

Luisa Petti

Personal Information

Name	Luisa Petti
Place of Birth	Munich, Germany
Date of Birth	04/06/1987
Nationality	Italian
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Current Position

07/2018 – present	Free University of Bolzano-Bozen, Bolzano, Italy Fixed-term Assistant Professor, Faculty of Science and Technology <ul style="list-style-type: none">• Research in the areas of: flexible, printed and environmentally-friendly electronics (sensors, energy harvesters, actuators and sensor systems).• Responsible for the management of internal, regional, and national research projects, as well as of for the management of the laboratories.• Responsible for Ph.D. and post-doctoral student supervision.
08/2018 – 08/2024	Italian Ministry of Instruction, University and Research, Rome, Italy National Scientific Qualification for Associate Professor <ul style="list-style-type: none">• Sector: 09/E3 Electronics

Education

02/2012 – 05/2016	ETH Zurich, Zurich, Switzerland Ph.D. in Information Technology and Electrical Engineering
09/2009 – 12/2011	Politecnico di Milano, Milan, Italy M.Sc. in Electronic Engineering (Grade: 110/110 cum laude)
09/2006 – 07/2009	Politecnico di Milano, Milan, Italy B.Sc. in Electronic Engineering (Grade: 110/110 cum laude)

Research Experience

12/2017 – 06/2018	FlexEnable Limited, Cambridge, United Kingdom Research Engineer, System Design Team <ul style="list-style-type: none">• Responsible for the electrical and optical characterization of flexible organic liquid crystal displays (OLCDs).• Responsible for the management of internal, customer and European research projects on flexible OLCDs.• Dark-room manager.
10/2016 – 12/2017	Cambridge Display Technology Limited, Godmanchester, United Kingdom Scientist, Lighting & Energy Application Team <ul style="list-style-type: none">• Responsible for the fabrication, characterization and integration of flexible printed organic thermoelectric generators for industrial IoT applications.• Responsible for the electrochemical and physical characterization of novel materials for thin-film flexible polymer-based batteries.

- Responsible for the integration of flexible organic batteries and solar cells for medical wearable, healthcare, and smart home IoT applications.
- Co-inventor of a patent application on gel electrolytes for flexible batteries.
- Involved in the 3rd Horizon group for a long-term planning of CDT's research and development activities.

09/2016 – 12/2017
(from 10/16 at 10%)

ETH Zurich, Zurich, Switzerland

Research Associate, Wearable Computing Group

- Research in the areas of: flexible short-channel thin-film transistors and complementary analogue circuits based on metal oxide semiconductors.
- Demonstrated shortest channel length ever reported for flexible transistors.
- Authored and co-authored >16 publications in >14 peer-reviewed journals.
- Responsible for Ph.D. student supervision and cleanroom user trainings.
- Scientific evaluator of European H2020 FET-OPEN and ICT projects.

02/2012 – 08/2016

ETH Zurich, Zurich, Switzerland

Research Assistant, Wearable Computing Group

- Research in the areas of: flexible thin-film transistors, memories, and integrated circuits based on metal oxide and organic semiconductors.
- Demonstrated first flexible vertical indium gallium zinc oxide transistors.
- Authored and co-authored >58 publications in >21 peer-reviewed journals.
- Coordinated the preparation of an extensive and well-cited review on flexible metal oxide semiconductor electronics (53 pages, 363 references).
- Presented >7 contributed and invited talks at international top conferences.
- Collaborated with >16 academic and industrial partners over >6 countries.
- Involved in >3 European and Swiss third-party projects.

09/2014 – 12/2014

Apple Incorporated, Cupertino, United States of America

Intern, Emerging Display Technologies Group

- Developed new designs and fabrication processes for next-generation flexible and stretchable display technologies.
- Co-inventor of an international patent application on stretchable displays.

02/2014 – 08/2014

Imperial College London, London, United Kingdom

Visiting Research Assistant, Advanced Materials & Devices Group

- Research in the areas of: flexible solution-processed thin-film transistors and complementary digital circuits.

09/2011 – 12/2011

Politecnico di Milano, Milan, Italy

Student Research Assistant, Radiation Detectors and Electronics Group

- Research in the areas of: x-ray fluorescence micro-analysis of biological samples.

03/2011 – 09/2011

ETH Zurich, Zurich, Switzerland

Student Research Assistant, Micro and Nanosystems Group

- Research in the areas of: micro-fabrication of x-ray refractive optical microlenses.

Teaching Experience

10/2019 – 01/2020

Free University of Bolzano-Bozen, Bolzano, Italy

M.Sc. in Food Sciences for Innovation and Authenticity

- Lecturer of "Sensors and Biosensors for Food Processing" (in English)

10/2019 – 01/2020

Free University of Bolzano-Bozen, Bolzano, Italy

B.Sc. in Wood Engineering

- Lecturer of "Electronics, Diagnosis and Quality Control" (in German)

- 03/2019 – 06/2019 **Free University of Bolzano-Bozen, Bolzano, Italy**
 B.Sc. in Wood Engineering
 - Lecturer and course responsible of “Physics” (in German)
- 02/2013 – 06/2013 **ETH Zurich, Zurich, Switzerland**
 M.Sc. in Electrical Engineering
 - Teaching assistant of “Wearable Systems II” (in English)
- 02/2013 – 06/2013 **ETH Zurich, Zurich, Switzerland**
 M.Sc. in Electrical Engineering
 - Teaching assistant of “Wearable Systems II” (in English)

Awards

- 12/2019 **IEEE Electron Devices Society, San Francisco, US**
 - Awarded with the IEEE Electron Devices Society (EDS) Early Career Award 2019 in recognition of early career technical development.
- 01/2017 **ETH Zurich, Zurich, Switzerland**
 - Awarded with the ETH medal for outstanding doctoral theses in 2016.
- 03/2013 **International Thin-Film Transistor Conference 2013, Tokyo, Japan**
 - Winner of the best student paper award.
- 07/2011 **Euspen Challenge 2011, University of Cambridge, Cambridge, UK**
 - Awarded with the 2nd prize for the most innovative solution.
- 04/2011 **Politecnico di Milano, Milan, Italy**
 - Winner of the gold medal for the top 40 B.Sc. graduates 2008-2009.

