

FULL PUBLICATION LIST

- 29 Contributions to Peer-Reviewed Articles in International Scientific Journals:

- A29 Baron A., Hernandez-Balaguera E., **Pecqueur S.***, "Correlation between Electrochemical Relaxations and Morphologies of Conducting Polymer Dendrites" | *ECS Adv.* **3**(4), 044001 (2024).
- A28 Routier L., Westrelin A., Cerveaux A., Louis G., Horlac'h T., Foulon P., Lmimouni K., **Pecqueur S.**, Hafsi B.*, "Single-Point Calibration Process Based Integrated Electrical Impedance Analyzer For Multi-Selective Gas Detection" | *Discov. Appl. Sci.* **6**, 403 (2024).
- A27 Routier L., Westrelin A., Cerveaux A., Foulon P., Louis G., Horlac'h T., Lmimouni K., **Pecqueur S.**, Hafsi B.*, "Portable Multiplexed System-Based AD5933 Impedance Analyzer: Toward Multiselective Gas Recognition" | *IEEE Sens. Lett.* **8**(7), 5502304 (2024).
- A26 Haj Ammar W., Boujnah A., Baron A., Boubaker A., Kalboussi A., Lmimouni K., **Pecqueur S.***, "A Temporal Filter to Extract Doped Conducting Polymer Information Features from an Electronic Nose" | *Electronics* **13**(3), 497 (2024).
- A25 Ghazal M., Kumar A.*, Garg N., **Pecqueur S.**, Alibart F.*, "Neuromorphic Signal Classification using Organic Electrochemical Transistor Array and Spiking Neural Simulations" | *IEEE Sens. J.* **24**(6), 9104-9114 (2024).
- A24 Janzakova K., Balafrej I., Kumar A., Garg N., Scholaert C., Rouat J., Drouin D., Coffinier Y., **Pecqueur S.**, Alibart F.*, "Structural plasticity for neuromorphic networks with electropolymerized dendritic PEDOT connections" | *Nat. Commun.* **14**, 8143 (2023).
- A23 Haj Ammar W., Boujnah A., Boubaker A., Kalboussi A., Lmimouni K., **Pecqueur S.***, "Steady vs. Dynamic Contributions of Different Doped Conducting Polymers in the Principal Components of an Electronic Nose's Response" | *Eng* **4**(4), 2483-2496 (2023).
- A22 Ghazal M., Susloparova A., Lefebvre C., Daher Mansour M., Ghodhbane N., Melot A., Scholaert C., Guérin D., Janel S., Barois N., Colin M., Buée L., Yger P., Halliez S., Coffinier Y.*, **Pecqueur S.***, Alibart F., "Electropolymerization Processing of Side-Chain Engineered EDOT for High Performance Microelectrode Arrays" | *Biosens. Bioelectron.* **237**, 115538 (2023).
- A21 **Pecqueur S.***, Vuillaume D., Crljen Ž., Lončarić I., Zlatić V.*, "A Neural Network to Decipher Organic Electrochemical Transistors' Multivariate Responses for Cation Recognition" | *Electron. Mater.* **4**(2), 80-94 (2023).
- A20 Ghazal M., Scholaert C., Dumortier C., Lefebvre C., Barois N., Janel S., Çağatay Tarhan M., Colin M., Buée L., Halliez S., **Pecqueur S.**, Coffinier Y., Alibart F.*, Yger P.*, "Precision of neuronal localization in 2D cell cultures by using high-performance electropolymerized microelectrode arrays correlated with optical imaging" | *Biomed. Phys. Eng. Express* **9**, 035013 (2023).
- A19 Boujnah A.*, Boubaker A., **Pecqueur S.**, Lmimouni K., Kalboussi A., "An electronic nose using conductometric gas sensors based on P3HT doped with triflates for gas detection using computational techniques (PCA, LDA, and kNN)" | *J. Mater. Sci.: Mater. Electron.* **33**, 27132-27146 (2022).
- A18 Scholaert C., Janzakova K., Coffinier Y., Alibart F., **Pecqueur S.***, "Plasticity of Conducting Polymer Dendrites to Bursts of Voltage Spikes in Phosphate Buffered Saline" | *Neuromorph. Comput. Eng.* **2**(4), 044010 (2022).

