upon invitation from another Italian university.

▣ Supervisor and thesis director of more than 30 Master and PhD students in Italy and abroad (Uruguay, Brasil, Colombia) within international co-tutorship programmes.

▣ From 2010 to 2013, coordinator of the academic board of the PhD program in *Electronic Engineering, Sensors and Instrumentation* at the University of Brescia.

▣ From 2013 to 2016, coordinator of the academic board of the PhD program in *Information Engineering* at the University of Brescia (<http://drii.unibs.it>).

▣ Repeatedly involved in teaching courses on sensors and measuring instrumentation to professionals and engineers in industry.

▣ **Selected academic offices and responsibilities:**

▣ From 2012 to 2016, member of the Quality Assurance Committee of the University of Brescia.

▣ Since 2016, Rector's delegate for Research Quality Management and Postgraduate Studies at the University of Brescia.

▣ **Services and recognitions:**

▣ Invited member in the Technical Program Committee of prominent international conferences, including:

Euroensors / IEEE Sensors / Ph.D. Research in Microelectronics & Electronics – PRIME / Sensordevices / IEEE Int. Conf. on Sensors, Circuits and Instrumentation Systems – SSD SCI / Mechatronics / IEEE ISQED / IEEE-ISSNIP: Intelligent Sensors / EDERC / ECMS.

▣ Invited member of:

Editorial board of *Sensors & Transducers* journal; scientific committee of the *EIA* journal; editorial board of *Sensors*; editorial board of *Journal of Sensors*.

▣ Reviewer on a regular basis for the most prominent international journals and conferences on sensors and electronic instrumentation.

▣ Project evaluator for the Italian MIUR and other international Organizations, including:

Agence Nationale de la Recherche (ANR), France / Agencia Nacional de Promoción Científica y Tecnológica - FONCyT, Argentina / Research Foundation - Flanders (FWO), Belgium / Dutch Technology Foundation (STW), The Netherlands. / Netherlands Organisation for Scientific Research (NWO), The Netherlands. / Christian Doppler Research Association (CDG), Austria.

▣ Affiliations and membership:

Institute of Electrical and Electronic Engineers - IEEE *Senior Member* / IEEE Instrumentation and Measurement Society / IEEE Ultrasonics, Ferroelectrics, and Frequency Control Society / IEEE Sensors Council / Associazione Società Italiana di Elettronica - SIE / Associazione Gruppo Misure Elettriche ed Elettroniche - GMEE / Istituto Nazionale di Ottica (INO) in Consiglio Nazionale delle Ricerche - CNR / Istituto Nazionale di Fisica Nucleare - INFN.

▣ From 2008 to 2013, member of the scientific advisory board for the Institute for Integrated Sensor Systems at the Austrian Academy of Sciences.

▣ From 2012 to 2014, chairman of the scientific advisory committee of the EU FP7-FET project ZEROPOWER.

▣ From 2014 to 2017, elected Italian national coordinator of the research line on *Sensors, Microsystems and Instrumentation* and member of the governing board in the Associazione Gruppo Italiano di Elettronica (GE), now Società Italiana di Elettronica (SIE).

▣ From 2014 to 2020, elected member of the governing board of the Società Italiana di Elettronica (SIE).

▣ Since 2012, member of the steering committee of the Associazione Italiana Sensori e Microsistemi (AISEM).