Research Projects

- 07/2019-now **UNIBZ RTD Call 2019, EYRE RTD Project**
 - Principal investigator of “Environmentally-friendly Electronics on Paper (EYRE)” Project. PI: Dr. L. Petti (UNIBZ). Total Budget: 13.500 euro.
- 01/2019-now **EFRE-FESR-2014-2020 FESR3310, STEX FESR Project**
 - Team member and project manager from UNIBZ’s side of “Smart textile for monitoring muscles activity (STEX)” Project. PI: Prof. P. Lugli (UNIBZ). Total Budget: 623.910,4 euro.
- 07/2018-now **EFRE-FESR-2014-2020 FESR1068, SensLab FESR Project**
 - Team member from UNIBZ’s side of “Sensing Laboratory (SensLab)” Project. PI: Prof. P. Lugli (UNIBZ). Total Budget: 1.493.974,78 euro.
- 07/2018-now **UNIBZ ID call 2017, SSP ID Project**
 - Team member from UNIBZ’s side of “Sustainable Smart Parasites (SSP)” Project. PI: Prof. P. Lugli (UNIBZ). Total Budget: 198.000 euro.
- 01/2018-06/2018 **H2020-ICT-30-2017, PHENOMenon European Project**
 - Task leader from FlexEnable’s side of “Laser manufacturing of 3D nanostructured optics using advanced photochemistry (PHENOMenon)” Project. PI: Dr. P. Romero (AIMEN). Total Budget: 3.889.152,50 euro.
- 09/2011-09/2015 **FP7-ICT-2011-7, FLEXIBILITY European Project**
 - Work package leader from ETH’s side of “Flexible Multifunctional Bendable Integrated Lightweight Ultra-Thin Systems (FLEXIBILITY)” Project. PI: Dr. C. Carta (TUD). Total Budget: EUR 4.899.000 euro.

Refereed Journal Papers

- P. Ibba, A. Falco, B.D. Abera, G. Cantarella, L. Petti, and P. Lugli, "Bio-impedance and circuit parameters: An analysis for tracking fruit ripening", in *Postharvest Biology and Technology* 159, pp- 110978, 2020.
- N. Münzenrieder, I. Shorubalko, L. Petti, G. Cantarella, S. Bajramshahe, T. Meister, K. Ishida, C. Carta, F. Ellinger, and G. Tröster, "Focused ion beam milling for the fabrication of 160 nm channel length IGZO TFTs on flexible polymer substrates", in *Flexible and Printed Electronics*, 2019.
- N. Münzenrieder, G. Cantarella, and L. Petti. "Fabrication and AC performance of flexible Indium-Gallium-Zinc-Oxide thin-film transistors," in *ECS Transactions* 90 (1), pp. 55-63, 2019.
- B. D. Abera, A. Falco, P. Ibba, G. Cantarella, L. Petti, and P. Lugli, "Development of Flexible Dispense-Printed Electrochemical Immunosensor for Aflatoxin M1 Detection in Milk", *Sensors* 19 (18), pp. 3912, 2019.
- G. Cantarella, S. Kumar, C. Vogt, S. Knobelspies, A. Takabayashi, J. Jagielski, N. Münzenrieder, A. Daus, L. Petti, G. A. Salvatore, P. Lugli, C.-J. Shih, G. Tröster, "Flexible green perovskite light emitting diodes," in *IEEE Journal of the Electron Devices Society*, 2019
- L. Petti, E. Greco, G. Cantarella, N. Münzenrieder, C. Vogt, and G. Tröster, "Flexible In-Ga-Zn-O thin-film transistors with sub-300-nm channel lengths defined by two-photon direct laser writing," in *IEEE Transaction on Electron Devices* 65 (9), pp. 3796-3802, 2018.
- N. Münzenrieder, K. Ishida, T. Meister, G. Cantarella, L. Petti, C. Carta, F. Ellinger, and G. Tröster, "Flexible InGaZnO TFTs with f_{\max} above 300 MHz," in *IEEE Electron Device Letters*, 2018.
- G. Cantarella, V. Costanza, A. Ferrero, R. Hopf, C. Vogt, M. Varga, L. Petti, N. Münzenrieder, L. Büthe, G. A. Salvatore, A. Claville, L. Bonanomi, A. Daus, S. Knobelspies, C. Daraio, and G. Tröster, "Design of engineered elastomeric substrate for stretchable active devices and sensors," in *Advanced Functional Materials*, pp. 1705132, 2018.
- L. Petti, F. Loghin, G. Cantarella C. Vogt, N. Münzenrieder, A. Abdellah, M. Becherer, T. Haeberle, A. Daus, G. Salvatore, and G. Tröster, "Gain-tunable complementary common-source amplifier based on a flexible hybrid thin-film transistor technology," in *IEEE Electron Device Letters* 38 (11), pp. 1536-1539, 2017.
- A. Daus, P. Lenarczyk, L. Petti, N. Münzenrieder, S. Knobelspies, G. Cantarella, C. Vogt, G. A. Salvatore, M. Luisier, G. Tröster, "Ferroelectric-Like Charge Trapping Thin-Film Transistors and Their Evaluation as Memories and Synaptic Devices," in *Advanced Electronic Materials* 3 (12), p. 1700309, 2017.
- G. A. Salvatore, J. Sülzle, F. Dalla Valle, G. Cantarella, F. Robotti, P. Jokic, S. Knobelspies, A. Daus, L. Büthe, L. Petti, N. Kirchgessner, R. Hopf, M. Magno, G. Tröster, "Biodegradable and Highly Deformable Temperature Sensors for the Internet of Things," in *Advanced Functional Materials* 27 (35), pp. 1702390, 2017.
- L. Petti, P. Pattanasattayavong, Y. H. Lin, N. Münzenrieder, G. Cantarella, N. Yaacobi-Gross, F. Yang, G. Tröster, and T. D Anthopoulos, "Solution-processed p-type copper (I) thiocyanate (CuSCN) for low-voltage flexible

