

Academic appointments

Assistant Professor, Department of Chemistry, University of Utah (July 2016-present)

*** on 5th year of tenure clock; parental leave (2016, 2018) and COVID disruption to research activities (2020)*

Education and training

Postdoctoral. Dept. of Chemistry, Univ. of California Berkeley (Feb. 2013 – June 2016). Advisor: Prof. Naomi S. Ginsberg.

Graduate. Ph.D. in Applied Physics, Stanford University (Jan. 2013). Advisor: Prof. Alberto Salleo

Undergraduate. B.S. in Engineering Physics, ITESM Monterrey, Mexico (Dec. 2006)

Fellowships and awards

Sloan Research Fellowship, Alfred P. Sloan Foundation (2024)

Early Career Teaching Award (2022)

Utah Pathways to STEM Faculty Fellow (2020)

Daniels Fund Leadership in Ethics Education Award (2019)

Mentorship

Graduate

4. Tonmoye S. Shathi (2024-present), Ph.D. student

3. Jack Tran (2022-present), Ph.D. student

*** co-advised w/Ryan Looper*

2. Saad Faheem (2022-present), Ph.D. student

1. Nhat T. Do (2021-present), Ph.D. student

Alumni

4. Sasha A. Moonitz (2018-2023, M.Sc.)

3. McKenzie Jonely (2017-2022, Ph.D.)

2. Noah Shepard (2019-2021, B.S.)

1. Charles J. Simon (2017-2019, M.Sc.)

Postdoctoral

1. Dr. Mohd Sajid Lone (2021-present)

Undergraduate

1. Cameron Waibel (2023-present)

Interns and temporary visiting researchers

5. L.-Philippe Vanier (M.Sc. for Secondary School Teachers, 2020)

4. Benjamin DeVries (High School intern, 2019)

3. Seth Drury (REU 2018)

2. Rafael Durtschi (U-grad researcher, Fall 2017)

1. Kimberly Lopez-Zepeda (REU 2017)

Teaching

Undergraduate courses

CHEM 3060. Quantum Chemistry (2023 - ...)

SCI 3900. Being Human in STEM (2023)

CHEM 5720. Adv. Physical Chemistry Lab. (2017 - 2022)

Graduate courses

CHEM 7000. Intro. to Quantum Mechanics I (2017 - ...)

CHEM 7010. Intro. to Quantum Mechanics II (2019 - 2021)

CHEM 5570. Ethical Pursuit of Research (2017 - 2019)

Research funding

More than a spectator: using local environments to direct molecular behavior (PI: Noriega)

Alfred P. Sloan Foundation – Sloan Research Fellows Program

Award period/amount: September 2024 – August 2026 (\$75,000)

Goal: Understand the role of dynamic molecular environments in self-assembly and charge/energy transfer.

Role of electric fields and a dynamic local environment in directing biomolecular interactions at interfaces (PI: Noriega)

National Science Foundation – Division of Molecular and Cellular Biosciences (Molecular Biophysics)

Award period/amount: August 2021 – July 2024 (\$492,516)

Goal: Determine how the process of molecular recognition between RNA and proteins is influenced by their electrostatic interactions and by the dynamic environment in which binding occurs.

Predicting Kinetics of Molecular Crystallization Based on Solution Species (PI: Gruenwald, co-PIs: Noriega, Looper)

W. M. Keck Foundation

Award period/amount: December 2022 – December 2025 (\$1,000,000 total; \$162,000 Noriega)

Goal: Characterize molecular species in solution and their relation to crystallization kinetics to develop accurate crystal structure prediction models and guide polymorph selection.

Molecular Interrogation of Coupled Electron- and Phase-Transfer Reactions (PI: Noriega, co-PIs: White, Voth)

National Science Foundation – Division of Chemistry (Chemical Structure, Dynamics, and Mechanisms A)

Award period/amount: September 2023 – August 2026 (\$650,000 total; \$235,998 Noriega)

Goal: Understand the kinetic and thermodynamic parameters that determine the mechanism, efficiency, and time scales for the transfer of redox active molecules across a phase boundary as a result of charge transfer.

Counting the Invisible: Imaging the nanoscale dynamics of signaling molecules in 3D cellular assemblies by electron microscopy (PI: Noriega, co-PIs: Hammond, Jorgensen)

3i Initiative at University of Utah Health

Award period/amount: May 2022 – April 2023 (\$50,000 total; \$25,000 Noriega)

Goal: Develop novel biosensors and contrast agents to image the localization of small signaling molecules within a complex 3D cellular assembly, such as a whole organism or intact biofilm.

