Jonathan Rivnay

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EDUCATION

2012 Ph.D., Materials Science and Engineering, Stanford University, *Stanford, CA*
2010 M.S., Materials Science and Engineering, Stanford University, *Stanford, CA*
2006 B.S., Materials Science and Engineering, Cornell University, *Ithaca, NY*

PROFESSIONAL & RESEARCH EXPERIENCE

2017-present Assistant Professor
Department of Biomedical Engineering, McCormick School of Engineering
Simpson Querrey Institute; Center for Advanced Regenerative Engineering; Center for Sleep and Circadian Biology
Northwestern University, *Evanston, IL*

2015-2016 Member of Research Staff
Electronic Materials and Devices Laboratory
Palo Alto Research Center (PARC), *Palo Alto, CA*

2012-2015 Marie Curie Research Fellow; Post-doctoral researcher
Department of Bioelectronics, Centre Microelectronique de Provence (CMP),
(Ecole National Superieur des Mines, Saint-Etienne), *Gardanne, France*

2006-2012 Graduate Researcher (M.S., Ph.D.)
Department of Materials Science and Engineering,
Stanford University, *Stanford, CA*

AWARDS & HONORS

2021 Biomedical Engineering Society (BMES) 2021 Young Innovator of Cellular and Molecular Bioengineering (CMBE)
2020 American Chemical Society (ACS) Division of Polymeric Materials: Science and Engineering (PMSE) Young Investigator
2020 US Office for Naval Research (ONR) Young Investigator Program (YIP)
2020 Materials Research Society (MRS) Outstanding Early-Career Investigator award
2019-2021 Alfred P. Sloan Foundation, Sloan Research Fellow (Chemistry)
2019-2020 Northwestern Medicine/McCormick School of Engineering Catalyst Award
2019 Biomedical Engineering Society (BMES) Cellular and Molecular Engineering. (CMBE) Rising Star award
2018-2023 National Science Foundation (NSF) CAREER award
2016 Royal Society of Chemistry (RSC) Journal of Materials Chemistry "Emerging Young Investigator"
2014 Materials Research Society (MRS) Postdoctoral Award (Fall Meeting 2014)
2013 William E. and Diane M. Spicer Young Investigator Award (SSRL/SLAC)
2012-2014 Marie Curie Fellow (EC, FP7)
2011 Melvin P. Klein Scientific Development Award (SSRL/SLAC)

2011	Materials Research Society (MRS) Graduate Student Gold Award (Spring Mtg 2011)
2010	Robert A. Huggins Award (2010, Stanford Dept. of Materials Science & Eng.)
2009-2011	National Science Foundation (NSF) Graduate Research Fellow
2006-2009	National Defense Science and Engineering Graduate (NDSEG) Fellow
2006	Graduation with Honors (Summa Cum Laude), Cornell University
2006	James L. Gregg Memorial Prize (Cornell Dept. of Materials Science and Eng.)
2006	Cornell Presidential Research Fellow (Cornell University)
2005	SPIE Educational Scholarship
2005	Alpha Sigma Mu Scholarship

PUBLICATIONS

Peer Reviewed Publications

orcid.org/0000-0002-0602-6485

([§] denotes corresponding author when not last author; * denotes equal contribution):

Published and In Press Publications as an Independent Researcher (Northwestern, PARC)

1. M. Alsufyani, M.-A. Stoeckel, X. Chen, K. Thorely, R.K. Hallani, Y. Puttisong, X. Ji, D. Meli, B.D. Paulsen, J. Strzalka, K. Regeta, C. Combe, H. Chen, J. Tian, J. Rivnay, S. Fabiano, I. McCulloch, "Lactone Backbone Density in Rigid Electron-Deficient Semiconducting Polymers Enabling High n-type Organic Thermoelectric Performance," ***Angewandte Chemie, Int. Ed.,*** *Accepted* (2021). [doi: 10.1002/anie.202113078]
2. R.L. Keate, J. Tropp, C. Serna III, J. Rivnay, "A collagen-conducting polymer composite with enhanced chondrogenic potential" ***Cellular and Molecular Bioengineering***, **14,** 501 (2021).
3. J. Tropp, J. Rivnay, "Design of Biodegradable and Biocompatible Conjugated Polymers for Bioelectronics," ***Journal of Materials Chemistry C,*** **9,** 1354343 (2021).
4. B.D. Paulsen, A. Giovannitti, R. Wu, J. Strzalka, Q. Zhang, J. Rivnay[§], C.J. Takacs[§], "Electrochemistry of Thin Films with In Situ/Operando Grazing Incidence X-Ray Scattering: Bypassing Electrolyte Scattering for High Fidelity Time Resolved Studies," ***Small***, **17**, 2103213 (2020).
5. R.B. Rashid, W. Du, S. Griggs, I.P. Maria, I. McCulloch, J. Rivnay, "Ambipolar inverters based on cofacial vertical organic electrochemical transistor pairs for biosignal amplification," ***Science Advances,*** **7**, eabh1055 (2021).
6. B.D. Paulsen, S. Fabiano, J. Rivnay, "Mixed Ionic-Electronic Transport in Polymers" ***Annual Review of Materials Research,*** **51,** 73 (2021). **[invited review]**
7. M. Rolandi, A. Noy, S. Inal, J. Rivnay, "Advances in bioelectronics: Materials, devices, and translational applications," ***APL Materials,*** **9**, 070402 (2021).
8. R.K. Hallani, B.D. Paulsen, A.J. Petty II, R. Sheelamanthula, M. Moser, K.J. Thorley, W. Sohn, R.B. Rashid, A. Savva, S. Moro, J.P. Parker, O. Drury, M. Alsufyani, M. Neophytou, J. Kosco, S. Inal, G. Costantini, J. Rivnay, I. McCulloch, "Regiochemistry-Driven Organic Electrochemical Transistor Performance Enhancement in Ethylene Glycol-Functionalized Polythiophenes," ***Journal of the American Chemical Society***. *ASAP* (2021). [DOI: 10.1021/jacs.1c03516]