- thin-film transistors and integrated inverter circuits,” in *Applied Physics Letters* 110 (11), p. 113504, 2017.
- G. Cantarella, C. Vogt, R. Hopf, N. Münzenrieder, P. Andrianakis, L. Petti, A. Daus, S. Knobelspies, L. Büthe, G. Tröster, and G. A. Salvatore, “Buckled Thin-Film Transistors and Circuits on Soft Elastomers for Stretchable Electronics,” in *ACS Applied Materials & Interfaces*, 2017.
 - N. Münzenrieder, J. Costa, G. Cantarella, C. Vogt, L. Petti, A. Daus, S. Knobelspiess, and G. Tröster, “Oxide thin-film electronics on carbon fiber reinforced polymer composite,” in *IEEE Electron Device Letters* 38 (8), pp. 1043-1046, 2017.
 - A. Daus, C. Vogt, N. Münzenrieder, L. Petti, S. Knobelspies, G. Cantarella, M. Luisier, G. A. Salvatore, G. Tröster, “Charge Trapping Mechanism Leading to Sub-60-mV/decade-Swing FETs,” in *IEEE Transactions on Electron Devices* 64 (7), pp. 2789-2796, 2017.
 - N. Münzenrieder, C. Vogt, L. Petti, G. A. Salvatore, G. Cantarella, L. Büthe, and G. Tröster, “Oxide thin-film transistors on fibers for smart textiles,” in *Technologies* 5 (2), p. 31, 2017.
 - L. Büthe, C. Vogt, L. Petti, G. Cantarella, N. Münzenrieder, and G. Tröster, “Fabrication, modeling and evaluation of a digital output tilt sensor with conductive microspheres,” in *IEEE Sensors Journal* 18 (12), pp. 3635-3643, 2017.
 - A. Daus, C. Vogt, N. Münzenrieder, L. Petti, S. Knobelspies, G. Cantarella, M. Luisier, G. A. Salvatore, G. Tröster, “Positive charge trapping phenomenon in n-channel thin-film transistors with amorphous alumina gate insulators,” in *Journal of Applied Physics* 120 (24), p. 244501, 2016.
 - G. Cantarella, K. Ishida, L. Petti, N. Münzenrieder, T. Meister, R. Shabanpour, C. Carta, F. Ellinger, G. Tröster, and G. A. Salvatore “Flexible In–Ga–Zn–O-Based Circuits with Two and Three Metal Layers: Simulation and Fabrication Study,” in *IEEE Electron Device Letters* 37 (12), pp. 1582-1585, 2016.
 - S. Knobelspies, A. Daus, G. Cantarella, L. Petti, N. Münzenrieder, G. Tröster, and G. A. Salvatore, “Flexible a-IGZO Phototransistor for Instantaneous and Cumulative UV-Exposure Monitoring for Skin Health,” in *Advanced Electronic Materials* 2 (10), p. 1600273, 2016.
 - L. Petti, N. Münzenrieder, C. Vogt, H. Faber, L. Büthe, G. Cantarella, F. Bottacchi, T. D. Anthopoulos, and G. Tröster, “Metal Oxide Semiconductor Thin-Film Transistors for Flexible Electronics,” in *Applied Physics Review* 3 (2), p. 021303, 2016.
 - N. Münzenrieder, D. Karnaushenko, L. Petti, G. Cantarella, C. Vogt, L. Büthe, D. Karnaushenko, O. G. Schmidt, D. Makarov, and G. Tröster, “Entirely flexible on-site conditioned magnetic sensorics,” in *Advanced Electronic Materials*, p. 1600188, 2016.
 - R. Shabanpour, T. Meister, K. Ishida, B. K. Boroujeni, C. Carta, F. Ellinger, L. Petti, N. Münzenrieder, G. A. Salvatore, and G. Tröster, “Design and analysis of high-gain amplifiers in flexible self-aligned a-IGZO thin-film transistor technology,” in *Analog Integrated Circuits and Signal Processing* 87 (2), p. 213-222, 2016.
 - L. Petti, H. Faber, N. Münzenrieder, G. Cantarella, P. A. Patsalas, G. Tröster, and T. D. Anthopoulos, “Low-temperature spray-deposited indium oxide for