Publications (in red, a brief statement of significance for selected works from U. Utah)

In preparation

40. M.S. Lone, O. Merino-Chavez, N. Ricks, M.C. Hammond, R. Noriega, “Genetically-encoded flavoprotein tags employ competing reaction pathways in the photosensitized oxidative polymerization of contrast agents for correlative imaging”
→ **Singlet oxygen is not the only contributor to the photochemistry of genetically encodable tags. While currently overlooked, radicals generated by excited state charge transfer play a key role and must be included in their design.**

In review

39. G.W. Collins, M.S. Lone, S.R. Jackson, J.N. Keller, R.L. Kingsford, R. Noriega, C.G. Bischak, “Photoluminescence Probes Ion Insertion into Amorphous and Crystalline Regions of Organic Mixed Conductors”

38. S.A. Moonitz, N.T. Do, R. Noriega, “Molecular recognition at electrified interfaces: multiple binding events between Loquacious-PD and double-stranded RNA”

→ **Electric fields modulate the formation and stability of protein-RNA complexes in a stoichiometry-dependent way.**

Published

37. S.A. Moonitz, R. Noriega, “Dynamic response of surface-bound peptides to a pH perturbation under controlled electrostatic conditions”, *Macromol. Rapid Commun.* (2023) DOI: 10.1002/marc.202200635

→ **Electrostatics control the structural fluctuations of a peptide mat whose global conformation is pH dependent.**

36. D. Powell, Z. Rhodes, X. Zhang, E.J. Miller, M. Jonely, K.R. Hansen, C.I. Nwachukwu, A.G. Roberts, H. Wang, R. Noriega, S.D. Minter, L. Whittaker-Brooks, “Photoactivation Properties of Self-n-Doped Perylene Diimides: Concentration-dependent Radical Anion and Dianion Formation”, *ACS Materials Au* (2022) DOI: 10.1021/acsmaterialsau.2c00019

35. M. Jonely, R. Noriega, “Selectively Altering the Reactivity of Transient Organic Radical Ions via Their Solvation Environment”, *J. Phys. Chem. B Special Issue on Quantum Coherent Phenomena in Energy Harvesting & Storage*, 126 (16), 3107–3115 (2022), DOI:10.1021/acs.jpcc.2c00719

→ **Solvent interactions govern the dynamics of photogenerated radical ions and can be used to control their reactivity.**

34. M. Jonely, R.K. Singh, H.M. Donelick, B.L. Bass, R. Noriega, “Loquacious-PD regulates the terminus-dependent molecular recognition of Dicer-2 toward double-stranded RNA”, *Chem. Commun.*, 57, 10879-10882 (2021) DOI: 10.1039/D1CC03843E *Emerging Investigators issue*

→ **The context-dependent function (gene expression vs. antiviral response) of an enzyme is regulated by a small protein cofactor through the efficient redirection of its substrate-dependent molecular recognition mechanism.**

33. J. Sobczyk, M.T. Pyne, A. Barker, J. Mayer, K.E. Hanson, M.H. Samore, R. Noriega, “Efficient and effective single-step screening of individual samples for SARS-CoV-2 RNA using multi-dimensional pooling and Bayesian inference”, *J. R. Soc. Interface*, 18 (179), 20210155 (2021), DOI: 10.1098/rsif.2021.0155.

→ **Sample pooling algorithms need not sacrifice sensitivity or specificity to achieve large gains in throughput.**

32. R. Noriega, “Measuring the Multiscale Dynamics, Structure, and Function of Biomolecules at Interfaces”, *J. Phys. Chem. B*, 125 (22), 5667–5675 (2021) DOI: 10.1021/acs.jpcc.1c01546. *Invited Perspective*

→ **Interfaces provide a versatile platform to localize, perturb, and probe biomolecules and their interactions.**