- A17 Kumar A.*, Janzakova K., Coffinier Y., **Pecqueur S.**, Alibart F., "Theoretical modeling of dendrite growth from conductive wire electropolymerization" | *Sci. Rep.* **12**(6395), 1-11 (2022).
- A16 Janzakova K., Kumar A., Ghazal M., Susloparova A., Coffinier Y., Alibart F., **Pecqueur S.***, "Analog Programming of Conducting-Polymer Dendritic Interconnections and Control of their Morphology" | *Nat. Commun.* **12**(6898), 1-11 (2021).
- A15 Ghazal M., Daher Mansour M., Scholaert C., Dargent T., Coffinier Y., **Pecqueur S.***, Alibart F.*, "Bio-inspired adaptive sensing through electropolymerization of organic electrochemical transistors" | *Adv. Electron. Mater.* **8**(3), 2100891 (2022).
- A14 Janzakova K., Ghazal M., Kumar A., Coffinier Y., **Pecqueur S.***, Alibart F.*, "Dendritic organic electrochemical transistors grown by electropolymerization for 3D neuromorphic engineering" | *Adv. Sci.* **8**(24), 2102973 (2021).
- A13 Ferchichi K.*, **Pecqueur S.**, Guérin D., Bourguiga R., Lmimouni K., "High rectification ratio in polymer diode rectifier through interface engineering with Self-Assembled Monolayer" | *Electron. Mater.* **2**(4), 445-453 (2021).
- A12 Boujnah A., Boubaker A., Kalboussi A., Lmimouni K., **Pecqueur S.***, "Mildly-Doped Polythiophene with Triflates for Molecular Recognition" | *Synth. Met.* **280**, 116890 (2021).
- A11 Ferchichi K.*, **Pecqueur S.**, Guérin D., Bourguiga R., Lmimouni K., "Organic doped diode rectifier based on Parylene-electronic beam lithography process for Radio frequency applications" | *Org. Electron.* **97**, 106266 (2021).
- A10 Susloparova A., Halliez S., Begard S., Colin M., Buée L., **Pecqueur S.**, Alibart F., Thomy V., Arscott S., Pallechi E., Coffinier Y.*, "Low impedance and highly transparent microelectrode arrays (MEA) for in vitro neuron electrical activity probing" | *Sens. Actuator B, Chem.* **327**, 128895 (2021).
- A9 Ferchichi K., Bourguiga R., Lmimouni K., **Pecqueur S.***, "Concentration-control in all-solution processed semiconducting polymer doping and high conductivity performances" | *Synth. Met.* **262**, 116352 (2020).
- A8 Przyczyna D., **Pecqueur S.**, Vuillaume D., Szaciłowski K.*, "Reservoir computing for sensing - an experimental approach" | *Int. J. Unconv. Comput.* **16**(3-4), 267-284 (2019).
- A7 Athanasiou V.*, **Pecqueur S.**, Vuillaume D., Konkoli Z.*, "On a generic theory of the organic electrochemical transistor dynamics" | *Org. Electron.* **72**, 39-49 (2019).
- A6 **Pecqueur S.***, Lončarić I., Zlatić V., Vuillaume D., Crljen Ž.*, "The Non-Ideal Organic Electrochemical Transistors Impedance" | *Org. Electron.* **71**, 14-23 (2019).
- A5 **Pecqueur S.**, Vuillaume D., Alibart F.*, "Perspective: Organic electronic materials and devices for neuromorphic engineering" | *J. Appl. Phys.* **124**(15), 151902 (2018).
- A4 **Pecqueur S.***, Mastropasqua Talamo M., Guérin D., Blanchard P., Roncali J., Vuillaume D., Alibart F.*, "Neuromorphic time-dependent pattern classification with organic electrochemical transistor arrays" | *Adv. Electron. Mater.* **4**(9), 1800166 (2018).
- A3 **Pecqueur S.***, Guérin D., Vuillaume D., Alibart F.*, "Cation Discrimination in Organic Electrochemical Transistors by Dual Frequency Sensing" | *Org. Electron.* **57**, 232-238 (2018).
- A2 **Pecqueur S.***, Lenfant S., Guérin D., Alibart F., Vuillaume D., "Concentric-electrode organic electrochemical transistors: case study for selective hydrazine sensing" | *Sensors* **17**(3), 570 (2017).
- A1/A1' **Pecqueur S.**, Maltenberger A., Petrukhina M. A., Halik M., Jaeger A., Pentlechner D., Schmid G.*, "Wide Band-Gap Bismuth-based p-Dopants for Opto-Electronic Applications" | *Angew. Chem. Int. Ed.* **55**(35), 10493-10497; "Bismut-haltige p-Dotanden mit großer Bandlücke für optoelektronische Anwendungen" | *Angew. Chem.* **128**(35), 10649-10653 (2016).