- flexible thin-film transistors and integrated circuits,” in *Applied Physics Letters* 106 (9), p. 092105, 2015.
- L. Petti, A. Frutiger, N. Münzenrieder, G. A. Salvatore, L. Büthe, C. Vogt, G. Cantarella, and G. Tröster, “Flexible quasi-vertical In-Ga-Zn-O thin-film transistor with 300 nm channel length,” in *IEEE Electron Device Letters* 36 (5), pp. 475-477, 2015.
 - F. Bottacchi, L. Petti, F. Späth, I. Namal, G. Tröster, T. Hertel, and T. D. Anthopoulos, “Polymer-sorted (6,5) single-walled carbon nanotubes for solution-processed low-voltage flexible microelectronics,” in *Applied Physics Letters* 106 (19), p. 193302, 2015.
 - G. Cantarella, N. Münzenrieder, L. Petti, C. Vogt, L. Büthe, G. A. Salvatore, A. Daus, and G. Tröster, “Flexible In-Ga-Zn-O Thin-Film Transistors on elastomeric substrate bent to 2.3%,” in *IEEE Electron Device Letters* 36 (5), pp. 475-477, 2015.
 - N. Münzenrieder, G. Cantarella, C. Vogt, L. Petti, L. Büthe, G. A. Salvatore, Y. Fang, R. Andri, Y. Lam, R. Libanori, D. Widner, A. Studart, and G. Tröster, “Stretchable and Conformable Oxide Thin-Film Electronics,” in *Advanced Electronic Materials* 1 (3), p. 1400038, 2015.
 - D. Karnaushenko, N. Münzenrieder, D. D. Karnaushenko, B. Koch, A. K. Meyer, S. Baunack, L. Petti, G. Tröster, D. Makarov, and O. G. Schmidt, “Biomimetic Microelectronics for Regenerative Neuronal Cuff Implants,” in *Advanced Materials* 27 (43), pp. 6797-6805, 2015.
 - L. Petti, N. Münzenrieder, G. A. Salvatore, C. Zysset, T. Kinkeldei, L. Büthe, and G. Tröster, “Influence of mechanical bending on flexible InGaZnO-based ferroelectric memory TFTs,” in *IEEE Transactions on Electron Devices* 61 (4), pp. 1085-1092, 2014.
 - N. Münzenrieder, G. A. Salvatore, L. Petti, C. Zysset, L. Büthe, C. Vogt, G. Cantarella, and G. Tröster, “Contact resistance and overlapping capacitance in flexible sub-micron long oxide thin-film transistors for above 100 MHz operation,” in *Applied Physics Letters* 105 (26), p. 263504, 2014.
 - N. Münzenrieder, P. Voser, L. Petti, C. Zysset, L. Büthe, C. Vogt, G. A. Salvatore, and G. Tröster, “Flexible Self-Aligned Double-Gate IGZO TFT,” in *IEEE Electron Device Letters* 35 (1), pp. 69-71, 2014.
 - G. A. Salvatore, N. Münzenrieder, T. Kinkeldei, L. Petti, C. Zysset, I. Strebel, L. Büthe, and G. Tröster, “Wafer-scale design of lightweight and transparent electronics that wraps around hair,” in *Nature Communications* 5 (2982), pp. 1-8, 2014.
 - N. Münzenrieder, C. Zysset, L. Petti, T. Kinkeldei, G. A. Salvatore, and G. Tröster, “Flexible double gate a-IGZO TFT fabricated on free standing polyimide foil,” in *Solid-State Electronics* 84, pp. 198-204, 2013.
 - N. Münzenrieder, C. Zysset, L. Petti, T. Kinkeldei, G. A. Salvatore, and G. Tröster, “Room temperature fabricated flexible NiO/IGZO pn diode under mechanical strain,” in *Solid-State Electronics* 87, pp. 17-20, 2013.
 - C. Zysset, N. Nasser, L. Büthe, N. Münzenrieder, T. Kinkeldei, L. Petti, S. Kleiser, G. A. Salvatore, M. Wolf and, and G. Tröster, “Textile Integrated Sensors and Actuators for Near-Infrared Spectroscopy,” in *Optics Express* 21 (3), pp. 3213-3224, 2013.
 - N. Münzenrieder, C. Zysset, L. Petti, T. Kinkeldei, G. A. Salvatore, and G. Tröster, “Flexible self-aligned amorphous InGaZnO thin-film transistors with

sub-micrometer channel length and a transit frequency of 135 MHz,” in *IEEE Transactions on Electron Devices* 60 (9), pp. 2815-2820, 2013.

- C. Zysset, T. Kinkeldei, N. Münzenrieder, L. Petti, G. A. Salvatore, and G. Tröster, “Combining electronics on flexible plastic strips with textiles,” in *Textile Research Journal* 83 (11), pp. 1130-1142, 2013.
- C. Perumal, K. Ishida, R. Shabanpour, B. K. Boroujeni, L. Petti, N. Münzenrieder, G. A. Salvatore, C. Carta, G. Tröster, and F. Ellinger, “A Compact a-IGZO TFT Model Based on MOSFET SPICE Level=3 Template for Analog/RF Circuit Designs,” in *IEEE Electron Device Letters* 34 (11), pp. 1391-1393, 2013.
- G. A. Salvatore, N. Münzenrieder, C. Barraud, L. Petti, C. Zysset, L. Büthe, K. Ensslin, and G. Tröster, “Fabrication and Transfer of Flexible Few-Layers MoS₂ Thin Film Transistors to Any Arbitrary Substrate,” in *ACS Nano* 7 (10), pp. 8809-8815, 2013.
- C. Zysset, N. Münzenrieder, L. Petti, L. Büthe, G. A. Salvatore, and G. Tröster, “IGZO TFT-Based All-Enhancement Operational Amplifier Bent to a Radius of 5 mm,” in *Electron Device Letters* 34 (11), pp. 1394-1396, 2013.
- T. Kinkeldei, C. Zysset, N. Münzenrieder, L. Petti, and G. Tröster, “Tube Integrated Electronic Nose System on a Flexible Polymer Substrate,” in *Sensors* 12 (10), pp. 13684-13693, 2012.