31. H. Abbott-Lyon, C.R. Baiz, P.P. Bera, K. Crabtree, Q. Cui, R.C. Fortenberry, C.F. Landes, A.B. McCoy, R. Noriega, D.E. Woon, "Viewpoint on ACS PHYS Division Sponsored Virtual Seminars", joint publication in *J. Phys. Chem. A/B/C*, (2021) DOI: 10.1021/acs.jpca.1c00302
30. R.K. Singh, M. Jonely, E. Leslie, N.A. Rejali, R. Noriega, B.L. Bass, "Transient kinetic studies of the antiviral Drosophila Dicer-2 reveal roles of ATP in self-nonsel discrimination", *eLife*, 10:e65810 (2021), DOI: 10.7554/eLife.65810
29. S.A. Moonitz, N. Shepard, R. Noriega, "Multimodal spectroscopic investigation of the conformation and local environment of biomolecules at an electrified interface", *J. Mater. Chem. B*, Advance Article (2020), DOI: 10.1039/d0tb01158d *Themed Issue: 2020 Emerging Investigators*
 → **The tunable optical, electronic, and chemical properties of metal oxides make them multipurpose materials where electrochemical control can be combined with spectroscopic tools across a wide spectral range (UV-vis fluorescence, mid-IR plasmonics).**
28. M. Jonely, R. Noriega, "Role of polar protic solvents in the dissociation and reactivity of photogenerated radical ion pairs", *J. Phys. Chem. B*, 124 (15), 3083-3089 (2020)
 → **Photogenerated radical ion pairs can equilibrate with their environment faster than the rate at which they engage in (mostly) decoupled solvent-mediated reactions.**
27. R. Noriega, "Efficient charge transport in disordered polymer microstructures", *Macromol. Rapid Commun.*, 39 (14), 1800096 (2018). *Special Issue: Young Talents*
26. W. Consoer, A.E. Caruso, M. Jonely, C.J. Simon, J.D. Ogle, D.M. Smilgies, R. Noriega, M. Scarpulla, L. Whittaker-Brooks, "Morphology and optoelectronic variations underlying the nature of the electron transport layer in perovskite solar cells", *ACS Appl. Mat. & Interf.*, 1 (2), 602-615 (2018)
- (publications below predate independent faculty appointment)
25. S.B. Penwell, L.D.S. Ginsberg, R. Noriega, N.S. Ginsberg, "Resolving ultrafast exciton migration in organic solids at the nanoscale", *Nat. Mater.*, 16, 1136-1141 (2017)
24. M. Delor, D. McCarthy, B.L. Cotts, T. Roberts, R. Noriega, D. Devore, S. Mukhopadhyay, T. De Vries, N.S. Ginsberg, "Resolving and Controlling Photoinduced Ultrafast Solvation in the Solid State", *J. Phys. Chem. Lett.*, 8, 4183-4190 (2017)
23. B.L. Cotts, D. McCarthy, R. Noriega, S.B. Penwell, M. Delor, D. Devore, T. De Vries, S. Mukhopadhyay, N.S. Ginsberg. "Tuning thermally activated delayed fluorescence emitter photophysics through solvation in the solid state", *ACS Energy Lett.*, 2, 1526-1533 (2017)
22. R. Noriega, E.S. Barnard, B. Ursprung, B.L. Cotts, S.B. Penwell, P.J. Schuck, N.S. Ginsberg, "Uncovering single-molecule photophysical heterogeneity of bright, thermally-activated delayed fluorescence emitters dispersed in glassy hosts", *J. Am. Chem. Soc.*, 138, 13551-13560 (2016)
21. R. Noriega, D.T. Finley, J. Haberstroh, P.L. Geissler, M.B. Francis, N.S. Ginsberg, "Manipulating excited state dynamics of light harvesting chromophores through restricted motions in a hydrated nanoscale protein cavity", *J. Phys. Chem. B*, 119, 6963-6973 (2015)
20. S.A. Mollinger, B.A. Krajina, R. Noriega, A. Salleo, A.J. Spakowitz, "Percolation, tie-molecules, and the microstructural determinants of charge transport in semicrystalline conjugated polymers", *ACS Macro Lett.*, 4, 708-712 (2015)
19. R. Noriega, A. Salleo, A.J. Spakowitz, "Chain conformations dictate multiscale charge transport phenomena in disordered semiconducting polymers", *PNAS*, 110, 16315-16320 (2013)
18. R. Noriega, J. Rivnay, K. Vandewal, F. Koch, N. Stingelin, P. Smith, M.F. Toney, A. Salleo, "A general relationship between disorder, aggregation and charge transport in conjugated polymers", *Nat. Mater.*, 12, 1038-1044 (2013)
 Featured in a Science Magazine Perspective: "Unraveling Charge Transport in Conjugated Polymers", R. A. Street, *Science*, 341, 1072-1073 (2013)
 Highlighted in a Nature Materials News and Views: "Conjugated polymers: Long and winding polymeric roads", V. Podzorov, *Nat. Mater.* 12, 947-948 (2013)