- ▣ Since 2016, Member of the directing board in the Associazione Microelettronica Elettronica Semiconduttori (AMES-AEIT).
- ▣ Since 2020, Member of the cultural committee of Collegio Universitario di Merito Luigi Lucchini, Brescia.
- ▣ Co-chair of the 17th AISEM Annual Conference 2013.
- ▣ Co-chair of the Electric, Electronic and Electromechanical Engineering track and program committee member in *European Conference on Modelling & Simulation 2014*.
- ▣ Program chair of the 28th EUROSENSORS Conference 2014.
- ▣ Coordinator of the 48th Annual Meeting of Associazione Gruppo Italiano di Elettronica (GE) 2016 (<http://ge2016.unibs.it/>).
- ▣ Chair together with H. Espinosa, A. Frangi and M. Pantano of the symposium “Micro and Nano Mechanics Systems” at the *ESMC Conference 2018*.
- ▣ Track chair for the topic “Energy Harvesting” at 32nd EUROSENSORS Conference 2018.
- ▣ Hosting organizer of the 2019 EUA Council for Doctoral Education Annual Meeting in Brescia.
- ▣ Invited lecturer in national and international schools on the topic of sensors, energy harvesting, sensor electronics and instrumentation.
- ▣ Invited examiner and member of the evaluation panels of doctoral theses in Italy and abroad (Australia, Austria, France, Germany, Portugal, Spain, Suisse, Uruguay).
- ▣ Most recent invited and keynote presentations (international):
 - *Energy Harvesting from Vibrations and Motion for Battery-less Sensors*
Invited presentation at Journées Nationales sur la Récupération et le Stockage d'Énergie JNRSE'2015, Orsay, Paris FR, May 20-21, 2015.
 - *Sensors and Energy Harvesting based on Ferroelectric Printed Films*,
Invited presentation at 40th International Microelectronics and Packaging IMAPS Poland 2016 Conference, Wałbrzych, PL, September 25-28, 2016.
 - *Sensors and Energy Harvesting for Untethered Transducers*
Invited lecture, *Detecting Signals into the Noise - In Memoriam: Franco Manfredi*, Pavia, December 5, 2016.
 - *Fundamentals of Piezoelectricity*,
 - *Applications in Transducers and Energy Harvesting*,
Invited lectures, *International Summer School on Ultrasonic and Piezoelectric Sensors*, Florence, July 22-24, 2020.

▣ **Achievements and awards:**

- ▣ Co-author of the book “*Applied Structural and Mechanical Vibrations: Theory, Methods and Measuring Instrumentation*”, P.L. Gatti, V. Ferrari, 1999, CRC Press.
- ▣ Co-author of 3 papers in the Highly Cited Papers in ISI-WoS ranking in the top 1% in Engineering.
- ▣ Co-author of 3 papers that in different times ranked in the Most Cited Papers of the journal *Sensors and Actuators A* (ISSN: 0924-4247).
- ▣ Co-author of 1 paper that in 2012 ranked in the Most Cited Papers of the journal *Smart Materials and Structures* (ISSN: 0964-1726).
- ▣ Outstanding Poster Presentation Award for “Autonomous Sensor Module Powered by Impact-Enhanced Energy Harvester from Broadband Low-Frequency Vibrations” at *TRANSDUCERS 2013-Euroensors XXVII*.

- ▣ Best Paper Award for “A Microfluidic Device with Embedded Capacitive Sensor for Fluid Discrimination and Characterization” at *SENSORDEVICES 2010*.
- ▣ Best Poster Award for “Piezoelectric Energy Harvesting From Von Karman Vortices” at *AISEM 2013*.
- ▣ Best Poster Award for “Piezoelectric Actuators for Microfluidic Acoustic-Wave Manipulation of In-Liquid Particles” at *SIE 2017*.
- ▣ Best Poster Award for “Electrical Tuning of the Resonant Frequency of a Piezoelectric Micromachined Acoustic Transducer” at *AISEM 2019*.
- ▣ Best Oral Award for “MEMS Inclinator with Double-Actuator Servo-Assisted Position-Feedback and Tunable Sensitivity” at *SIE 2019*.
- ▣ Silver Leaf Award for “Servo-Assisted Position-Feedback MEMS Inclinator with Tunable Sensitivity” at *PRIME 2019*.

▣ **Extended publication list:** [OpenBS archive](#)