9. Y. Bonnassieux, C.J. Brabec, Y. Cao, T.B. Carmichael, M.L. Chabinyc, K.-T. Cheng, G. Cho, A. Chung, C.L. Cobb, A. Distler, H.-J. Egelhaaf, G. Grau, X. Guo, G. Haghiashtiani, T.-C. Huang, M.M. Hussain, B. Iniguez, T.-M. Lee, L. Li, Y. Ma, D. Ma, M.C. McAlpine, T.N. Ng, R. Österbacka, S.N. Patel, J. Peng, H. Peng, J. Rivnay, L. Shao, D. Steingart, R.A. Street, V. Subramanian, L. Torsi, Y. Wu, "The 2021 flexible and printed electronics roadmap," ***Flexible and Printed Electronics,*** **6**, 023001 (2021).
10. R.B. Rashid, X. Ji, J. Rivnay, "Organic electrochemical transistors in bioelectronic circuits" ***Biosensors and Bioelectronics***, **190**, 113461 (2021). **[review]**
11. X. Ji, B.D. Paulsen, G.K.K. Chik, R. Wu, Y. Yin, P.K.L. Chan, J. Rivnay, "Mimicking associative learning using an ion-trapping non-volatile synaptic organic electrochemical transistor," ***Nature Communications,*** **12**, 2480 (2021).
12. J. Surgailis, A. Savva, V. Druet, B.D. Paulsen, R. Wu, A. Hamidi-Sakr, D. Ohayon, G. Nikiforidis, X. Chen, I. McCulloch, J. Rivnay, S. Inal, "Mixed conduction in an N-Type Organic Semiconductor in the Absence of Hydrophilic Side-Chains," ***Advanced Functional Materials***, **31**, 2010165 (2021).
13. Y. Kim, H. Noh, B.D. Paulsen, J. Kim, I.-Y. Jo, H. Ahn[§], J. Rivnay[§], M.-H. Yoon[§], "Strain-Engineering Induced Anisotropic Crystallite Orientation and Maximized Carrier Mobility for High-Performance Microfiber-Based Organic Bioelectronic Devices," ***Advanced Materials***, **33**, 2007550 (2021).
14. X. Chen, A. Marks, B.D. Paulsen, R. Wu, R.B. Rashid, H. Chen, M. Alsufyani, J. Rivnay, I. McCulloch, "N-type Rigid Semiconducting Polymers Bearing Oligo(Ethylene Glycol) Side Chains for High Performance Organic Electrochemical Transistors," ***Angewandte Chemie, Int Ed.*** **60,** 9368-9373 (2021).
15. I.P. Maria, B.D. Paulsen, A. Savva, D. Ohayon, R. Wu, R. Hallani, A. Basu, W. Du, T.D. Anthopoulos, S. Inal, J. Rivnay, I. McCulloch, A. Giovannitti, "The Effect of Alkyl Spacers on the Mixed Ionic-Electronic Conduction Properties of N-Type Polymers," ***Advanced Functional Materials***, **31**, 2008718 (2021).
16. M. Moser, A. Savva, K. Thorley, B.D. Paulsen, T.C. Hidalgo, D. Ohayon, H. Chen, A. Giovannitti, A. Marks, N. Gasparini, A. Wadsworth, J. Rivnay, S. Inal, I. McCulloch, "Polaron Delocalization in Donor-Acceptor Polymers and its Impact on Organic Electrochemical Transistor Performance," ***Angewandte Chemie, Int. Ed.,*** **60**, 7777-7785 (2021).
17. D. Ohayon, A, Savva, W. Du, B.D. Paulsen, I. Uguz, R.S. Ashraf, J. Rivnay, I. McCulloch, S. Inal, "Influence of Side Chains on the n-Type Organic Electrochemical Transistor Performance," ***ACS Applied Materials & Interfaces,*** **13**, 4253 (2021).
18. S. Zokaei, R. Kroon, J. Gladisch, B.D. Paulsen, W. Sohn, A.I. Hofmann, G. Persson, A. Stamm, P.-O. Syrén, E. Olsson, J. Rivnay, E. Stavrinidou, A. Lund, C. Müller, "Toughening of a Soft Polar Polythiophene through Copolymerization with Hard Urethane Segments," ***Advanced Science***, 8, 2002778 (2021).
19. B.D. Paulsen, R. Wu, C.J. Takacs, H.-G. Steinruck, J. Strzalka, Q. Zhang, M.F. Toney, J. Rivnay, "Time-Resolved Structural Kinetics of an Organic Mixed Ionic Electronic Conductor," ***Advanced Materials***, **32**, 2003404 (2020). [previously: ***ChemRxiv***, DOI:10.26434/chemrxiv.12312299.v1]
20. M. Matta, R. Wu, B.D. Paulsen, A.J. Petty II, R. Sheelamanthula, I. McCulloch, G.C. Schatz, J. Rivnay, "Ion Coordination and Chelation in a Glycolated Polymer Semiconductor: Molecular

Dynamics and X-Ray Fluorescence Study," ***Chemistry of Materials***, **32**, 7301 (2020). [previously: ***ChemRxiv***, DOI:10.26434/chemrxiv.12264308.v1]