17. C.Y. Wong, S.B. Penwell, B.L. Cotts, R. Noriega, H. Wu, N.S. Ginsberg, "Revealing exciton dynamics in a small-molecule organic semiconducting film with sub-domain transient absorption microscopy", *J. Phys. Chem. C*, 117, 22111-22122 (2013)
16. E.T. Hoke, K. Vandewal, J.A. Bartelt, W.R. Mateker, J.D. Douglas, R. Noriega, K.R. Graham, J.M.J. Frechet, A. Salleo, M.D. McGehee, "Recombination in polymer:fullerene solar cells with open-circuit voltages approaching and exceeding 1.0 V", *Adv. Energy Mater.*, 3, 220-230 (2013)
15. E. Della Gaspera, M. Bersani, M. Cittadini, M. Guglielmi, D. Pagani, R. Noriega, S. Mehra, A. Salleo, A. Martucci, "Low-temperature processed Ga-doped ZnO coatings from colloidal inks", *J Am. Chem. Soc.*, 135, 3439-3448 (2013)
14. R. Noriega, S. Mehra, A. Salleo, "Solution-grown n-type ZnO nanostructures: Synthesis, microstructure, and doping", chapter in *Handbook of zinc oxide and related materials; Volume Two, Devices and nano-engineering*, Z.C. Feng, Ed. (Taylor & Francis, 2012), pp. 59-81.
13. C.H. Peters, I.T. Sachs-Quintana, W.R. Mateker, T. Heumueller, J. Rivnay, R. Noriega, Z.M. Beiley, E.T. Hoke, A. Salleo, M.D. McGehee, "The mechanism of burn-in loss in a high efficiency polymer solar cell", *Adv. Mater.*, 24, 663-668 (2012)
12. S.W. Ko, E.T. Hoke, L. Pandey, S.H. Hong, R. Mondal, C. Risko, Y.P. Yi, R. Noriega, M.D. McGehee, J.L. Bredas, A. Salleo, Z.A. Bao, "Controlled conjugated backbone twisting for an increased open-circuit voltage while having a high short-circuit current in poly(hexylthiophene) derivatives", *J. Am. Chem. Soc.*, 134, 5222-5232 (2012)
11. J. Rivnay, R. Noriega, R.J. Kline, A. Salleo, M.F. Toney, "Quantitative analysis of lattice disorder and crystallite size in organic semiconductor thin films", *Phys. Rev. B*, 84, 045203 (2011)
10. J. Rivnay, R. Noriega, J.E. Northrup, R.J. Kline, M.F. Toney, A. Salleo, "Structural origin of gap states in semicrystalline polymers and the implications for charge transport", *Phys. Rev. B*, 83, 121306 (2011)
9. Z.M. Beiley, E.T. Hoke, R. Noriega, J. Dacuna, G.F. Burkhard, J.A. Bartelt, A. Salleo, M.F. Toney, M.D. McGehee, "Morphology-dependent trap formation in high performance polymer bulk heterojunction solar cells", *Adv. Energy Mater.*, 1, 954-962 (2011)
8. R. Noriega, A. Salleo, "Charge transport theories in organic semiconductors" chapter in *Organic electronics II: More materials and applications*, H. Klauk, Ed. (Wiley-VCH, 2011), pp. 67-104.
7. R. Noriega, J. Rivnay, L. Goris, D. Kalblein, H. Klauk, K. Kern, L.M. Thompson, A.C. Palke, J.F. Stebbins, J.R. Jokisaari, G. Kusinski, A. Salleo, "Probing the electrical properties of highly-doped Al:ZnO nanowire ensembles", *J. Appl. Phys.*, 107, 074312 (2010)
6. G.J. Kusinski, J.R. Jokisaari, R. Noriega, L. Goris, M. Donovan, A. Salleo, "Transmission electron microscopy of solution-processed, intrinsic and Al-doped ZnO nanowires for transparent electrode fabrication", *J. Microsc.*, 237, 443-449 (2010)
5. J. Rivnay, L.H. Jimison, J.E. Northrup, M.F. Toney, R. Noriega, S.F. Lu, T.J. Marks, A. Facchetti, A. Salleo, "Large modulation of carrier transport by grain-boundary molecular packing and microstructure in organic thin films", *Nat. Mater.*, 8, 952-958 (2009)
4. R. Dewan, M. Marinkovic, R. Noriega, S. Phadke, A. Salleo, D. Knipp, "Light trapping in thin-film silicon solar cells with submicron surface texture", *Opt. Express*, 17, 23058-23065 (2009)
3. L. Goris, R. Noriega, M. Donovan, J. Jokisaari, G. Kusinski and A. Salleo, "Intrinsic and doped zinc oxide nanowires for transparent electrode fabrication via low-temperature solution synthesis", *J. Electron. Mater.*, 38, 586-595 (2009)
2. R. J. Noriega-Manez and J. C. Gutierrez-Vega, "Mode structure and attenuation characteristics of hollow parabolic waveguides", *J. Opt. Soc. Am. B*, 24, 2273-2278 (2007)
1. R. J. Noriega-Manez and J. C. Gutierrez-Vega, "Rytov theory for Helmholtz-Gauss beams in turbulent atmosphere", *Opt. Express*, 15, 16328-16341 (2007)