▣ **Selection of most significant publications from 2016 to present:**

▣ ***International Journals***

- RI-72** M. Farran, D. Modotto, S. Boscolo, A. Locatelli, A.D. Capobianco, M. Midrio, V. Ferrari,
Compact Printed Parasitic Arrays for WLAN Applications,
IEEE Antennas and Wireless Propagation Letters, **15**, (2016) 918 - 921. ISBN/ISSN: 1536-1225.
- RI-73** M. Farran, S. Boscolo, A. Locatelli, A.D. Capobianco, M. Midrio, V. Ferrari, D. Modotto,
Compact quasi-Yagi antenna with folded dipole fed by tapered integrated balun,
Electron. Lett., **52**, 10 (2016) 789-790. ISBN/ISSN: 0013-5194.
- RI-74** M. Baù, M. Ferrari, V. Ferrari,
Analysis and Validation of Contactless Time-Gated Interrogation Technique for Quartz Resonator Sensors,
Sensors, **17**, (2017) 1264. ISBN/ISSN: 1424-8220.
- RI-75** D. Alghisi, V. Ferrari, M. Ferrari, F. Touati, D. Crescini, A.B. Mnaouer,
A new nano-power trigger circuit for battery-less power management electronics in energy harvesting systems,
Sensors and Actuators A, **263**, (2017) 305–316. ISBN/ISSN: 0924-4247.
- RI-76** D. Alghisi, V. Ferrari, M. Ferrari, D. Crescini, F. Touati, A.B. Mnaouer,
Single- and multi-source battery-less power management circuits for piezoelectric energy harvesting systems,
Sensors and Actuators A, **264**, (2017) 234–246. ISBN/ISSN: 0924-4247.
- RI-77** M. Demori, M. Ferrari, A. Bonzanini, P. Poesio, V. Ferrari,
Autonomous Sensors Powered by Energy Harvesting from von Karman Vortices in Airflow,
Sensors, **17**, (2017) 2100. ISBN/ISSN: 1424-8220. **Open Access**
- RI-78** R. Marco-Hernández, M. Baù, M. Ferrari, V. Ferrari, F. Pedersen, L. Søby,
A low-noise charge amplifier for the ELENA trajectory, orbit and intensity measurement system,
IEEE Trans. on Nucl. Sci., **64**, 9, (2017) 2465-2473. ISBN/ISSN: 0018-9499.
- RI-79** M. Farran, S. Boscolo, A. Locatelli, A. D. Capobianco, M. Midrio, V. Ferrari, D. Modotto,
High-gain printed monopole arrays with low-complexity corporate-feed network,

IET Microwaves, Antennas & Propagation, **11**, 11, (2017), 1616 – 1621. ISBN/ISSN: Print ISSN 1751-8725, Online ISSN 1751-8733.

RI-80 F. Cerini, M. Ferrari, V. Ferrari, A. Russo, M. Azpeitia Urquia, R. Ardito, B. De Masi, R. I. P. Sedmik,

Electro-Mechanical Modelling and Experimental Characterization of a High-Aspect-Ratio Electrostatic-Capacitive MEMS Device,

Sensors and Actuators A, **266**, (2017) 219–231. ISBN/ISSN: 0924-4247.

RI-81 V. Ferrari,

Distortion-free probes of electric field,

Nature Electronics – News & Views article, **1**, (2018) 10–11. ISBN/ISSN: 2520-1131.

RI-82 M. Demori, M. Baù, M. Ferrari, V. Ferrari,

Electronic technique and circuit topology for accurate distance-independent contactless readout of passive LC sensors,

Int. J. Electron. Commun. (AEÜ), **92** (2018) 82–85. ISBN/ISSN: 1434-8411.

RI-83 M. Demori, M. Baù, M. Ferrari, V. Ferrari,

Interrogation Techniques and Interface Circuits for Coil-Coupled Passive Sensors,

Micromachines, **9**, 9 (2018) 449. ISBN/ISSN: 2072-666X.

RI-84 M. Baù, M. Ferrari, V. Ferrari,

Magnetless Electromagnetic Contactless Interrogation Technique for Unwired Conductive Resonators,

Electron. Lett., **55**, 11 (2019) 642-644. ISBN/ISSN: 0013-5194.

RI-85 M. Demori, M. Baù, S. Dalola, M. Ferrari, V. Ferrari,

Low-Frequency RFID Signal and Power Transfer Circuitry for Capacitive and Resistive Mixed Sensor Array,

Electronics, **8**, 6 (2019) 675. ISBN/ISSN: 2079-9292.

RI-86 V. Zega, A. Nastro, M. Ferrari, R. Ardito, V. Ferrari, A. Corigliano,

Design, fabrication and experimental validation of a MEMS periodic auxetic structure,

Smart Mater. Struct., **28**, 9, (2019) 095011 (11pp). ISBN/ISSN: 0964-1726.

RI-87 M. Baù, M. Ferrari, V. Ferrari,

Quartz Crystal Resonator Sensor With Printed-on-Crystal Coil for Dual-Harmonic Electromagnetic Contactless Interrogation,

IEEE Trans. on Ultrason. Ferroelect., Freq. Contr., **67**, 4, (2020) 883-886. ISBN/ISSN: 0885-3010. Electronic ISSN: 1525-8955.

RI-88 M. Serzanti, M. Baù, M. Demori, S. Calamaio, M. Cominelli, P.L. Poliani, P. Dell'Era, M. Ferrari, V. Ferrari,

Arrangement of Live Human Cells through Acoustic Waves Generated by Piezoelectric Actuators for Tissue Engineering Applications,

Appl. Sci., **10**, 10, 3477, (2020) 1-13. ISBN/ISSN: 2076-3417.