21. A.J. Petty II, R.L. Keate, B. Jiang, G.A. Ameer, J. Rivnay, "Conducting Polymers for Tissue Regeneration in Vivo," ***Chemistry of Materials***, **32** 4095 (2020). **[review]**
22. A.F. Paterson, A. Savva, S. Wustony, L. Tsetseris, B.D. Paulsen, H. Faber, A.H. Emwas, X. Chen, G. Nikifordis, T.C. Hidalgo, M. Moser, I.P. Maria, J. Rivnay, I. McCulloch, T.D. Anthopoulos, S. Inal, "Water stable molecular n-doping produces organic electrochemical transistors with high transconductance and record stability" ***Nature Communications****, 11*, 2004 (2020).
23. A. Giovannitti, R.B. Rashid, Q. Thiburce, B.D. Paulsen, C. Cendra, K. Thorley, D. Moia, J. Tyler Mefford, D. Hanifif, D. Weiyuan, M. Moser, A. Salleo, J. Nelson, I. McCulloch, J. Rivnay, "Energetic Control of Redox Polymers towards Safe Organic Bioelectronic Materials," ***Advanced Materials***, **32**, 1908047 (2020).
24. Z.S. Parr, R.B. Rashid, B.D. Paulsen, B. Poggi, E. Tan, M. Freeley, M. Palma, I. Abrahams, J. Rivnay, C.B. Nielsen, "Semiconducting Small Molecules as Active Materials for p-Type Accumulation Mode Organic Electrochemical Transistors" ***Advanced Electronic Materials***, *6*, 2000215 (2020).
25. R.B. Rashid, R. Ciechowski, J. Rivnay, "Self-aligned, laser-cut organic electrochemical transistors," ***Flexible and Printed Electronics****,* **5**, 014007 (2020).
26. G.E. dePolo, E. Schafer, K. Sadman, J. Rivnay, K.R. Shull, "Sample Preparation in Quartz Crystal Microbalance Measurements of Protein Adsorption and Polymer Mechanics," ***J. Vis. Exp.*** **155**, e60584 (2020).
27. B.D. Paulsen, K. Tybrandt, E. Stavrinidou, J. Rivnay "Organic mixed ionic/electronic conductors", ***Nature Materials,*** **19,** 13 (2020). **[review]**
    - **Featured on Front Cover of Nature Materials, Vol 19, Iss. 1 (Jan 2020)**
28. Z.S. Parr, R. Halaksa, P.A. Finn, R.B. Rashid, A. Kovalenko, M. Weiter, J. Rivnay, J. Krajcovic, C.B. Nielsen, "Glycolated Thiophene-Tetrafluorophenylene Copolymers for Bioelectronic Applications: Synthesis by Direct Heteroarylation Polymerisation," ***ChemPlusChem,*** **84,** 1384 (2019).
29. A. Savva, D. Ohayon, J. Surgailis, A.F. Paterson, T.C. Hidalgo, X. Chen, I.P. Maria, B.D. Paulsen, A.J. Petty II, J. Rivnay, I. McCulloch, S. Inal, "Solvent Engineering for High-Performance n-Type Organic Electrochemical Transistors," ***Advanced Electronic Materials***, ***5***, 1900249 (2019).
30. A. Savva, C. Cendra, A. Giugni, B. Torre, J. Surgailis, D. Ohayon, A. Giovannitti, I. McCulloch, E. Di Fabrizio, A. Salleo, J. Rivnay, S. Inal, "Influence of Water on the Performance of Organic Electrochemical Transistors", ***Chemistry of Materials***, **31**, 927 (2019).
31. C. Cendra, A. Giovannitti, A. Savva, V. Venkatraman, I. McCulloch, A. Salleo, S. Inal, J. Rivnay, "Role of the Anion on the Transport and Structure of Organic Mixed Conductors" ***Advanced Functional Materials,*** **29,** 1807034 (2019).
32. J.T. Friedlein, R.R. McLeod, J. Rivnay, "Device physics of organic electrochemical transistors, "***Organic Electronics,*** **63**, 398 (2018). **[Review]**
33. A. Shirinskaya, G. Horowitz, J. Rivnay, G Malliaras, Y Bonnassieux, "Numerical Modeling of an Organic Electrochemical Transistor," ***Biosensors***, **8**, 103 (2018).

34. S.-M. Kim, C.-H. Kim, Y. Kim, N. Kim, W.-J. Lee, E. Lee, D. Kim, S. Park, K. Lee, J. Rivnay, M.-H. Yoon, "Influence of PEDOT:PSS crystallinity and composition on electrochemical transistor performance and long-term stability," ***Nature Communications,*** **9**, 3858 (2018).

35. L.R. Savagian, A.M. Österholm, J.F. Ponder Jr, K.J. Barth, J. Rivnay, J.R. Reynolds, "Balancing Charge Storage and Mobility in an Oligo (Ether) Functionalized Dioxythiophene Copolymer for Organic-and Aqueous-Based Electrochemical Devices and Transistors," ***Advanced Materials,*** **30,** 1804647 (2018).

36. V. Venkatraman, J.T. Friedlein, A. Giovannitti, I.P. Maria, I. McCulloch, R.R. McLeod, J. Rivnay, "Subthreshold operation of organic electrochemical transistors for bio-signal amplification," ***Advanced Science,*** **5***,* 1800453 (2018).

37. S.M. Won, E. Song, J. Zhao, J. Li, J. Rivnay, J.A. Rogers, "Recent Advances in Materials, Devices, and Systems for Neural Interfaces," ***Advanced Materials,*** **30**, 1800534 (2018).