Refereed Conference Proceedings

- P. Ibba, M. Crepaldi, G. Cantarella, G. Zini, A. Barcellona, M. Petrelli, B. D. Abera, B. Shkodra, L. Petti and P. Lugli, “FruitMeter: An AD5933-based Portable Impedance Analyzer for Fruit Quality Characterization”, accepted at IEEE ISCAS, 2020.
- B. Shkodra, A. Douaki, B. D. Abera, P. Ibba, E. Avancini, G. Cantarella, L. Petti and P. Lugli, “A PEDOT:PSS/SWCNT-Coated Screen Printed Immunosensor for Histamine Detection in Food Samples”, accepted at IEEE ISCAS, 2020.
- B. D. Abera, B. Shkodra, A. Douaki, P. Ibba, G. Cantarella, L. Petti and P. Lugli, “Single-Walled Carbon Nanotube-Coated Flexible and Soft Screen-Printed Electrochemical Biosensor for Ochratoxin A Detection”, accepted at IEEE ISCAS, 2020.
- B. D. Abera, A. Falco, P. Ibba, G. Cantarella, L. Petti, P. Lugli, “Flexible Dispense-Printed Electrochemical Biosensor for Aflatoxin M1 Detection Employing NaOH and Oxygen Plasma Electrode Pre-treatment”, in 2019 IEEE International Conference on Flexible and Printable Sensors and Systems (FLEPS), 2019.
- R. Shabanpour, T. Meister, K. Ishida, B. Boroujeni, C. Carta, F. Ellinger, L. Petti, N. Münzenrieder, G. A. Salvatore, G. Tröster, “A transistor model for a-IGZO TFT circuit design built upon the RPI-aTFT model,” in *New Circuits and Systems Conference (NEWCAS)*, pp. 129-132, 2017.
- T. Meister, K. Ishida, R. Shabanpour, B. K. Boroujeni, C. Carta, N. Münzenrieder, L. Petti, G. Cantarella, G. A. Salvatore, G. Tröster, and Frank Ellinger, “20.3 dB 0.39 mW AM detector with single-transistor active inductor in bendable a-IGZO TFT,” in *Solid-State Device Research Conference (ESSDERC)*, 2016.
- K. Ishida, T. Meister, R. Shabanpour, B. K. Boroujeni, C. Carta, G. Cantarella, L. Petti, N. Münzenrieder, G. A. Salvatore, G. Tröster, and F. Ellinger, “Radio frequency electronics in a-IGZO TFT technology,” in *Active-Matrix Flatpanel Displays and Devices (AMFPD)*, 2016.
- T. Meister, K. Ishida, C. Carta, R. Shabanpour, B. K. Boroujeni, N. Münzenrieder, L. Petti, G. A. Salvatore, G. Schmidt, P. Ghesquiere, S. Kiefl,

- G. De Toma, A. C. Hübler, G. Tröster, and F. Ellinger, "3.5mW 1MHz AM Detector and Digitally-Controlled Tuner in a-IGZO TFT for Wireless Communications in a Fully Integrated Flexible System for Audio Bag," in *Symposium on VLSI Technology (VLSI Technology)*, 2016.
- L. Bütthe, C. Vogt, L. Petti, G. Cantarella, N. Münzenrieder, and G. Tröster, "Digital output flexible tilt sensor with conductive microspheres," in *Proceedings of the IEEE Sensors*, pp. 1-4, 2015.
 - C. Vogt, L. Bütthe, L. Petti, G. Cantarella, N. Münzenrieder, A. Daus, and G. Tröster, "Design and simulation of an 800 Mbit/s data link for magnetic resonance imaging wearables," in *37th Annual International Conference of the IEEE in Engineering in Medicine and Biology Society (EMBC)*, pp. 1323-1326, 2015.
 - K. Ishida, R. Shabanpour, T. Meister, B. K. Boroujeni, C. Carta, L. Petti, N. Münzenrieder, G. A. Salvatore, G. Tröster, and F. Ellinger, "15 dB conversion gain, 20 MHz carrier frequency AM receiver in flexible a-IGZO TFT technology with textile antennas," in *Symposium on VLSI Technology (VLSI Technology)*, pp. C194-C195, 2015.
 - R. Shabanpour, C. Carta, K. Ishida, T. Meister, B. K. Boroujeni, N. Münzenrieder, L. Petti, G. A. Salvatore, G. Tröster, and F. Ellinger, "Baseband amplifiers in a-IGZO TFT technology for flexible audio systems," in *International Symposium on Intelligent Signal Processing and Communication Systems (ISPACS)*, pp. 357-361, 2015.
 - F. Ellinger, K. Ishida, R. Shabanpour, T. Meister, B. K. Boroujeni, C. Carta, L. Petti, G. A. Salvatore, G. Tröster, and N. Münzenrieder, "Radio frequency electronics on plastic," in *SBMO/IEEE MTT-S International Conference on Microwave and Optoelectronics Conference (IMOC)*, pp. 1-5, 2015.
 - R. Shabanpour, K. Ishida, T. Meister, N. Münzenrieder, L. Petti, G. A. Salvatore, B. K. Boroujeni, C. Carta, G. Tröster, and F. Ellinger, "A 70° phase margin OPAMP with positive feedback in flexible a-IGZO TFT technology," in *IEEE 58th International Midwest Symposium on Circuits and Systems (MWSCAS)*, pp. 1-4, 2015.
 - R. Shabanpour, C. Carta, T. Meister, K. Ishida, B. K. Boroujeni, F. Ellinger, N. Münzenrieder, G. A. Salvatore, L. Petti, and G. Tröster, "A fully integrated audio amplifier in flexible a-IGZO TFT technology for printed piezoelectric loudspeakers," in *European Conference on Circuit Theory and Design (ECCTD)*, pp. 1-4, 2015.
 - T. Meister, K. Ishida, R. Shabanpour, B. K. Boroujeni, C. Carta, F. Ellinger, N. Münzenrieder, L. Petti, G. A. Salvatore, G. Tröster, M. Wagner, P. Ghesquiere, S. Kiefl, and M. Krebs, "Bendable energy-harvesting module with organic photovoltaic, rechargeable battery and a-IGZO TFT charging electronics," in *European Conference on Circuit Theory and Design (ECCTD)*, pp. 1-4, 2015.
 - L. Petti, F. Bottacchi, N. Münzenrieder, H. Faber, G. Cantarella, C. Vogt, L. Bütthe, I. Namal, F. Späth, T. Hertel, T. D. Anthopoulos, and G. Tröster, "Integration of solution-processed (7,5) SWCNTs with sputtered and spray-coated metal oxides for flexible complementary inverters," in *IEEE International Electron Devices Meeting (IEDM)*, pp. 26.4.1-26.4.4, 2014.
 - L. Bütthe, C. Vogt, L. Petti, N. Münzenrieder, C. Zysset, G. A. Salvatore, and G. Tröster, "A Mechanically Flexible Tilt Switch on Kapton Foil with Microspheres as A Pendulum," in *Proceedings of the 17th ITG/GMA Symposium on Sensors and Measuring Systems*, pp. 1-4, 2014.
 - K. Ishida, R. Shabanpour, B. K. Boroujeni, T. Meister, C. Carta, F. Ellinger, L. Petti, N. Münzenrieder, G. A. Salvatore, and G. Tröster, "22.5 dB open-loop gain, 31 kHz GBW pseudo-CMOS based operational amplifier with a-IGZO TFTs on a flexible film," in *IEEE Asian Solid-State Circuits Conference (A-SSCC)*, pp. 313-316, 2014.