RI-89 A. Speciale, R. Ardito, M. Baù, M. Ferrari, V. Ferrari, A.A. Frangi,

Snap-Through Buckling Mechanism for Frequency-Up Conversion in Piezoelectric Energy Harvesting,

Appl. Sci., **10**, 10, 3614, (2020) 1-18. ISBN/ISSN: 2076-3417.

RI-90 M. Baù, M. Ferrari, H. Begum, A. Ali, J. E.-Y. Lee, V. Ferrari,

Technique and Circuit for Contactless Readout of Piezoelectric MEMS Resonator Sensors,

Sensors, **20**, (2020) 3483. ISBN/ISSN: 1424-8220. **Open Access**

RI-91 A. Nastro, M. Ferrari, V. Ferrari,

Double-Actuator Position-Feedback Mechanism for Adjustable Sensitivity in Electrostatic-Capacitive MEMS Force Sensors,

Sensors and Actuators A, **312**, (2020) 112127. ISBN/ISSN: 0924-4247.

RI-92 M. Baù, D. Alghisi, S. Dalola, M. Ferrari, V. Ferrari,

Multi-Frequency Array of Nonlinear Piezoelectric Converters for Vibration Energy Harvesting,

▣ **International Conference Proceedings**

CI-145 R. Ardito, B. De Masi, F. Cerini, M. Ferrari, V. Ferrari, A. Russo, M. Azpeitia Urquia, R.I.P. Sedmik,

Experimental and numerical assessment of the multi-physics dynamic response for a MEMS accelerometer at various gaps,

Proceedings of the XXX Eurosensors Conference, Budapest, Hungary, 4-7 September, 2016, in *Procedia Engineering*, **168**, (2016) 971-974. ISBN/ISSN: 1877-7058.

CI-146 M. Ferrari, M. Baù, M. Masud, V. Ferrari,

A Time-Gated Contactless Interrogation System for Frequency and Quality Factor Tracking in QCR to Investigate on Liquid Solution Microdroplets,

Proceedings of the XXX Eurosensors Conference, Budapest, Hungary, 4-7 September, 2016, in *Procedia Engineering*, **168**, (2016) 704-707. ISBN/ISSN: 1877-7058.

CI-147 M. Ferrari, S. Dalola, V. Ferrari, G. Cordaro, C. Cristiani, G. Dotelli,

Mask-Less Direct-Writing Deposition of Lead-Free Piezoelectric Films for Microsystems

Proceedings of the XXX Eurosensors Conference, Budapest, Hungary, 4-7 September, 2016, in *Procedia Engineering*, **168**, (2016) 1196-1199. ISBN/ISSN: 1877-7058.

CI-148 A. Nastro, M. Ferrari, A. Russo, R. Ardito, V. Ferrari,

Servo-assisted position-feedback MEMS force sensor with tunable sensitivity and sub-

nanonewton range,

Proceedings of the XXXI Eurosensors Conference, Paris, France, 3-6 September, 2017, in *Proceedings*, **1** (4), 383, (2017). EISSN: 2504-3900.

CI-149 M. Demori, M. Baù, S. Dalola, M. Ferrari, V. Ferrari,

Piezoelectric actuators for in-liquid particle manipulation in microfluidic applications,

Proceedings of the XXXI Eurosensors Conference, Paris, France, 3-6 September, 2017, in *Proceedings*, **1** (4), 392, (2017). EISSN: 2504-3900.

CI-150 M. Masud, M. Baù, M. Demori, M. Ferrari, V. Ferrari,

Contactless Interrogation System for Capacitive Sensors with Time-Gated Technique,

Proceedings of the XXXI Eurosensors Conference, Paris, France, 3-6 September, 2017, in *Proceedings*, **1** (4), 395, (2017). EISSN: 2504-3900.

CI-151 M. Borghetti, M. Demori, M. Ferrari, V. Ferrari, E. Sardini, M. Serpelloni,

Impedance Sensors Embedded in Culture Media for Early Detection of Bacteria Growth,

Proceedings of the Third National Conference on Sensors, Rome, Italy, 23-25 February, 2016, Lecture Notes in Electrical Engineering, Springer International Publishing, Vol. 431, 2018, 218-228. ISBN/ISSN: 978-331955076-3.

CI-152 M. Demori, M. Baù, M. Ferrari, V. Ferrari,

Particle Manipulation by Means of Piezoelectric Actuators for Microfluidic Applications,

Sensors and Microsystems, Proceedings of 19th National Conference AISEM, Lecce, Italy, 21-23 February, 2017, Lecture Notes in Electrical Engineering, Springer International Publishing, Vol. 457, 2018, 223-228. ISBN: 978-331966801-7.