38. A.M. Pappa, D. Ohayon, A. Giovannitti, I.P. Maria, A. Savva, I. Uguz, J. Rivnay, I. McCulloch, R.M. Owens, S. Inal, "Direct metabolite detection with an n-type accumulation mode organic electrochemical transistor," ***Science Advances***, **4**, eaat0911 (2018).

39. S. Inal, J. Rivnay, A.-O. Suiu, G.G. Malliaras, I. McCulloch, "Conjugated Polymers in Bioelectronics," ***Acc. Chem. Res.,*** **51**, 1368 (2018). **[review]**

40. A. Giovannitti, I. P. Maria, D. Hanifi, M.J. Donahue, D. Bryant, K.J. Barth, B.E. Makdah, A. Savva, D. Moia, M. Zetek, P.R.F. Barnes, O.G. Reid, S. Inal, G. Rumbles, G.G. Malliaras, J. Nelson, J. Rivnay[§], I. McCulloch, "The Role of the Side Chain on the Performance of N-type Conjugated Polymers in Aqueous Electrolytes," ***Chem. Mater.*****, 30**, 2945-2953 (2018).

41. A. Giovannitti, K.J. Thorley, C.B. Nielsen, J. Li, M.J. Donahue, G.G. Malliaras, J. Rivnay, I. McCulloch, "Redox-Stability of Alkoxy-BDT Copolymers and their Use for Organic Bioelectronic Devices." ***Adv. Func. Mater.,*** **28**, 1706325 (2018).

42. J. Rivnay[§], S. Inal, A. Salleo, R.M. Owens, M. Berggren, G.G. Malliaras, "Organic electrochemical transistors." ***Nature Reviews Materials,*** **3**, 17086 (2018). **[invited review]**

43. D. Kiefer, A. Giovannitti, H. Sun, T. Biskup, A. Hofmann, M. Koopmans, C. Cendra, S. Weber, L.J.A. Koster, E. Olsson, J. Rivnay, S. Fabiano, I. McCulloch, C. Müller, "Enhanced n-Doping Efficiency of a Naphthalenediimide-Based Copolymer through Polar Side Chains for Organic Thermoelectrics," ***ACS Energy Letters*****, 3**, 278-285 (2018).

44. S. Inal, G.G. Malliaras, J. Rivnay, "Benchmarking organic mixed conductors for transistors," ***Nature Communications***, **8**, 1767 (2017).

45. J.T. Friedlein, J. Rivnay, D.H. Dunlap, I. McCulloch, S.E. Shaheen, R.R. McLeod, G.G. Malliaras, "Influence of disorder on transfer characteristics of organic electrochemical transistors," ***Applied Physics Letters,*** **111,** 023301, (2017).

46. J. Rivnay[§], H. Wang, L. Fenno, K. Deisseroth, G.G. Malliaras, "Next generation probes, particles, and proteins for neural interfacing," ***Science Advances,*** **3**, e1601649 (2017). **[invited review]**

47. A. Giovannitti, D.-T. Sbircea, S. Inal, C.B. Nielsen, E. Bandiello, D.A. Hanifi, M. Sessolo, G.G. Malliaras, I. McCulloch, J. Rivnay, "Controlling the mode of operation of organic transistors through side chain engineering" ***Proceedings of the National Academy of Science, USA,*** **113,** 12017-12022 (2016).

48. A. Giovannitti, C.B. Nielsen, D.-T-. Sbircea, S. Inal, M. Donahue, M.R. Niazi, D.A. Hanifi, A. Amassian, G.G. Malliaras, J. Rivnay, I. McCulloch, "N-type organic electrochemical transistors with stability in water," ***Nature Communications,*** **7**, 13066 (2016).

49. D.E. Schwartz, J. Rivnay, G.L. Whiting, P. Mei, Y. Zhang, B. Krusor, S. Kor, G. Daniel, S.E. Ready, J. Veres, R.A. Street, "Flexible hybrid electronic circuits and systems" ***IEEE Journal on Emerging and Selected Topics in Circuits and Systems*****, 7**(1), 27-37 (2017)

50. J. Rivnay[§], S. Inal, B.A. Collins, M. Sessolo, E. Stavrinidou, X. Strakosas, C. Tassone, D.M. Delongchamp, G.G. Malliaras, "Structural control of mixed ionic and electronic transport in conducting polymers," ***Nature Communications*****, 7,** 11287 (2016).

51. J. Rivnay, "Organic Electronics: Efficiency through dilution," ***Nature Materials***, **15**, 594 (2016). **[Invited News and Views]**

52. C.B. Nielsen, A. Giovannitti, D.-T. Sbircea, E. Bandiello, M.R. Niazi, D.A. Hanifi, M. Sessolo, A. Amassian, G.G. Malliaras, J. Rivnay, I. McCulloch, "Molecular design of semiconducting polymers of high-performance organic electrochemical transistors," ***Journal of the American Chemical Society,*** **138,** 10252 (2016).

Publications as trainee and post-doctoral researcher (Cornell, Stanford, EMSE)

53. A. Sharma, G. Andersson, J. Rivnay, J.F. Alvino, G.F. Metha, M.R. Andersson, K. Zuber, M. Fabretto, "Insights into the Oxidant/Polymer Interfacial Growth of Vapor Phase Polymerized PEDOT Thin Films," ***Adv. Mater. Interface.*** **5**, 1800453 (2018).

