

---

## Christopher Grieco

---

Co-founder, Software Development Manager  
Magnitude Instruments  
200 Innovation Blvd, Suite 224  
State College, PA 16803 USA  
CGrieco@MagInsts.com

Post-doctoral Scholar  
Department of Chemistry  
The Ohio State University  
Columbus, OH 43210 USA  
e-mail: chris.grieco13@gmail.com

---

## Education

---

**Post-doctoral Scholar** – Advisor: Bern Kohler  
Ohio State University, Department of Chemistry  
2017 – present

**PhD Chemistry** – Advisor: John B. Asbury  
Penn State University, Department of Chemistry  
2012 – 2017

**BS Chemistry, BS Applied Mathematics**  
Rochester Institute of Technology  
2008 – 2012

---

## Research and Experience

---

- Pioneered new research direction in post-doctoral lab, designed grant proposal, mentored and trained several graduate and undergraduate students.
- Developed new experimental strategies for linking the physical and chemical structure to photochemical function in melanin, a natural pigment in skin, leading to new insight about structure-function models and design principles for biomimetic electronic device applications.
- Designed the core of a half-million dollar research proposal in the Asbury research lab that was funded in 2018 by the U.S. Department of Energy focused on singlet fission (DE-SC0019349).
- Collaborated with Chemical Engineers at Penn State University (Prof. Enrique Gomez lab) to uncover fundamental photophysical properties of semiconducting block-copolymers and developed a basis for exploiting their chemical properties to optimize their light-harvesting performance.
- Through collaboration with the DOW Chemical Company, developed a new photophysical model that explains how a current LED material fabrication method improves the longevity of color for commercial products, such as lighting and displays.
- Developed ultrahigh sensitivity transient absorption spectroscopy instruments at Penn State that are central to many students' past and current research, leading to numerous peer-reviewed publications.

---

## Honors and Awards

---

Pre-faculty Award for Short Talk Presentation (2020)  
2<sup>nd</sup> Frontiers in Photochemistry Conf., Bahamas  
OSU Postdoctoral Association Travel Award (2020)  
ACS PHYS Division Young Investigator Award (2019)  
Pacific Conference on Spectroscopy and Dynamics  
Travel Award (2019)  
Komath Continuing Graduate Research Award (2017)  
Troxell Continuing Graduate Research Award (2016)

13<sup>th</sup> Annual College of Engineering Award for Best  
Paper Presentation (2016)  
Dan H. Waugh Memorial Teaching Award (2014)  
Undergraduate Senior Achievement Award (2012)  
John Wiley Jones Outstanding Student in Science  
Award (2012)  
Outstanding Undergraduate Scholar Award (2012)  
Undergraduate Summer Research (REU, 2011)

---

## Publications

Web of Science H-Index = 13, 25 Peer Reviewed Publications, >450 Total Citations (as of May 2020)