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- L. Petti, N. Münzenrieder, G. A. Salvatore, C. Zysset, T. Kinkeldei, L. Büthe, C. Vogt, and G. Tröster, "Flexible electronics based on oxide semiconductors," in *21st International Workshop of the IEEE on Active-Matrix Flat-Panel Displays and Devices (AM-FPD)*, pp. 323-326, 2014 [invited talk].
- R. Shabanpour, T. Meister, K. Ishida, L. Petti, N. Münzenrieder, G. A. Salvatore, B. K. Boroujeni, C. Carta, G. Tröster and F. Ellinger, "High gain amplifiers in flexible self-aligned a-IGZO thin-film-transistor technology," in *21st IEEE International Conference on Electronics, Circuits and Systems (ICECS)*, pp. 108-111, 2014.
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- L. Petti, P. Aguirre, N. Münzenrieder, G. A. Salvatore, C. Zysset, A. Frutiger, L. Büthe, C. Vogt, and G. Tröster, "Mechanically flexible vertically integrated a-IGZO thin-film transistors with 500 nm channel length fabricated on free standing plastic foil," in *IEEE International Electron Devices Meeting (IEDM)*, pp. 11.4.1-11.4.4, 2013.
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- R. Shabanpour, K. Ishida, C. Perumal, B. K. Boroujeni, T. Meister, C. Carta, F. Ellinger, L. Petti, N. Münzenrieder, G. A. Salvatore, and G. Tröster, "A 2.62 MHz 762 μ W Cascode Amplifier in Flexible a-IGZO Thin-Film Technology for Textile and Wearable-Electronics Applications," in *International Semiconductor Conference Dresden - Grenoble (ISCDG)*, pp. 1-4, 2013.
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- N. Münzenrieder, L. Petti, C. Zysset, G. A. Salvatore, T. Kinkeldei, C. Perumal, C. Carta, F. Ellinger, and G. Tröster, "Flexible a-IGZO TFT amplifier fabricated on a free-standing polyimide foil operating at 1.2 MHz while bent to a radius of 5 mm," in *IEEE International Electron Devices Meeting (IEDM)*, pp. 96-99, 2012.

Conference Abstracts

- G. Cantarella, C. Vogt, N. Münzenrieder, G. A. Salvatore, L. Petti, A. Daus, L. Büthe, S. Knobelspies, and G. Tröster, "Tunable wrinkle formation of PDMS for stretchable IGZO TFTs," in *12th International Thin-Film Transistor Conference (ITC)*, [best poster award], 2016.
- A. Daus, N. Münzenrieder, L. Petti, S. Knobelspies, G. Cantarella, C. Vogt, L. Büthe, G. A. Salvatore, and G. Tröster, "Low-voltage flexible memory thin-

- film transistor based on charge generation from Fowler-Nordheim tunnel stress,” in *12th International Thin-Film Transistor Conference (ITC)*, 2016.
- F. Bottacchi, L. Petti, F. Späth, I. Namal, G. Tröster, T. Hertel, T. D. Anthopoulos, “Solution-based (6, 5) single walled carbon nanotubes for low-voltage flexible thin film transistors and inverters,” in *11th International Thin-Film Transistor Conference (ITC)*, 2015
 - G. Cantarella, N. Münzenrieder, L. Petti, C. Vogt, L. Büthe, G. A. Salvatore, A. Daus, and G. Tröster, “Wrinkled IGZO-TFTs on Flexible PDMS Substrate,” in *11th International Thin-Film Transistor Conference (ITC)*, 2015.
 - L. Büthe, C. Vogt, L. Petti, N. Münzenrieder, G. Cantarella, A. Daus, G. A. Salvatore, and G. Tröster, “Bendable tilt switch with microspheres,” in *581. WE-Heraeus-Seminar on Flexible, Stretchable and Printable High-Performance Electronics*, [best poster award], 2015.
 - D. Karnaushenko, N. Münzenrieder, D. D. Karnaushenko, B. Koch, L. Petti, S. Baunack, D. Makarov, G. Tröster, and O. G. Schmidt, “Interactive flexible electronics,” in *581. WE-Heraeus-Seminar on Flexible, Stretchable and Printable High-Performance Electronics*, 2015.
 - N. Münzenrieder, L. Petti, G. Cantarella, G. A. Salvatore, C. Vogt, L. Büthe, A. Daus, and G. Tröster, “Oxide semiconductor transistors for conformal systems,” in *581. WE-Heraeus-Seminar on Flexible, Stretchable and Printable High-Performance Electronics*, [invited], 2015.
 - D. Karnaushenko, N. Münzenrieder, D. D. Karnaushenko, B. Koch, A. K. Meyer, S. Baunack, L. Petti, O. G. Schmidt, G. Tröster and D. Makarov, “Compact biomimetic microelectronics for regenerative neuronal cuff implants,” in *2015 Fall Meeting of the Material Research Society (MRS)*, 2015.
 - N. Münzenrieder, L. Petti, C. Zysset, T. Kinkeldei, L. Büthe, C. Vogt, G. A. Salvatore, G. Cantarella, and G. Tröster, “Flexible oxide semiconductor electronics for wearable devices,” in *25th Edgar Lüscher Seminar*, [invited], 2014.
 - N. Münzenrieder, L. Petti, C. Zysset, G. A. Salvatore, L. Büthe, C. Vogt, G. Cantarella, and G. Tröster, “Flexible electronics for wearable devices,” in *Japan-Finland Printed Electronics Symposium*, [invited], 2014
 - F. Bottacchi, L. Petti, F. Späth, I. Namal, G. Tröster, T. Hertel, and T. D. Anthopoulos, “Solution-Processed Semiconducting Single-Walled Carbon Nanotubes for Plastic Microelectronics,” in *2014 Fall Meeting of the Material Research Society (MRS)*, 2014.
 - N. Münzenrieder, L. Petti, C. Zysset, L. Büthe, G. A. Salvatore, and G. Tröster, “Performance and bendability of flexible and transparent all-oxide TFTs,” in *International Symposium on Flexible Electronics*, 2013.
 - C. Zysset, N. Münzenrieder, L. Petti, L. Büthe, G. A. Salvatore, and G. Tröster, “Mechanically flexible IGZO differential stage bent to a radius of 3.5 mm,” in *International Symposium on Flexible Electronics*, 2013.
 - O. Kurapova, L. Petti, and C. Hierold, “3D Lithography for X-ray Compound Refractive Lenses,” in *Smart Systems Integration*, 2012.