54. V.F. Curto, B. Marchiori, A. Hama, A.-M. Pappa, M. Ferro, M. Braendlein, J. Rivnay, M. Fiocchi, G.G. Malliaras, M. Ramuz, R.M. Owens. "An organic transistor platform with integrated microfluidics for in-line multi-parametric in vitro cell monitoring," ***Microsystems & Nanoengineering.*** **3**, 17028 (2017).

55. X. Strakosas, M. Huerta, M.J. Donahue, A. Hama, A.-M. Pappa, M. Ferro, M. Ramuz, J. Rivnay, R.M. Owens, "Catalytically enhanced organic transistors for in vitro toxicology monitoring through hydrogel entrapment of enzymes" ***Journal of Applied Polymer Science*****, 134**, 44483 (2017).

56. W. Lee, D. Kim, J. Rivnay, N. Matsuhisa, T. Lonjaret, T. Yokota, H. Yawo, M. Sakino, G.G. Malliaras, T. Someya, "Integration of organic electrochemical and field-effect transistors for ultaflexible, high temporal resolution electrophysiology arrays," ***Advanced Materials,*** **28**, 9722-9728 (2016).

57. A. Jonsson*, S. Inal*, I. Uguz*, A.J. Williamson*, L. Kergoat, J. Rivnay, D. Khodagholy, M. Berggren, C. Bernard, G. G. Malliaras, D.T. Simon, "The bioelectronics neural pixel: Chemical stimulation and electrical sensing at the same site," ***Proceedings of the National Academy of Sciences, USA,*** **113,** 9440 (2016).

58. S. Inal, G.G. Malliaras, J. Rivnay, "Optical study of electrochromic moving fronts for the investigation of ion transport in conducting polymers," ***Journal of Materials Chemistry C***, **4,** 3942 (2016). **[Emerging Young Investigator's issue, 2016]**

59. C.M. Proctor, J. Rivnay, G.G. Malliaras, "Understanding volumetric capacitance in conducting polymers," ***Journal of Polymer Science Part B: Polymer Physics***, **54,** 1433 (2016).

60. M. Huerta, J. Rivnay, A. Hama, M. Ramuz, R.M. Owens, "Early detection of nephrotoxicity in vitro using a transparent conducting polymer device," ***Applied In Vitro Toxicology***, **2,** 17 (2016).

61. A. Giovannitti, C. Nielsen, J. Rivnay, M. Kirkus, D. Harkin, A.J.P. White, H. Sirringhaus, G.G. Malliaras, I. McCulloch, "Sodium and potassium selective conjugated polymers for optical solid state sensors," ***Advanced Functional Materials,*** **26**, 514 (2016).

62. S. Inal,* J. Rivnay,* A.I. Hoffman, I. Uguz, M. Mumtaz, D. Katsigiannopoulos, C. Brochon, E. Cloutet, G. Hadziioannou, G.G. Malliaras, "Organic Electrochemical Transistors Based on PEDOT with Different Anionic Polyelectrolyte Dopants," ***Journal of Polymer Science: Part B: Polymer Physics,*** **54**, 147 (2016).

63. J. Rivnay§, P. Leleux, A. Hama, M. Ramuz, M. Huerta, G.G. Malliaras, R.M. Owens, "Using white noise to gate organic transistors for dynamic monitoring of cultured cell layers," ***Scientific Reports,*** **5**, 11613 (2015).

64. J. Rivnay, P. Leleux, M. Ferro, M. Sessolo, A. Williamson, D.A. Koutsouras, D. Khodagholy, M. Ramuz, X. Strakosas, R.M. Owens, C. Benar, J.-M. Badier, C. Bernard, G.G. Malliaras, "High performance transistors for bioelectronics through tuning of channel thickness," ***Science Advances,*** **1**, e1400251 (2015).

65. M. Ramuz, A. Hama, J. Rivnay, P. Leleux, R.M. Owens, "Monitoring of cell layer coverage and differentiation with the organic electrochemical transistor," ***Journal of Materials Chemistry B***, **3***,* 5971-5977 (2015).

66. F. Paquin, J. Rivnay, A. Salleo, N. Stingelin, C. Silva-Acuña, "Multi-phase microstructures drive exciton dissociation in neat semicrystalline polymeric semiconductors," ***Journal of Materials Chemistry C,*** **3**, 10715-10722 (2015). [also: ***arXiv preprint***, arXiv:1310.8002 (2013).]

67. A. Williamson, M. Ferro, P. Leleux, A. Kaszas, T. Doublet, P. Quilichini, A. Ivanov, E. Ismailova, J. Rivnay, C. Bernard, G.G. Malliaras, "Localized stimulation of neurons with organic electrochemical transistors on delaminating polymer depth probes," ***Advanced Materials***, **27,** 4405-4410 (2015).

68. A. Williamson*, J. Rivnay*, L. Kergoat*, S. Inal, A. Jonsson, I. Uguz, M. Ferro, A. Ivanov, D.T. Simon, M. Berggren, G.G. Malliaras, C. Bernard, "Controlling Epileptiform Activity with Organic Electronic Ion Pumps", ***Advanced Materials***, 27, 3138-3144 (2015). **[Featured on front cover]**.

69. S. Himmelberger, D.T. Duong, J.E. Northrup, J. Rivnay, B.S. Beckingham, F.P.V. Koch, N. Stingelin, R.A. Segalman, S.C.B. Mannsfeld, A. Salleo, "Role of Side-Chain Branching on Thin-film Structure and Electronic Properties of Polythiophenes," ***Advanced Functional Materials***, **25**, 2616-2624 (2015).