CI-153 A. Nastro, M. Ferrari, V. Ferrari, A. Russo, R. Ardito,

MEMS force sensor with DDS-based position feedback and tunable sensitivity,

Proceedings of IEEE Sensors 2017 Conference, Glasgow, UK, October 29-November 1, 2017, 1-3. E-ISBN: 978-1-5090-1012-7, INSPEC Accession Number: 17467239.

CI-154 M. Demori, M. Masud, M. Baù, M. Ferrari, V. Ferrari,

Passive LC Sensor Label with Distance-Independent Contactless Interrogation,

Proceedings of IEEE Sensors 2017 Conference, Glasgow, UK, October 29-November 1, 2017, 1-3. E-ISBN: 978-1-5090-1012-7, INSPEC Accession Number: 17467286.

CI-155 M. Demori, M. Baù, S. Dalola, M. Ferrari, V. Ferrari,

RFID powered system for contactless measurement of a resistive sensor array,

Proceedings of IEEE International Instrumentation and Measurement Technology Conference (I2MTC), Houston, TX, USA, May 14-17, 2018, 1-5. E-ISBN: 978-1-5386-2222-3, INSPEC Accession Number: 17933376.

CI-156 M. Baù, M. Demori, M. Ferrari, V. Ferrari,
Contactless Readout of Passive LC Sensors with Compensation Circuit for Distance-Independent Measurements,

Proceedings of the XXXII Eurosensors Conference, Graz, Austria, 9-12 September, 2018, in *Proceedings*, **2** (13), 843, (2018). E-ISSN: 2504-3900.

CI-157 A. Nastro, M. Ferrari, A. De Marcellis, V. Ferrari,
A Current-Mode TransImpedance Amplifier for Capacitive Sensors,

Proceedings of the XXXII Eurosensors Conference, Graz, Austria, 9-12 September, 2018, in *Proceedings*, **2** (13), 1033, (2018). E-ISSN: 2504-3900.

CI-158 A.A. Rendon-Hernandez, M. Ferrari, S. Basrour, V. Ferrari,
Electrical Modeling and Characterization of a Thermo-Magnetically Activated Piezoelectric Generator (TMAPG),

Proceedings of the PowerMEMS 2018 Conference - Journal of Physics: Conference Series, Vol. 1407, Daytona Beach, Florida (USA), December 4-7, 2018, 012058. ISBN: --.

CI-159 A. Nastro, L. Rufer, M. Ferrari, S. Basrour, V. Ferrari,
Piezoelectric Micromachined Acoustic Transducer with Electrically-Tunable Resonant Frequency,

Proceedings of the 20th International Conference on Solid-State Sensors, Actuators and Microsystems - Transducers 2019 & Eurosensors XXXIII, Berlin, Germany, June 23-27, 2019, 1905-1908. ISBN: 978-1-5386-8104-6.

CI-160 M. Demori, M. Baù, M. Ferrari, S. Basrour, L. Rufer, V. Ferrari,
MEMS Device with Piezoelectric Actuators for Driving Mechanical Vortexes in Aqueous Solution Drop,

Proceedings of the 20th International Conference on Solid-State Sensors, Actuators and Microsystems - Transducers 2019 & Eurosensors XXXIII, Berlin, Germany, June 23-27, 2019, 2318-2321. ISBN: 978-1-5386-8104-6.

CI-161 M. Baù, M. Demori, M. Ferrari, V. Ferrari,
Printed Coil on Quartz Crystal Resonator Sensor for Electromagnetic Contactless Interrogation,

Proceedings of IEEE International Conference on Flexible and Printable Sensors and Systems - FLEPS2019, Glasgow, United Kingdom, July 8-10, 2019, 1-3. ISBN: 978-1-5386-9304-9.

CI-162 M. Baù, M. Ferrari, V. Ferrari,
Flexible Passive Temperature Sensor Label with Contactless Interrogation,
Proceedings of IEEE International Conference on Flexible and Printable Sensors and Systems - FLEPS2019, Glasgow, United Kingdom, July 8-10, 2019, 1-3. ISBN: 978-1-5386-9304-9.