Patents

- H. S. Kim, Y. Y. Hsu, P. S. Drzaic, L. Petti, “Electronic Devices with Soft Input-Output,” U.S. Patent No 9, 841, 548, 2017.

Theses

- L. Petti, “Metal Oxide Semiconductor Thin-Film Transistors for Flexible Electronics,” *Ph.D. Thesis*, ETH Zurich, 2016.
- L. Petti, “Development and Application of X-ray Optics suitable for Microanalysis Techniques,” *Master Thesis*, Politecnico di Milano, 2011.

- L. Petti, “Development of a computational code for a quick calculation of the contrasts that are obtained in x-ray imaging,” *Bachelor Thesis*, Politecnico di Milano, 2009.

Media and Radio Appearance

- L. Petti and N. Münzenrieder, in Südtirol forscht, *Radio Südtirol*, Bolzano, Italy, 2020.
- L. Petti, “Mama ist ein High-Potential”, *Salto.bz*, February 2020.
- L. Petti, “High-Tech und Babywindeln”, *Academia*, January 2020
- L. Petti, “Academia 81: Frau forscht”, *Südtirol News*, January 2020.
- L. Petti, “Prämiert”, *Südtiroler Wirtschaftszeitung*, January 2020.
- L. Petti, “Hybridization and Thin-Film Sensors Key Enablers of Flexible Electronics Today,” *Electronic for You*, 2015.

Journal Cover Pages

- N. Münzenrieder, D. Karnaushenko, L. Petti, G. Cantarella, C. Vogt, L. Büthe, D. Karnaushenko, O. G. Schmidt, D. Makarov, and G. Tröster, “Entirely flexible on-site conditioned magnetic sensorics,” in *Advanced Electronic Materials*, 2016.
- D. Karnaushenko, N. Münzenrieder, D. D. Karnaushenko, B. Koch, A. K. Meyer, S. Baunack, L. Petti, G. Tröster, D. Makarov, and O. G. Schmidt, “Biomimetic Microelectronics for Regenerative Neuronal Cuff Implants,” in *Advanced Materials*, 2015.
- N. Münzenrieder, G. Cantarella, C. Vogt, L. Petti, L. Büthe, G. A. Salvatore, Y. Fang, R. Andri, Y. Lam, R. Libanori, D. Widner, A. Studart, and G. Tröster, “Stretchable and Conformable Oxide Thin-Film Electronics,” in *Advanced Electronic Materials*, 2015.

Talks

Invited Talks

- L. Petti, B. Shkodra, P. Ibba, B. D. Abera, E. Avancini, G. Cantarella, N. Münzenrieder, and P. Lugli “Flexible and Printed Electronics: From Materials to Sensor Systems”, in Arias’s Research Group Seminar, University of California Berkeley, Berkeley, US, December 2019.
- L. Petti, “Flexible InGaZnO Thin-Film Transistors: Towards High-Frequency and High-Gain Analog Systems on Plastic,” in *Electronic-based Systems Event*, NOI Techpark, Bolzano, Italy, October 2019.
- L. Petti, G. Cantarella, and N. Münzenrieder, “Flexible InGaZnO Thin-Film Transistors: Towards High-Frequency and High-Gain Analog Systems on Plastic,” in *International Symposium on Flexible and Organic Electronics (ISFOE19)*, Thessaloniki, Greece, July 2019.
- L. Petti, N. Münzenrieder, and G. Tröster, “Metal Oxide Semiconductor Thin-Film Transistors for Flexible Electronics,” in *Sirringhaus’s Group Seminar*, Cambridge University, Cambridge, UK, July 2016.
- L. Petti, N. Münzenrieder, F. Bottacchi, H. Faber, C. Zysset, G. Cantarella, C. Vogt, L. Büthe, T. D. Anthopoulos, and G. Tröster, “Flexible integrated circuits on plastic substrates,” in *581. WE-Heraeus-Seminar on Flexible, Stretchable and Printable High-Performance Electronics*, Bad Honnef, Germany, January 2015.
- L. Petti, N. Münzenrieder, G. A. Salvatore, C. Zysset, T. Kinkeldei, L. Büthe, C. Vogt, and G. Tröster, “Flexible electronics based on oxide

- semiconductors,” in *21st International Workshop of the IEEE on Active-Matrix Flat-Panel Displays and Devices (AM-FPD)*, Kyoto, Japan, July 2014.
- L. Petti, N. Münzenrieder, C. Zysset, T. Kinkeldei, G. A. Salvatore, and G. Tröster, “Mechanically flexible InGaZnO-based ferroelectric memory thin-film-transistors,” in *International Device Physics Young Scientists Symposium (IDYS)*, Nara, Japan, March 2013.
- L. Petti, N. Münzenrieder, and G. Tröster, “Oxide semiconductor thin-film transistors for flexible electronics,” in *IIN Seminar*, IFW Dresden, Dresden, Germany, 2014.
- L. Petti, P. Aguirre, N. Münzenrieder, G. A. Salvatore, C. Zysset, A. Frutiger, L. Büthe, C. Vogt, and G. Tröster, “Mechanically flexible vertically integrated a-IGZO thin-film transistors with 500 nm channel length fabricated on free standing plastic foil,” in *Wagner’s Group Seminar*, Princeton University, US, 2013.