70. M. Ramuz, K. Margita, A. Hama, P. Leleux, J. Rivnay, I. Bazin, R.M. Owens, "Optimization of a Planar All-Polymer Transistor for Characterization of Barrier Tissue," ***ChemPhysChem,*** **16**, 1210-1216 (2015).

71. J. Rivnay§, M. Ramuz, P. Leleux, A. Hama, M. Huerta, R.M. Owens, "Organic electrochemical transistors for cell-based impedance sensing," ***Appl. Phys. Lett.,*** **106,** 043301 (2015).

72. M. Huerta, J. Rivnay, M. Ramuz, A. Hama, R.M. Owens, "Electrical monitoring of cysts using organic electrochemical transistors," ***APL Materials***, **3**, 030701 (2015).

73. C. Wang, D.T. Duong, K. Vandewal, J. Rivnay, A. Salleo, "Optical measurement of doping efficiency in Poly(3-hexylthiophene) solutions and thin films," ***Physical Review B,*** **91**, 085205 (2015).

74. P. Leleux, J. Rivnay, J.-M. Badier, C. Bénar, T. Hervé, P. Chauvel, G.G. Malliaras, "Organic electrochemical transistors for clinical applications," ***Advanced Healthcare Materials***, **4**, 142-147 (2015).

75. G.C. Faria, D.T. Duong, C.A. Polyzoidis, J. Rivnay, S. Logothetidis, R.M. Owens, G.G. Malliaras, A. Salleo, "Organic Electrochemical Transistors as Impedance Biosensors," ***MRS Communications,*** **4**, 189-194 (2014).

76. S. Inal, J. Rivnay, P. Leleux, M. Ferro, J.C. Brendel, M. Thelakkat, G.G. Malliaras, "High Transconductance Accumulation Model Electrochemical Transistor," ***Advance Materials***, **26**, 7450-7455 (2014).

77. M. Ramuz, A. Hama, M. Huerta, J. Rivnay, P. Leleux, R.M. Owens, "Combined Optical and Electronic Sensing of Epithelial Cells using Planar Organic Transistors," ***Advanced Materials***, **26**, 7083-7090 (2014).

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79. P. Leleux, C. Johnson, X. Strakosas, J. Rivnay, T. Herve, R.M. Owens, G.G. Malliaras, "Ionic liquid gel-assisted electrodes for long-term cutaneous recordings," ***Advanced Healthcare Materials***, **3**, 1377-1380 (2014).

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    - **Highlighted in *Science* Perspective:** R.A.Street, "Unraveling Charge Transport in Conjugated Polymers" ***Science***, **341**, 1072-1073 (2013)
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103. J. Rivnay, M.F. Toney, Y. Zheng, I.V. Kauvar, Z. Chen, V. Wagner, A. Facchetti, A. Salleo, "Unconventional Face-On Texture and Exceptional In-Plane Order of a High Mobility n-Type Polymer," ***Advanced Materials***, **22**, 4359 (2010).

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106. J.A. Letizia, J. Rivnay, A. Facchetti, M.A. Ratner, T.J. Marks, "Variable Temperature Mobility Analysis of n-Channel, p-Channel, and Ambipolar Organic Field-Effect Transistors," ***Advanced Functional Materials.,*** **20**, *50*, (2010).

107. J. Rivnay, L.H. Jimison, J.E. Northrup, M.F. Toney, R. Noriega, S. Lu, T.J. Marks, A. Facchetti, A. Salleo, "Large modulation of carrier transport by grain-boundary molecular packing and microstructure in organic thin films," ***Nature Materials***, **8**, 952 (2009)

108. A.C. Mayer, M.F. Toney, S.R. Scully, J. Rivnay, C.J. Brabec, M. Scharber, M. Koppe, M. Heeney, I. McCulloch, M.D. McGehee, "Bimolecular Crystals of Fullerenes in Conjugated Polymers and the Implications of Molecular Mixing for Solar Cells," ***Advanced Functional Materials***, **19**, 1173 (2009).

109. J. Rivnay, L.H. Jimison, M.F. Toney, M.Preiner, N.A. Melosh, A. Salleo, "Interfacial effects in thin films of polymeric semiconductors," ***J.Vac. Sci. Technol. B,*** **26**, 1454, (2008).

110. M. Chabinyc, L.H. Jimison, J. Rivnay, A. Salleo, "Connecting Electrical and Molecular Properties of Semiconducting Polymers for Thin Film Transistors", ***MRS Bulletin***, **33**, 683-689 (2008). **[Review]**

111. J.D. Slinker, J. Rivnay, J.S. Moskowitz, J.B. Parker, S. Bernhard, H.D. Abruña, G.G. Malliaras, "Electroluminescent devices from ionic transition metal complexes," ***Journal of Materials Chemistry***, **17**, 2976, (2007). **[Review]**

112. D.R. Blasini,* J. Rivnay,* D.-M. Smilgies, J.D. Slinker, S. Flores-Torres, H.D. Abruña, G.G. Malliaras, "Observation of intermediate-range order in a nominally amorphous molecular semiconductor film," ***Journal of Materials Chemistry***, **17**, 1458 (2007).

113. J.D. Slinker, J. Rivnay, J.A. DeFranco, D.A. Bernards, A.A. Gorodetsky, S.T. Parker, M.P. Cox, R. Rohl, S. Flores-Torres, H.D. Abruña, G.G. Malliaras, "Direct 120 V, 60 Hz operation of an organic light emitting device," ***Journal of Applied Physics.* 99**, 074502 (2006).

Book Chapters

1. L.H. Jimison, J. Rivnay, R.M. Owens, "Conducting polymers to control and monitor cells." Ch. 2 in ***Organic Electronics: Emerging Concepts and Technologies***, F. Cicciora, C. Santato, eds. John Wiley & Sons (2013).