- 8 Contributions to International Patent Applications:

- B8 Kessler F., Maltenberger A., **Pecqueur S.**, Pentlechner D., Regensburger S., Schmid G., "Organic electronic component having a charge generation layer and use of a zinc complex as a p-dopant in charge generation layers" | Pat. Appl.WO/2017/055283(A1) - Apr. 6, 2017 [Appl.: OSRAM OLED GmbH].
- B7 Kessler F., **Pecqueur S.**, Schmid G., "Organic heterocyclic alkali metal salts as n-dopants in organic electronics" | Pat. Appl.WO/2016/192902(A1) - Dec. 8, 2016 [Appl.: Siemens AG].
- B6 Kessler F., **Pecqueur S.**, Schmid G., "Proazaphosphatranes as n-dopants in organic electronics" | Pat. Appl.WO/2016/116205(A1) - July 28, 2016 [Appl.: Siemens AG].
- B5 Kessler F., Maltenberger A., **Pecqueur S.**, Regensburger S., Schmid G., "Organic electronic component, use of a zinc complex as a p-dopant for organic electronic matrix materials" | Pat. Appl.WO/2016/050705(A1) - Apr. 7, 2016 [Appl.: Osram OLED GmbH].
- B4 Maltenberger A., **Pecqueur S.**, Regensburger S., Schmid G., "Method for producing an organic electronic component, and organic electronic component" | Pat. Appl.WO/2016/050330(A1) - Apr. 7, 2016 [Appl.: Osram OLED GmbH].
- B3 Maltenberger A., **Pecqueur S.**, Schmid G., "P-doping cross-linking of organic hole transporters" | Pat. Appl.WO/2015/185440(A1) - Dec. 10, 2015 [Appl.: Siemens AG].
- B2 Maltenberger A., **Pecqueur S.**, Schmid G., Wemken J. H., "Metal complexes as p-type dopants for organic electronic matrix materials" | Pat. Appl.WO/2013/182383(A1) - Dec. 12, 2013 [Appl.: Siemens AG/Osram OLED GmbH].
- B1 Kanitz A., **Pecqueur S.**, Schmid G., Wemken J. H., "Organic electronic components having organic superdonors having at least two coupled carbene groups and use thereof as an n-type dopants" | Pat. Appl.WO/2013/153025(A1) - Oct. 17, 2013 [Appl.: Siemens AG].

- 26 Contributions to International Conference Talks:

- O26 Routier L., Westrelin A., Cerveaux A., Foulon P., Louis G., Horlac'h T., Lmimouni K., **Pecqueur S.**, Hafsi B., "Portable Multiplexed System Based AD5933 Impedance analyzer: Towards Multi-Selective Gas Recognition" | *2024 IEEE 23rd IEEE Conference on Sensors (IEEE-Sensors 2024)*, Kobe/Japan - Oct. 21, 2024.
- O25 **Pecqueur S.**, Baron A., Scholaert C., Toledo Nauto M., Moustiez P., Routier L., Guérin D., Lmimouni K., Coffinier Y., Hafsi B., Alibart F., "Transience and Disorder of Organic Semiconductors for Future-Emerging Sensing" | *Neuromorphic Organic Device 2024 workshop (NOD2024)*, Paris/France - Oct. 9, 2024.
- O24 Baron A., Hernandez-Balaguera E., **Pecqueur S.**, "A Compact Electrochemical Model for a Conducting Polymer Dendrite Impedance" | *17th Int'l Workshop on Impedance Spectroscopy (IWIS 2024)*, Chemnitz/Germany - Sept. 26, 2024.
- O23 **Pecqueur S.**, "Conducting-Polymer Neuro/Morphogenesis as in materio Computing Mechanism: Evolving Electronics at Almost No Cost." | *2024 IEEE 24th Int'l Conf. on Nanotechnology (IEEE-NANO 2024)*, Gijon/Spain - July 11, 2024.
- O22 Scholaert C., Janzakova K., Coffinier Y., **Pecqueur S.**, Alibart F., "From a Single Dendrite to Dendritic Networks: Towards Multi-Terminal OECTs" | *2024 MRS Spring Meeting*, Seattle/USA - Apr. 25, 2024.
- O21 Alibart F., Janzakova K., Scholaert C., Balafrej I., Kumar A., Drouin D., Rouat J., **Pecqueur S.**, Coffinier Y., "Structural Plasticity with PEDOT-Based Dendritic Electropolymerization for Neuromorphic Engineering" | *2024 MRS Spring Meeting*, Seattle/USA - Apr. 23, 2024.

