



L. Julian Mele

Postdoctoral Scholar, Materials Science and Engineering

Bio

BIO

Julian graduated in electrical engineering and received his PhD from the University of Udine (Italy). During his PhD, he worked on electrochemical modeling of performance and noise for electronic biosensors and bioactuators. Then he continued as a postdoctoral scholar in Prof. Palestri's group, where he focused on modeling and simulations of conjugated polymers for bioelectronic applications. He joined Prof. Salleo's group in the fall of 2022 where he is contributing to the understanding of the physical operation of organic devices.

HONORS AND AWARDS

- Editor's Choice Article Certificate, MDPI Sensors Journal (2021)
- Best BSc Graduate student award in Electrical Engineering, University of Udine (3/07/2015)

STANFORD ADVISORS

- Alberto Salleo, Postdoctoral Faculty Sponsor

Publications

PUBLICATIONS

- **Finite-element modeling of neuromodulation via controlled delivery of potassium ions using conductive polymer-coated microelectrodes.** *Journal of neural engineering*
Verardo, C., Mele, L. J., Selmi, L., Palestri, P.
2024
- **Critical overview and comparison between models for adsorption-desorption noise in bio-chemical sensors** *APPLIED SURFACE SCIENCE ADVANCES*
Bettetti, F., Mele, L., Palestri, P.
2023; 18
- **Reproducing capacitive cyclic voltammetric curves by simulation: When are simplified geometries appropriate?** *ELECTROCHEMISTRY COMMUNICATIONS*
Mele, L., Verardo, C., Palestri, P.
2022; 142
- **Selectivity, Sensitivity and Detection Range in Ion-Selective Membrane-Based Electrochemical Potentiometric Sensors Analyzed With Poisson-Boltzmann Equilibrium Model** *IEEE SENSORS JOURNAL*
Mele, L., Palestri, P., Alam, M. A., Selmi, L.
2022; 22 (15): 15010-15021
- **Modeling Non-Equilibrium Ion-Transport in Ion-Selective-Membrane/Electrolyte Interfaces for Electrochemical Potentiometric Sensors** *IEEE SENSORS JOURNAL*

Mele, L., Palestri, P., Selmi, L., Alam, M. A.

2022; 22 (13): 12987-12996

- **Multiphysics Finite-Element Modeling of the Neuron/Electrode Electrodiffusive Interaction**

Leva, F., Verardo, C., Mele, L., Palestri, P., Selmi, L., IEEE

IEEE.2022

- **Sensitivity, Noise and Resolution in a BEOL-Modified Foundry-Made ISFET with Miniaturized Reference Electrode for Wearable Point-of-Care Applications** *SENSORS*

Bellando, F., Mele, L., Palestri, P., Zhang, J., Ionescu, A., Selmi, L.

2021; 21 (5)

- **General Model and Equivalent Circuit for the Chemical Noise Spectrum Associated to Surface Charge Fluctuation in Potentiometric Sensors** *IEEE SENSORS JOURNAL*

Mele, L., Palestri, P., Selmi, L.

2021; 21 (5): 6258-6269

- **Device simulations of ion-sensitive FETs with arbitrary surface chemical reactions**

Mele, L., Palestri, P., Selmi, L., IEEE

IEEE.2021

- **General Approach to Model the Surface Charge Induced by Multiple Surface Chemical Reactions in Potentiometric FET Sensors** *IEEE TRANSACTIONS ON ELECTRON DEVICES*

Mele, L. J., Palestri, P., Selmi, L.

2020; 67 (3): 1149-1156

- **Modeling Selectivity and Cross-sensitivity in membrane-based potentiometric sensors**

Mele, L., Palestri, P., Selmi, L., IEEE

IEEE.2020

- **A model of the interface charge and chemical noise due to surface reactions in Ion Sensitive FETs**

Mele, L., Palestri, P., Selmi, L., Driussi, F.

IEEE.2019: 343-346