Patents

1. B.D. Casse, G. Daniel, J. Rivnay, C. Paulson, R. Street, [Palo Alto Research Center, Inc.] "Implantable neural probe" *US Patent No. 10,603,505,* 10/31/2020, Filed: 06/07/2018.
2. B.D. Casse, G. Daniel, J. Rivnay, C. Paulson, R. Street, [Palo Alto Research Center, Inc.] "Implantable neural modulation device" *US Patent No. 10,449,382*, 10/22/2019; Filed: 06/07/2017.
3. B.D. Casse, G. Daniel, J. Rivnay, C. Paulson, R. Street, [Palo Alto Research Center, Inc.] "Neural modulation system" *US Patent No. 10,426,968*, 10/1/2019, Filed: 06/07/2017.
4. J. Rivnay, P. Mei, B.S. Krusor, [Palo Alto Research Center, Inc.] "Electrochemical device with self-aligned insulation." *U.S. Patent No. 10,388,874*, 8/20/2019; Filed: 3/30/2017.
5. R.A. Street, D.E. Schwartz, P. Mei, B.S. Krusor, J. Rivnay, Y. Zhang, G.L. Whiting, S. Kor, S.E. Ready, [Palo Alto Research Center, Inc.] "Printed Gas Sensor." *U.S. Patent No. 10,466,193*, 11/5/2019; Filed: 3/1/2017.

LECTURES & TALKS

Invited Talks/Seminars

2022 nanoGe Spring Meeting, *Málaga, Spain or Virtual* (Mar. 2022)
2022 Rice University, Bioengineering Dept. seminar, *Houston*, TX (Jan. 2022)

2021 Fall MRS Conference, *Boston, MA* (Dec 2021)
2021 Cornell University, Dept. of Materials Science & Eng. seminar, *Ithaca, NY* (Oct. 2021)
2021 Carnegie Mellon University, Dept. of Materials Science & Eng. seminar, *Pittsburgh, PA* (Oct. 2021)
2021 **Plenary Presentation:** IEEE International Flexible Electronics Technology Conference (IFETC) 2021, *Virtual* (Aug. 2021)
2021 Telluride Science Research Center (TSRC) Workshop on Hierarchical Assembly and Function of Organic and Hybrid Materials. *Telluride, CO* (July 2021)
2021 University of Hong Kong – Dept. of Mechanical Eng. Seminar, *Virtual* (July 2021)
2021 48TH World Polymer Congress: IUPAC-MACRO2020, *hybrid: Jeju, Korea & virtual,* (postponed to May 2021)
2021 University of Southern Mississippi – School of Polymer Science and Engineering Seminar, *Virtual* (Apr. 2021)

2021 UC Berkeley EECS Solid State Technology and Devices seminar series [hosted by the Berkeley Emerging Technologies Research (BETR) Center], *Virtual* (Mar. 2021)
2021 Johns Hopkins University – MS&E Seminar, *Virtual* (Mar. 2021)
2021 APS March Meeting, *Virtual* (Mar 2021)
2021 University of Illinois at Urbana-Champaign, Soft Materials Seminar - MatSE, *Virtual*, (Mar. 2021)

2020 UC Davis Chemical Engineering department seminar, *Virtual*, (Dec. 2020)
2020 Fall/Spring Virtual MRS Meeting (Dec 2020)
2020 POLYMAT University of the Basque Country seminar, *Virtual*, (Nov. 2020)
2020 Gordon Research Conf.: Elec. Processes in Organic Materials, *Barga, Italy* (Jun 2020) (postponed: COVID-19)

2019 Fall MRS Conference, *Boston, MA* (Dec 2019)
2019 IEEE Brain Virtual Conference on Bioelectronics (Nov 2019)
2019 Orbitaly 2019 (Organic Bioelectronics Italy), *Naples, Italy* (Oct 2019)
2019 SPIE Optics+Photonics, *San Diego, CA* (Aug 2019)
2019 Mi-Bio Summit: Flexible & Stretchable Bioelectronics, *West Lafayette, IN* (Jul 2019)
2019 Gordon Research Conference: Bioelectronics, *Andover, NH* (Jun 2019)
2019 New Trends in Biosensors/Bioelectronics, KAUST, *Thuwal, Saudi Arabia* (Feb 2019).
2019 Dept. of Physics Seminar, Univerity of Texas at Dallas, *Richardson, TX* (Feb 2019)
2019 BMES/CMBE Conference **(Rising Star Award Lecture)**, *San Diego, CA* (Jan 2019)

2018 Kavli Foundation "Sensing the Future" Workshop, *Houston, TX* (Dec 2018)
2018 Fall MRS Conference, *Boston, MA* (Dec 2018)
2018 3RD Emerging Materials Technology Summit, *Hanoi, Vietnam* (Nov 2018)
2018 SPIE Optics+Photonics, *San Diego, CA* (Aug 2018)
2018 International Conference on Organic Electronics (ICOE), *Bordeaux, France* (Jul 2018)
2018 Spring MRS Conference, *Phoenix, AZ* (Apr 2018)
2018 Gordon Research Conference: Neuroelectric Interfaces, *Galveston, TX* (Mar 2018)
2018 255TH ACS National Meeting, *New Orleans, LA* (Mar 2018)