- O20 Baron A., **Pecqueur S.**, "Electrochemical Morphogenesis of Conducting Polymers for Evolvable Electronics" | *8th Baltic Electrochemistry Conference: Finding New Inspiration 2 (BEChem 2024)*, Tartu/Estonia - Apr. 16, 2024.
- O19 Scholaert C., Janzakova K., Coffinier Y., **Pecqueur S.**, Alibart F., "From a single dendrite to dendritic networks: towards multi-terminal OECTs" | *3rd Workshop on Neuromorphic Organic Devices*, Bad Schandau/Germany - Sept. 18, 2023.
- O18 Janzakova K., Ghazal M., Kumar A., Coffinier Y., **Pecqueur S.**, Alibart F., "Development of 3D organic polymer dendrites as neuromorphic device" | *15th International Symposium on Flexible Organic Electronics (ISFOE22)*, Thessaloniki/Greece - July 7, 2022.
- O17 Ghazal M., Scholaert C., Daher Mansour M., Janel S., Barois N., Halliez S., Dargent T., Coffinier Y., **Pecqueur S.**, Alibart F., "Neurites Whispering at Adaptive Sensors-High Spike-Signal-to-Noise Ratio Recorded with Electropolymerized Microelectrode Arrays" | *2022 Virtual MRS Spring Meeting & Exhibit*, May 24, 2022.
- O16 Alibart F., Ghazal M., Janzakova K., Kumar A., Scholaert C., Coffinier Y., **Pecqueur S.**, "From Bio-Sensing to Neuromorphic Engineering with Electropolymerized PEDOT:PSS Iono-Electronic Materials" | *2022 Virtual MRS Spring Meeting & Exhibit*, May 23, 2022.
- O15 Alibart F., Ghazal M., Janzakova K., Kumar A., Susloparova A., Halliez S., Colin M., Buée L., Guérin D., Dargent T., Coffinier Y., **Pecqueur S.**, "Merging Bio-Sensing and Neuromorphic Computing with Organic Electro Chemical Transistors" | *Spring's European Material Research Society Conf. 2021 (eMRS 2021 Spring)*, June 3, 2021.
- O14 Kumar A., Janzakova K., Coffinier Y., Guérin D., Alibart F., **Pecqueur S.**, "Governing Conducting-Polymer Micro-Objects' Fractality for Unconventional Computing" | *2020 Virtual MRS Fall Meeting & Exhibit*, Nov. 27, 2020.
- O13 Alibart F., Ghazal M., Janzakova K., Kumar A., Susloparova A., Halliez S., Colin M., Buée L., Guérin D., Dargent T., Coffinier Y., **Pecqueur S.**, "Merging Bio-Sensing and Neuromorphic Computing with Organic Electro Chemical Transistors" | *2020 Virtual MRS Fall Meeting & Exhibit*, Nov. 27, 2020.
- O12 Janzakova K., Ghazal M., Kumar A., Coffinier Y., Guérin D., **Pecqueur S.**, Alibart F., "Organic Electrochemical Transistors Based on Electropolymerized Dendritic Structures" | *2020 Virtual MRS Fall Meeting & Exhibit*, Nov. 27, 2020.
- O11 Susloparova A., Ghazal M., Guérin D., Halliez S., Coffinier Y., Dargent T., Alibart F., **Pecqueur S.**, "Low-Impedance Electropolymerized Coatings on Microelectrodes for Higher Neuro-Transduction" | *2020 Virtual MRS Fall Meeting & Exhibit*, Nov. 27, 2020.
- O10 Ghazal M., Susloparova A., Halliez S., Colin M., Buée L., Coffinier Y., **Pecqueur S.**, Dargent T., Alibart F., "Post-Fabrication Optimization Technique of Organic Electrochemical Transistor (OECT) for Electrophysiology by Electropolymerization" | *2020 Virtual MRS Fall Meeting & Exhibit*, Nov. 27, 2020.
- O9 Ferchichi K., **Pecqueur S.**, Guérin D., Bourguiga R., Lmimouni K., "Organic rectifier diode with very low turn-on voltage for RF Energy harvesting in Smart Textiles Applications" | *Télécom 2019 & 11èmes JFMMA*, Saïda/Marocco - June 12, 2019.
- O8 **Pecqueur S.**, Guérin D., Vuillaume D., Alibart F., "Material's Variability enabling Neuromorphic Pattern Recognition in Organic Electrochemical Transistor Networks" | *9th Int'l Conf. on Molecular Electronics 2018 (elecMol 2018)*, Paris/France - Dec. 17, 2018.
- O7 **Pecqueur S.**, Guérin D., Vuillaume D., Alibart F., "Dynamical Neuromorphic Computing with Electropolymerized Organic Electrochemical Transistors" | *Fall's European Material Research Society Conf. 2018 (eMRS 2018 Fall)*, Warsaw/Poland - Sep. 17, 2018.
- O6 Ferchichi K., **Pecqueur S.**, Guérin D., Bourguiga R., Lmimouni K., "Organic rectifier diode with very low turn-on voltage for RF Energy harvesting in Smart Textiles Applications" | *2018 SPIE Optics + Photonics 2018*, San Diego/USA - Aug. 19, 2018.