CI-163 A. Nastro, M. Ferrari, V. Ferrari,
Servo-Assisted Position-Feedback MEMS Inclinometer with Tunable Sensitivity,
Proceedings of 15th Conference on Ph.D. Research in Microelectronics and Electronics, PRIME 2019, Lausanne, Switzerland, July 15-18, 2019, 305-308. ISBN: 978-1-7281-3549-6.

CI-164 M. Baù, M. Ferrari, V. Ferrari,
Piezoelectric Multi-Frequency Nonlinear MEMS Converter for Energy Harvesting from Broadband Vibrations,

Sensors and Microsystems, Proceedings of 20th National Conference AISEM, Napoli, Italy, 13-13 February, 2019, Lecture Notes in Electrical Engineering, Springer International Publishing, Vol. 629, 2020, 265-271. ISBN/print: 978-3-030-37557-7. ISBN/online: 978-3-030-37558-4.

CI-165 M. Baù, M. Ferrari, V. Ferrari, A. Ali, J.E.Y. Lee,
Capacitance of TPoS MEMS Resonator for Accurate Frequency Tracking with PLL-Based Oscillator Circuit,
Sensors and Microsystems, Proceedings of 20th National Conference AISEM, Napoli, Italy, 13-13 February, 2019, Lecture Notes in Electrical Engineering, Springer International Publishing, Vol. 629, 2020, 273-278. ISBN/print: 978-3-030-37557-7. ISBN/online: 978-3-030-37558-4.

CI-166 M. Ferrari, M. Demori, M. Baù, V. Ferrari,
Distance-Independent Contactless Interrogation of Quartz Resonator Sensor with Printed-on-Crystal Coil,
Sensors and Microsystems, Proceedings of 20th National Conference AISEM, Napoli, Italy, 13-13 February, 2019, Lecture Notes in Electrical Engineering, Springer International Publishing, Vol. 629, 2020, 293-299. ISBN/print: 978-3-030-37557-7. ISBN/online: 978-3-030-37558-4.

CI-167 A. Nastro, M. Ferrari, V. Ferrari,
MEMS Inclinometer with Tunable-Sensitivity and Segmented Overlapping Allan Variance Analysis,
Proceedings of 2020 AEIT International Annual Conference (AEIT), Catania, Italy, September 23-25, 2020, 1-6. IEEE Conference Publications. ISBN (Electronic): 978-8-8872-3747-4.

▣ **Book Chapters**

L-10 C. Falconi, G. Mantini, A. D'Amico, V. Ferrari,
Modeling of piezoelectric nanodevices,
in *Piezoelectric nanomaterials for biomedical applications - Nanomedicine and Nanotoxicology*, G. Ciofani and A. Menciacchi (Eds.), 2012, Springer-Verlag Berlin Heidelberg, 93-133. ISBN/ISSN: 978-3-642-28043-6; e-ISBN: 978-3-642-28044-3;

L-11 V. Ferrari, M. Prudenziati,
Printed thick-film capacitive sensors,
in *Printed films: Materials science and applications in sensors, electronics and photonics* M Prudenziati and J Hormadaly (Eds.), 2012, Woodhead Publishing Limited, Cambridge (UK), Ch. 8, 193-220. ISBN: 978 1 84569 988 8

L-12 V. Ferrari,
Printed thick-film piezoelectric and pyroelectric sensors,
in *Printed films: Materials science and applications in sensors, electronics and photonics* M Prudenziati and J Hormadaly (Eds.), 2012, Woodhead Publishing Limited, Cambridge (UK), Ch. 9, 221-258. ISBN: 978 1 84569 988 8

▣ **Editorship**

E-1 C. Di Natale, V. Ferrari, A. Ponzoni, G. Sberveglieri, M. Ferrari,
Sensors and Microsystems - Proceedings of the 17th National Conference AISEM2013, Lecture Notes in Electrical Engineering, Springer International Publishing, Vol. 268, 2014. ISBN: 978-3-319-00683-3; e-ISBN: 978-3-319-00684-0.

E-2 G. Sberveglieri, V. Ferrari,
Proceedings of 28th EUROSENSORS Conference 2014, in *Procedia Engineering*, **87**, 2014, Elsevier, ISSN: 1877-7058.

E-3 G. Sberveglieri, V. Ferrari,
State-of-the-Art Sensors Technologies in Italy 2016, in *SENSORS*, **17**, 2017, MDPI AG, ISSN: 1424-8220.

E-4 B. Andò, F. Baldini, C. Di Natale, V. Ferrari, V. Marletta, G. Marrazza, V. Militello, G. Miolo, M. Rossi, L. Scalise, P. Siciliano,
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