Contributed Talks

- L. Petti, N. Münzenrieder, G. Cantarella, C. Vogt, L. Büthe, A. Daus, M. Chanson, G. A. Salvatore, and G. Tröster, “Large-area microelectronic circuits on plastic foil,” in *MaP Graduate Symposium*, 2015.
- L. Petti, F. Bottacchi, N. Münzenrieder, H. Faber, G. Cantarella, C. Vogt, L. Büthe, I. Namal, F. Späth, T. Hertel, T. D. Anthopoulos, and G. Tröster, “Integration of solution-processed (7,5) SWCNTs with sputtered and spray-coated metal oxides for flexible complementary inverters,” in *IEEE International Electron Devices Meeting (IEDM)*, pp. 26.4.1-26.4.4, 2014.
- L. Petti, P. Aguirre, N. Münzenrieder, G. A. Salvatore, C. Zysset, A. Frutiger, L. Büthe, C. Vogt, and G. Tröster, “Mechanically flexible vertically integrated a-IGZO thin-film transistors with 500 nm channel length fabricated on free standing plastic foil,” in *IEEE International Electron Devices Meeting (IEDM)*, pp. 11.4.1-11.4.4, 2013.
- L. Petti, N. Münzenrieder, C. Zysset, T. Kinkeldei, G. A. Salvatore, and G. Tröster, “Influence of Mechanical Strain on Flexible IGZO-Based Ferroelectric Memory TFTs,” in *9th International Thin-Film Transistor Conference (ITC)*, [best paper award], 2013.
- L. Petti, N. Münzenrieder, S. Gähler, C. Zysset, L. Büthe, G. A. Salvatore, and G. Tröster, “Effect of active layer thickness on the performance and stability of flexible InGaZnO thin-film transistors,” in *International Symposium on Flexible Electronics*, 2013.

Editorial Activity

- Co-guest editor of a special issue of “Flexible and Stretchable Electronic Sensors” in MDPI Sensors, 2020.
- Guest editor of a special issue of “Environmentally-friendly Electronic Devices” in MDPI Electronics, 2020.

Referee Activity

- S. Gähler, “Influence of oxide semiconductor thickness on the performance of flexible a-IGZO TFTs,” *Semester Thesis in Information Technology and Electrical Engineering*, 2013.
- A. Frutiger, “A new process for the fabrication of sub-500 nm vertical TFTs,” *Semester Thesis in Materials Science*, 2013.
- P. Aguirre, “Simulation and fabrication of a-IGZO vertical TFTs”, *Master Thesis in Information Technology and Electrical Engineering*, 2013.

- E. Greco, "Direct laser write fabrication process for small-channel flexible IGZO TFTs," *Master Thesis in Information Technology and Electrical Engineering*, 2015.

Reviewing Activity

Reviewer

- IEEE Transaction on Electron Devices
- IEEE Electron Device Letters
- IEEE Journal of the Electron Devices Society
- SCIENCE Robotics
- ACS Applied Materials & Interfaces
- IOP Flexible and Printed Electronics
- IOP Semiconductor Science and Technology
- IOP Journal of Physics D: Applied Physics
- IOP Journal of Physics Communication
- Elsevier Carbon
- Elsevier Organic Electronics
- Elsevier Applied Materials Today
- Elsevier Solid-State Electronics
- Elsevier Material Chemistry and Physics
- Elsevier Vacuum
- Elsevier Material Science in Semiconductor Processing
- Elsevier Surface and Coatings Technology
- ASTM Materials Performance and Characterization
- SAGE Textile Research Journal
- MDPI Coatings
- Cambridge Elements
- International Conference on Metallurgical Coatings and Thin Films
- IEEE Flexible and Printed Sensors

Scientific Evaluator

- H2020 FET-OPEN RIA Call 2016-2017, "Novel Ideas for Radically New Technologies"
- H2020 ICT-2018-2 Call, "Flexible and Wearable Electronics"

Third Mission Activity

- Organization of activities of interaction (teaching and laboratory experiments) with IT IS Carpi School, Free-University of Bolzano-Bozen, Italy, 2020.
- Organization and participation to Long Night of Research 2019, Free University of Bolzano-Bozen, Bolzano, Italy, September 2019.
- Organization of activities of interaction (laboratory visit and project participation) with ITIS Carpi School, Free-University of Bolzano-Bozen, Bolzano, Italy, May 2019.

Other Academic Responsibilities

- Member of the PhD Program "Advanced Systems Engineering", Faculty of Science and Technology, Free University of Bolzano-Bozen, Bolzano, Italy.
- Member of the Quality Assurance Group (Assicurazione qualità-AQ) for the Bachelor L-9 Wood, Free University of Bolzano-Bozen, Bolzano, Italy.
- Chairperson of the session "Workshop on OTFTs, Sensors & Circuits 2", at the *International Symposium on Flexible and Organic Electronics (ISFOE19)*, Thessaloniki, Greece, July 2019.

- Member of the organizing committee at the *11th Body Sensor Network Conference*, ETH Zurich, Zurich, June 2016.
- Chairperson of the session “Advanced Application of TFTs”, at the *International Workshop on Active-Matrix Flat Panel Displays and Devices (AM-FPD14)*, Kyoto, Japan, July 2014.

Languages

Italian

- Mother tongue.

English

- IELTS test – C1 European level (CEFR) – Date of examination: 2nd June 2018.

German

- Language center of the Free University of Bozen-Bolzano – C1 European level (CEFR) – Date of examination: October 2018

Bolzano, Italy, 3rd March 2020