2017 NSF sponsored US-Brazil Workshop on Biosensors, *São Paulo, Brazil* (Nov 2017)
2017 Dept. of Biomedical Engineering, Rutgers University, *New Brunswick, NJ* (Oct 2017)
2017 SPIE Optics+Photonics, *San Diego, CA* (Aug 2017)
2017 XXV Int'l Materials Research Congress (IMRC), *Cancun, Mexico* (Aug. 2017)
2017 13TH Int'l Symposium on Function π-electron Systems (Fπ-13), *Hong Kong* (Jun 2017)
2017 Spring MRS Conference (Symp. SM3), *Phoenix, AZ* (Apr 2017)
2017 4TH Int'l Winterschool on Bioelectronics, *Kirchberg in Tirol, Austria* (Mar 2017)

2016 SPIE Optics+Photonics, *San Diego, CA* (Aug 2016)

2015 Fall MRS Conference (Symp. BB), *Boston, MA* (Nov/Dec 2015)
2015 SPIE Optics+Photonics, *San Diego, CA* (Aug 2015)
2015 CMOS Emerging Technologies Research, *Vancouver, BC, Canada* (May 2015)

2014 Printed Electronics USA, *Santa Clara, CA* (Nov 2014)
2014 Dept. of ChBE, Chalmers University, *Gothenberg, Sweden* (Nov 2014)
2014 SENSO Conference, *Gardanne, France* (Oct 2014)
2014 Dept. of ChBE, Georgia Tech, *Atlanta, GA* (Jan 2014)

2013 Printed Electronics USA, *Santa Clara, CA* (Nov 2013)
2013 SSRL/LCLS User's Meeting **(Spicer Award Lecture)**, *Menlo Park, CA* (Oct 2013)

2013 SPIE Optics+Photonics, *San Diego, CA* (Aug 2013)
2013 Faculty of Engineering, Tel Aviv University, *Tel Aviv, Israel* (May 2013)
2013 Dept. of Materials Science and Engineering, NCSU, *Raleigh, NC* (Feb 2013)

2011 SSRL/LCLS User's Meeting **(Klein Award Lecture)**, *Menlo Park, CA* (Oct 2011)
2011 SID Organic Electronics UK; Imperial College, *London, UK* (Sep 2011)
2011 Dept. of Chemistry, Imperial College*, London, UK* (Mar 2011)

PROFESSIONAL ACTIVITIES

Conference Service

Organization:

2022 Asilomar Bioelectronic Symposium (ABS 2022); *Pacific Grove, CA*
2021 MRS Hybrid Fall Meeting: Symp. SB08 "Bioelectronics—Materials and Interfaces"
2021 MRS Virtual Spring Meeting: Symp. EL07 "Bioelectronics—Fundamentals and Applications"
2020 MRS Virtual Spring/Fall Meeting: Symp. S20-SM06 "Soft Organic and Hybrid Materials for Biointerfacing"; F20-FL01 "Bioelectronic Materials for Neural Interfaces—Stimulation, Sensing, Power and Packaging", and F20-GI01: "Special Symposium on Materials Approaches for Tackling COVID-19"
2020 Telluride Science Research Center workshop on "Organic Bioelectronics: Tackling the Mixed Conduction Challenge", *Telluride, CO* (postp'd: COVID-19)
2019 Asilomar Bioelectronic Symposium (ABS 2019); *Pacific Grove, CA*
2018 MRS Fall Meeting (Symp. EP05), *Boston, MA*
"Excitons, Electrons and Ions in Organic Materials"
2018 BMES Annual Meeting (special session), *Phoenix, AZ*
"The Future of Bioelectronics: Materials, Processes, and Applications"
2018 Asilomar Bioelectronics Symposium (ABS 2018); *Pacific Grove, CA*
2018 5th International Winterschool on Bioelectronics; *Kirchberg in Tirol, Austria*
2017 Asilomar Bioelectronics Symposium (ABS 2017); *Pacific Grove, CA*
2017 MRS Spring Meeting (Symp. SM1; *lead organizer*), *Phoenix, AZ*
"Bioelectronics – Materials, Processes and Applications."
2015 MRS Fall Meeting (Symp. CC), *Boston, MA*
"Organic Bioelectronics: from biosensing platforms to implantable nanodevices";
2015 MRS Spring Meeting (Symp II; *lead organizer*), *San Francisco, CA*
"Organic Bioelectronics─Materials, Processes and Applications"

Leadership, Editorial and Advisory Boards

2018-present Chair, MRS (Materials Research Society) Bio-staging topical area.
2018-present Scientific Advisor, Panaxium SAS
2016-present Editorial board member, *Flexible and Printed Electronics*

Guest Editor (*Special Issues/Collections*):

2020-2021 *Acta Biomaterialia,* "Electroconductive Biomaterials" with M. Nikkhah
2021-2021 *APL Materials,* "Advances in Bioelectronics: Materials, Devices, and Translational Applications" with S. Inal, M. Rolandi, A. Noy

Professional Memberships

2017-present American Chemical Society (ACS)

2017-present Biomedical Engineering Society (BMES)
2011-present International Society for Optics and Photonics (SPIE)
2005-present Materials Research Society (MRS)

Courses taught:
BME 305: Introduction to Biomedical Signals & Electrical Circuits (S2018, S2019)
BME 395, 353: Bioelectronics (S2018, S2019, S2020, S2021)
BME 354: Bioelectronics Laboratory (S2019, S2020, S2021)

Other Teaching Activities
2017-2018 Searle Fellow, Seale Center for Advanced Learning and Teaching, Northwestern.
2013-2015 Organize and teach graduate level Technical Writing Lecture series at CMP
2010-2011 Instructor, SSRL Annual Workshop on Synchrotron X-ray Scattering Techniques (Taught wide-angle X-ray scattering/analysis)