Invited departmental seminars and conference presentations

- 40.^{UPCOMING} Columbia University, "Multimodal probes of RNA-protein complexes at electrified interfaces", April 2024
- 39.^{UPCOMING} Univ. of Chicago, "Multimodal probes of RNA-protein complexes at electrified interfaces", May 2024
- 38.^{UPCOMING} Univ. of Pennsylvania, "Multimodal probes of RNA-protein complexes at electrified interfaces", TBD
37. Univ. of Minnesota, "Leveraging local environment to direct chemical transformations", Nov. 2023
36. Univ. of California Los Angeles, "Leveraging local environment to direct chemical transformations", Oct. 2023
35. Wintergreen Mtg. of Physical Chemists, "Leveraging local environment to direct chemical transformations", Sept. 2023
34. SPIE Optics+Photonics, "Detecting RNA-protein complexes at electrified interfaces", Aug. 2023
33. California State University – Chico, "Local binding environment: a substrate's view of protein-RNA molecular recognition", Dec. 2022 (graduate recruiting visit)
32. University of Nebraska – Omaha, "Directing photochemical transformations by tuning their local environment and external stimuli", Sept. 2022 (graduate recruiting visit)
31. Winthrop University, "Local binding environment: a substrate's view of protein-RNA molecular recognition", Feb. 2022 (graduate recruiting visit)
30. Brigham Young University-Idaho, "Effects of a dynamic local environment on the properties of chemical systems", Oct. 2021 (graduate recruiting visit)
29. American Chemical Society Rocky Mountain Regional Meeting, "Effects of a dynamic local environment on the properties of chemical systems", Oct. 2021
28. St. Olaf University, "Effects of a dynamic local environment on the properties of chemical systems", Oct. 2021 (graduate recruiting visit)
27. Breaking Barriers through Chemistry; U.S.-Mexico-Europe Conference, "Developing ultrafast laser spectroscopy tools to study synthetic and biological materials at interfaces", Aug. 2021
26. American Chemical Society Spring Meeting, "Dynamics of charged species at electrified interfaces", Mar. 2021
25. Southern Utah University, "Effects of a dynamic local environment on the properties of chemical systems", Chemistry Department, Nov. 2020 (joint seminar with Ph.D. candidate M. Jonely as part of graduate recruitment)
24. American Chemical Society Rocky Mountain Regional Meeting, "Effects of a dynamic local environment on the properties of chemical systems", Young Talent Symposium, Nov. 2020
23. American Chemical Society Fall Meeting, "Multimodal ultrafast laser spectroscopy at electrified interfaces", Aug. 2020
22. Western Washington University, "What can ultrafast lasers tell us about the functional state of an RNA cutting enzyme?", Chemistry Department, Feb. 2020 (graduate recruiting visit)
21. Brigham Young University, "Charge and phase transfer via short-lived intermediates", Chemistry Department, Oct. 2019 (graduate recruiting visit)
20. University of St. Thomas, "Charge and phase transfer via short-lived intermediates", Chemistry Department, Oct. 2019 (graduate recruiting visit)
19. International Materials Research Congress (co-organized by Materials Research Society & Sociedad Mexicana de Materiales), "Interfacial charge transfer and molecular rearrangements", Aug. 2019
18. SPIE Optics+Photonics, "Solvent-dependent ultrafast dynamics and local structure of small molecular ions", Aug. 2019
17. University of Utah, "Polymers move electrical charge with a multiscale mechanism", Physics Dept., Oct. 2018
16. California State University – San Bernardino, "Polymers move electrical charge with a multiscale mechanism", Department of Chemistry, Oct. 2018 (graduate recruiting visit)