- O5 **Pecqueur S.**, Lenfant S., Guérin D., Alibart F., Vuillaume D., "Dual Sensing in a Single Organic Electrochemical Transistor (OECT)" | *Organic Bioelectronics in Italy 2017 (OrBIItaly 2017)*, Cagliari/Italy - Oct. 25, 2017.
- O4 **Pecqueur S.**, Lenfant S., Guérin D., Alibart F., Vuillaume D., "Concentric-electrode organic electrochemical transistors: case study for selective hydrazine sensing" | *6th Int'l Conf. on Materials and Applications for Sensors and Transducers (IC-MAST 2016)*, Athens/Greece - Sep. 27, 2016.
- O3 **Pecqueur S.**, Borrachero Conejo A. I., Bonetti S., Toffanin S., Generali G., Benfenati V., Muccini M., "Selective Self-Assembled Monolayer to Passivate Organic Cell Stimulating and Sensing Transistor (OCSTs)" | *2015 IEEE 15th Int'l Conf. on Nanotechnology (IEEE-NANO 2015)*, Rome/Italy - July 27, 2015.
- O2 **Borrachero Conejo A. I.**, Bonetti S., Karges S., Pistone A., Quiroga S. D., Natali M., Grishin I., **Pecqueur S.**, Caprini M., Generali G., Muccini M., Toffanin S., Benfenati V., "An Organic Transistor Architecture for Stimulation of Calcium Signaling in Primary Rat Cortical Astrocytes" | *2015 IEEE 15th Int'l Conf. on Nanotechnology (IEEE-NANO 2015)*, Rome/Italy - July 27, 2015.
- O1 **Schmid G.**, **Pecqueur S.**, Halik M., "Differentiation between Redox Chemistry and Lewis Acid/Base Model in Organic Semiconductor Doping" | *6th Int'l Symposium on Technologies for Polymer Electronics (TPE14)*, Illmenau/Germany - Dec. 20, 2014.

- 12 Contributions to International Conference Poster Presentations:

- P12 Vercoutere E., Kenne S., Morchain C., **Pecqueur S.**, **Hafsi B.**, "Vapour Recognition Based on Deep-Convolutional Neural Network: Portable Impedance Analyzer" | *2024 IEEE 23rd IEEE Conference on Sensors (IEEE-Sensors 2024)*, Kobe/Japan - Oct. 21, 2024.
- P11 **Toledo Nauto M.**, Le Cacher de Bonneville B., Kanso H., Gourdel M.-E., Reverdy C., Gasse C., Saadi P.-L., Rain J.-C., **Pecqueur S.**, Coffinier Y., "Biofunctionalized OECT for the Detection of Chlordecone" | *5th Workshop of IEEE Sensors France Chapter*, Grenoble/France - June 13, 2024.
- P10 **Oumekloul Z.**, **Pecqueur S.**, de Maistre A., Pernod P., Lmimouni K., Talbi A., Hafsi B., "A New Approach to Improve the Control of the Sensitive Layer of Surface Acoustic Wave Gas Sensors Using the Electropolymerization" | *Symposium on Design, Test, Integration & Packaging of MEMS/MOEMS (DTIP2022)*, Pont-à-Mousson/France - July 11, 2022.
- P9 **Scholaert C.**, Janzakova K., Ghazal M., Daher Mansour M., Lefebvre C., Halliez S., Coffinier Y., **Pecqueur S.**, Alibart F., "Dendritic-like PEDOT:PSS electrodes for 2D in-vitro electrophysiology" | *2022 MEA Meeting*, Tübingen/Germany - July 7, 2022.
- P8 **Ghazal M.**, Scholaert C., Lefebvre C., Barois N., Janel S., Çağatay Tarhan M., Colin M., Buée L., Halliez S., **Pecqueur S.**, Coffinier Y., Alibart F., Yger P., "Accurate neurons localization in 2D cell cultures by using high performance electropolymerized microelectrode arrays correlated with optical imaging" | *2022 MEA Meeting*, Tübingen/Germany - July 7, 2022.
- P7 Boujnah A., Boubaker A., Kalboussi A., **Lmimouni K.**, **Pecqueur S.**, "An Electronic Nose with one Single Conducting Polymer? How Mild-Doping Tunes P3HT's Chemo-Sensitivity for Molecular Recognition" | *10th Int'l Conf. on Molecular Electronics 2021 (elecMol 2021)*, Lyon/France - Nov. 29, 2021.
- P6 Ferchichi K., **Pecqueur S.**, Guérin D., Bourguiga R., **Lmimouni K.**, "Organic doped diode rectifier based on Parylene-electronic beam lithography process for Radio frequency applications" | *10th Int'l Conf. on Molecular Electronics 2021 (elecMol 2021)*, Lyon/France - Nov. 29, 2021.

- P5 Ghazal M., Daher Mansour M., Halliez S., Coffinier Y., Dargent T., **Pecqueur S.**, Alibart F., "Post-fabrication optimization technique of organic electrochemical transistor (OECT) by electropolymerization for electrophysiology " | *Technologies for Neuroengineering - Nature Conference, Virtual* , May 26, 2021.
- P4 Ghazal M., Dargent T., **Pecqueur S.**, Alibart F., "Addressing Organic Electrochemical Transistors for Neurosensing and Neuromorphic Sensing" | *2019 IEEE 18th IEEE Conference on Sensors (IEEE-Sensors 2019)* , Montreal/Canada - Oct. 27, 2019.
- P3 **Pecqueur S.**, Lončarić I., Zlatić V., Vuillaume D., Crljen Ž., "Optimized Model for Non-ideal Organic Electrochemical Transistors Impedance" | *Int'l Conf. Nano Materials & Devices (Nano-M&D2019)* , Paestum/Italy - June 4, 2019.
- P2 Karges S., Bonetti S., Borrachero Conejo A. I., Pistone A., Quiroga S. D., Natali M., Grishin I., **Pecqueur S.**, Mercuri F., Caprini M., Generali G., Muccini M., Toffanin S., Benfenati V., "An Organic Device for Stimulation and Optical Read-out of Calcium Signaling in Primary Rat Cortical Astrocytes" | *XII European Meeting on Glial Cells in Health and Disease (Glia2015)* , Bilbao/Spain - July 15, 2015.
- P1 **Pecqueur S.**, Halik M., Schmid G., "Differentiation between Redox Chemistry and Lewis Acid/Base Model in Organic Semiconductor Doping" | *9th Plastic Electronics Conf. & Exhibit 2013 (PE2013)* , Dresden/Germany - Oct. 8, 2013.

- 1 Academic Thesis:

- T1 **Pecqueur S.**, "Lewis Acid/Base Theory Applied on Evaluation of New Dopants for Organic Light-Emitting Diodes" | Friedrich-Alexander Erlangen-Nuremberg University - July 2, 2014.