15. University of Utah, "Chain morphology, solid film microstructure, and multiscale charge transport in conjugated polymers", Mathematical Biology seminar, Department of Mathematics, Feb. 2018

(presentations below predate independent faculty appointment)

14. University of California – Berkeley, "Effects of molecular environment on the photophysics of fluorophores in biomimetic light harvesters and in organic light-emitting diodes", Dept of Materials Science & Eng., Feb. 2016

13. University of Massachusetts Amherst, "Effects of molecular environment on the photophysics of fluorophores in biomimetic light harvesters and in organic light-emitting diodes", Dept of Polymer Science & Eng., Jan. 2016

12. University of Colorado - Boulder, "Effects of molecular environment on the photophysics of fluorophores in biomimetic light harvesters and in organic light-emitting diodes", Dept of Chemical and Biological Engineering, Jan. 2016

11. University of California - Los Angeles, "Effects of molecular environment on the photophysics of fluorophores in biomimetic light harvesters and in organic light-emitting diodes", Chemical & Biomolecular Eng. Dept., Jan. 2016

10. North Carolina State University, "Effects of molecular environment on the photophysics of fluorophores in biomimetic light harvesters and in organic light-emitting diodes", Physics Department, Jan. 2016

9. Massachusetts Institute of Technology, "Effects of molecular environment on the photophysics of fluorophores in biomimetic light harvesters and in organic light-emitting diodes", Chemistry Department, Jan. 2016

8. University of Utah, "Effects of molecular environment on the photophysics of fluorophores in biomimetic light harvesters and in organic light-emitting diodes", Chemistry Department, Jan. 2016

7. University of Texas- Austin, "Effects of molecular environment on the photophysics of fluorophores in biomimetic light harvesters and in organic light-emitting diodes", Chemistry Department, Dec. 2015

6. Boston University, "Effects of molecular environment on the photophysics of fluorophores in biomimetic light harvesters and in organic light-emitting diodes", Department of Electrical and Computer Engineering, Dec. 2015

5. University of Oregon, "Effects of molecular environment on the photophysics of chromophores in biomimetic light harvesters and in organic light-emitting diodes", Chemistry Department, Oct. 2015

4. Dow Chemical Company, "Time resolved optical studies on the effects of environment and heterogeneity on TADF emitters", R&D Core, Organics, Polymers & Organometallics, Aug. 2015

3. University of California - Berkeley, "Manipulating excited state dynamics of light harvesting chromophores through restricted motions in a hydrated nanoscale protein cavity", Stat. Mech. seminar, Chemistry Department, Jan. 2015

2. American Physical Society March Meeting, "Effect of Conformation in Charge Transport for Semiflexible Polymers", Mar. 2014

1. Universidad de las Americas (Mexico). "Zinc oxide nanomaterials for solar applications", Physics Congress (student-organized), Feb. 2009

Contributed conference presentations (presenter is underlined.)

26. S.A. Moonitz, N.T. Do, R. Noriega, "Multimodal probes of RNA-protein complexes at electrified interfaces", ACS Fall Meeting (PHYS), August 2023

25. M.S. Lone, O. Merino-Chavez, N. Ricks, M.C. Hammond, R. Noriega, "Competing reaction pathways for the synthesis of localized contrast agents", ACS Fall Meeting (PMSE), August 2023

24. R. Noriega, "Using electrified interfaces to study and control biomolecular interactions", Dynamics at Surfaces Gordon Research Conference, July 2023

23. R. Noriega, "Directing photochemical transformations by tuning their local environment and external stimuli", American Chemical Society 2022 Fall Meeting, oral presentation

22. M. Jonely, R.K. Singh, B.L. Bass, R. Noriega, "Molecular recognition of RNA by the antiviral protein Dicer-2", 2021 LatinXChem Conference (online, multi-lingual poster presentation), Sept. 2021

21. M. Jonely, R. Noriega, "Role of polar protic solvents in the dissociation and reactivity of photogenerated radical ion pairs", American Chemical Society 2021 Spring Meeting, poster presentation
20. S.A. Moonitz, N. Shepard, R. Noriega, "Multimodal spectroscopic characterization of buried electrochemical interfaces", American Chemical Society Rocky Mountain Regional Meeting, oral presentation, Nov. 2020
19. S.A. Moonitz, N. Shepard, R. Noriega, "Multimodal spectroscopic characterization of buried electrochemical interfaces", Annual Meeting for the Society for Applied Spectroscopy, poster presentation, Oct. 2020
18. M. Jonely, R. Noriega, "Solvent-mediated dissociation and reactivity of ions in photochemistry / Solventes como medio de disociación y reacción de iones en fotoquímica", 2020 LatinXChem Conference (online, multi-lingual, sponsors include ACS and RSC), poster presentation, Sept. 2020
17. S.A. Moonitz, N. Shepard, R. Noriega, "Dynamic electrified solid-liquid interfaces / Interfaces dinámicas entre sólido-líquido con campos eléctricos", 2020 LatinXChem Conference (online, multi-lingual, sponsors include ACS and RSC), poster presentation, Sept. 2020
16. M. Jonely, R. Noriega, "Role of polar protic solvents in the dissociation and reactivity of photogenerated radical ion pairs", American Chemical Society 2020 Fall Meeting, oral presentation
15. M. Jonely, R.K. Singh, B.L. Bass, R. Noriega, "Revealing functional conformations of a large biomolecular complex of double-stranded RNA and *D. melanogaster* Dcr-2", American Chemical Society 2020 Fall Meeting, poster (presentations below predate independent faculty appointment)
14. R. Noriega, E.S. Barnard, P.J. Schuck, N.S. Ginsberg, "Heterogeneity in the luminescence properties of TADF emitters embedded in a polymer matrix", Materials Research Society Spring Meeting, Mar. 2016
13. R. Noriega, D. Finley, J. Haberstroh, P. Geissler, M. B. Francis and N. S. Ginsberg, "Spatially-dependent rigidification of the molecular environment within the nanoscale cavity of a biomimetic artificial light-harvesting assembly", Materials Research Society Spring Meeting, Apr. 2015
12. R. Noriega, A. Salleo, A.J. Spakowitz, "Effect of conformation on charge transport for semiflexible polymers", American Institute of Chemical Engineers Annual Meeting, Nov. 2013
11. R. Noriega, A.J. Spakowitz, A. Salleo, "Effect of conformation on charge transport for semiflexible polymers", Materials Research Society Spring Meeting, Apr. 2013
10. R. Noriega, K. Vandewal, A. Salleo, "Role of Förster transfer in exciton localization on organic semiconducting polymers", SPIE Optics+Photonics, Aug. 2012
9. R. Noriega, S. Misra, S. Mehra, M.F. Toney, A. Salleo, "Spectroscopic studies of dopant incorporation in solution-grown ZnO nanostructures", SPIE Optics+Photonics, Aug. 2011
8. R. Noriega, J. Rivnay, J. Northrup, R. J. Kline, M. F. Toney, A. Salleo, "Charge trapping and localization due to paracrystalline disorder in high performance polymeric semiconductors", Electronic Materials Conference, Jun. 2011
7. R. Noriega, S. Misra, S. Mehra, M.F. Toney, A. Salleo, "Structural characterization and effect of impurities and defects in Ga doped ZnO nanostructures", Materials Research Society Spring Meeting, Apr. 2011
6. R. Noriega, S. Mehra, W. Gaynor, M. Sumohan, R. Dewan, D. Knipp, P. Peumans, M.F. Toney, A. Salleo, "Exploring the potential of solution-grown Ga:ZnO nanostructures for OPV applications", SPIE Optics+Photonics, Aug. 2010
5. R. Noriega, S. Mehra, W. Gaynor, M. Sumohan, R. Dewan, D. Knipp, P. Peumans, M.F. Toney, A. Salleo, "Understanding the electrical and structural properties of ZnO nanostructures for OPV applications", Materials Research Society Spring Meeting, 1st place in poster competition, Apr. 2010
4. R. Noriega, L. Goris, J. Rivnay, L. Thompson, J.F. Stebbins, A. Palke, D. Kaelblein, H. Klauk, A. Salleo, "Transport and structural characterization of solution-processable doped ZnO nanowires", SPIE Optics+Photonics, Aug. 2009
3. R. Noriega, L. Goris, L. Thompson, J.F. Stebbins, G. Kusinski, A. Salleo, "Dopant incorporation in solution-processed ZnO nanowires", Materials Research Society Spring Meeting, poster presentation, Apr. 2009

2. R. Noriega, L. Goris, J. Rivnay, S. Phadke, G. Kusinski, A. Salleo, "Solution-processed nanostructured ZnO electrodes for photovoltaics", TMS Annual Meeting, Feb. 2009

1. R. Noriega, J.C. Gutierrez-Vega, "Propagation of Helmholtz-Gauss beams in turbulent media", SPIE Optics+Photonics, poster presentation, Aug. 2007

Patents and Disclosures

R. Noriega, K.E. Hanson, M.H. Samore "High-dimensional pooled-testing Bayesian algorithm", University of Utah TVC disclosure U-7018 (July 10th 2020)

Professional Service and Outreach

Department of Chemistry Committee service

- Diversity, Equity, and Inclusion Committee, 2020-present
- Chair, Graduate Recruiting Committee, 2019-2023.
- Chemistry Seminar Committee (Physical division representative, Student liaison), 2019-present.
- Member of 20 graduate student thesis committees.
- Graduate Recruiting Committee, 2018-2019.
- Graduate Admissions Committee (Physical division representative), 2016-2018.

Science communication

- Guest at the Utah Public Radio UnDisciplined Science Show
- 4. August 2021: Joint interview with Dr. Kimberly Hanson (Section head for Clinical Microbiology at the U of Utah and ARUP) and Dr. Matthew H. Samore (chair of Epidemiology Dept. at the U. of Utah and director of IDEAS center at the SLC Veterans Affairs) regarding our article "*Efficient and effective single-step screening of individual samples for SARS-CoV-2 RNA using multi-dimensional pooling and Bayesian inference*"
<https://www.upr.org/post/undisciplined-better-testing-bayesian>
- 3. Oct. 2020: <https://www.upr.org/post/undisciplined-october-science-news-roundup>
- 2. Jan. 2020: (episode aired on Jan. 31st, 2020)
- 1. Sept. 2019: <https://www.upr.org/post/undisciplined-science-news-roundup-september-2019>

Scientific engagement with young students in STEM

- Outreach efforts through portable experiment kits (PChem@home). Supported by NSF-BIO-2123516.
- Judge of undergraduate, graduate, and postdoctoral presentations at ACS Rocky Mountain Regional Meeting 2020.
- Judge and mentor for student poster and oral presentations at the Society for Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS) conference, 2020 and 2017.
- Volunteer judge for the Salt Lake City School District Science and Engineering Fair, Secondary Division, 2018.
- Participant in the Faculty Panel for the Diversity Scholars Program at the University of Utah, a retention-based program for first-year, low income, and mostly minority students (2018).

Scientific meeting organization and administration

- Member of the ACS PHYS ad hoc webinar committee (2020-2022)
- Lead organizer for a symposium titled "Excitons, electrons, and ions in organic materials" held at the Materials Research Society Fall 2018 Meeting in Boston.
- Session chair at local, national, and international research meetings:
 - 2023 American Chemical Society Fall Meeting
(PHYS) Optical Spectroscopy and Microscopy Across Biological Scales
(PMSE) General Papers/New Concepts in Polymeric Materials
 - 2021 American Chemical Society Spring Meeting
Biological/Methods -- Emerging Techniques to Probe Condensed Phase Dynamics across Space and Time
 - 2020 American Chemical Society Rocky Mountain Regional Meeting
Celebrating Senior Chemists in the Rocky Mountains (+flash presentations by junior scientists)
 - 2020 American Chemical Society Fall Meeting
Techniques for Studying Energy Conversion -- Molecular-scale photoinduced driving forces for energy conversion
 - 2018 Materials Research Society Fall Meeting
Light Emitting Devices

Molecular Design for Emission
Ultrafast Charge Dynamics in Organic Materials
Singlet Fission

2014 American Physical Society March Meeting
Organic Electronics and Photonics Small Molecules

Reviewer for scientific journals

- Advanced Electronic Materials
- Advanced Materials
- Analytical Chemistry
- Chemical Physics Letters
- Journal of Applied Physics
- Journal of the American Chemical Society
- Journal of Physical Chemistry Letters
- Journal of Visual Experiments
- Macromolecules
- Materials Research Society Proceedings
- Nano Letters
- Nature Communications
- Nature Energy
- Nature Materials
- Polymer Crystallization
- Scientific Reports

Reviewer for funding agencies and user facilities

- Stanford Synchrotron Radiation Lightsource
- National Science Foundation
- ACS Petroleum Research Fund
- Austrian Science Fund

User, member, and advisory committees

- Alumni Advisory Committee for curriculum renewal; ITESM Monterrey, Mexico (2017-2018)
- Kavli Energy NanoSciences Institute (2014-2016)
- Stanford Synchrotron Radiation Lightsource Users Executive Committee (2011-2014)