## Publications – C. Grieco

---

- 25) \*Forrest R. Kohl, \*Christopher Grieco, Bern Kohler, “Ultrafast spectral hole burning reveals the distinct chromophores in eumelanin and their common photoresponse”, *Chem. Sci.* (2020) 11, 1248-1259. DOI: [10.1039/C9SC04527A](https://doi.org/10.1039/C9SC04527A)
- 24) Christopher Grieco, Grayson S. Doucette, Kyle T. Munson, John R. Swartzfager, Jason M. Munro, John E. Anthony, Ismaila Dabo, and John B. Asbury, “Vibrational Probe of the Origin of Singlet Exciton Fission in TIPS-Pentacene Solutions”, *JCP* (2019) 151, 154701. DOI: [10.1063/1.5116586](https://doi.org/10.1063/1.5116586)
- 23) Christopher Grieco, “Time-resolved optical spectroscopy: A versatile, complementary tool for advancing cutting-edge materials technologies”, *MRS Bulletin* (2019) 44, 519-520. DOI: [10.1557/mrs.2019.161](https://doi.org/10.1557/mrs.2019.161)
- 22) Christopher Grieco, Alex T. Hanes, Lluís Blancafort, Bern Kohler, “Effects of Intra- and Intermolecular Hydrogen Bonding on O–H Bond Photodissociation Pathways of a Catechol Derivative”, *J. Phys. Chem. A* (2019) 123, 5356-5366. DOI: [10.1021/acs.jpca.9b04573](https://doi.org/10.1021/acs.jpca.9b04573)
- 21) Christopher Grieco, Jennifer M. Empey, Forrest R. Kohl, Bern Kohler, “Probing eumelanin photoprotection using a catechol:quinone heterodimer model system”, *Farad. Discuss.* (2019) 216, 520-537. DOI: [10.1039/C8FD00231B](https://doi.org/10.1039/C8FD00231B)
- 20) Christopher Grieco, Forrest R. Kohl, Yuyuan Zhang, Sangeetha Natarajan, Lluís Blancafort, Bern Kohler, “Intermolecular Hydrogen Bonding Modulates O-H Photodissociation in Molecular Aggregates of a Catechol Derivative”, *Photochem. Photobiol.* (2019) 95, 163-175. DOI: [10.1111/php.13035](https://doi.org/10.1111/php.13035)
- 19) Melissa P. Aplan, Christopher Grieco, Youngmin Lee, Jason M. Munro, Jennifer L. Gray, Zach D. Seibers, S. Michael Kilbey II, Qing Wang, Ismaila Dabo, John B. Asbury, and Enrique D. Gomez, “Conjugated block copolymers as model systems to examine mechanisms of charge generation in donor-acceptor materials”, *Adv. Funct. Mater.* (2019) 29, 1804858. DOI: [10.1002/adfm.201804858](https://doi.org/10.1002/adfm.201804858)
- 18) Melissa P. Aplan, Jason M. Munro, Youngmin Lee, Alyssa N. Brigeman, Christopher Grieco, Qing Wang, Noel C. Giebink, Ismaila Dabo, John B. Asbury, and Enrique D. Gomez, “Revealing the Importance of Energetic and Entropic Contributions to the Driving Force for Charge Photogeneration”, *ACS Appl. Mater. Interfaces* (2018) 10, 39933-39941. DOI: [10.1021/acsami.8b12077](https://doi.org/10.1021/acsami.8b12077)
- 17) Ryan D. Pensack, Andrew J. Tilley, Christopher Grieco, Geoffrey E. Purdum, Evgeny E. Ostroumov, Devin B. Granger, Daniel G. Oblinsky, Jacob C. Dean, Grayson S. Doucette, John B. Asbury, Yueh-Lin Loo, Dwight S. Seferos, John E. Anthony, and Gregory D. Scholes, “Striking the right balance of intermolecular coupling for high-efficiency singlet fission”, *Chem. Sci.* (2018) 9, 6240-6259. DOI: [10.1039/c8sc00293b](https://doi.org/10.1039/c8sc00293b)
- 16) Eric R. Kennehan, Grayson S. Doucette, Ashley R. Marshall, Christopher Grieco, Kyle T. Munson, Matthew C. Beard, and John B. Asbury, “Electron-Phonon Coupling and Resonant Relaxation from 1D and 1P States in PbS Quantum Dots”, *ACS Nano* (2018) 12, 6263-6272. DOI: [10.1021/acsnano.8b03216](https://doi.org/10.1021/acsnano.8b03216)
- 15) Christopher Grieco, Eric R. Kennehan, Hwon Kim, Ryan D. Pensack, Alyssa N. Brigeman, Adam Rimshaw, Marcia M. Payne, John E. Anthony, Noel C. Giebink, Gregory D. Scholes, and John B. Asbury, “Direct Observation of Correlated Triplet Pair Dynamics during Singlet Fission Using Ultrafast Mid-IR Spectroscopy”, *J. Phys. Chem. C*, 122, 2012-2022. DOI: [10.1021/acs.jpcc.7b11228](https://doi.org/10.1021/acs.jpcc.7b11228)
- 14) Christopher Grieco, Eric R. Kennehan, Adam Rimshaw, Marcia M. Payne, John E. Anthony, and John B. Asbury, “Harnessing Molecular Vibrations to Probe Triplet Dynamics during Singlet Fission”, *JPC Lett.* (2017) 8, 5700-5706. DOI: [10.1021/acs.jpcllett.7b02434](https://doi.org/10.1021/acs.jpcllett.7b02434)
- 13) Christopher Grieco, Grayson S. Doucette, Jason M. Munro, Eric R. Kennehan, Youngmin Lee, Adam Rimshaw, Marcia M. Payne, Nichole Wonderling, John E. Anthony, Ismaila Dabo, Enrique D. Gomez and John B. Asbury, “Triplet Transfer Mediates Triplet Pair Separation During Singlet Fission in TIPS-Pentacene”, *Adv. Funct. Mater.* (2017) 27, 1703929. DOI: [10.1002/adfm.201703929](https://doi.org/10.1002/adfm.201703929)
- 12) Eric R. Kennehan, Christopher Grieco, Alyssa N. Brigeman, Grayson S. Doucette, Adam Rimshaw, Kayla Bisgaier, Noel C. Giebink, and John B. Asbury, “Using Molecular Vibrations to Probe Exciton Delocalization in Films of Perylene Diimides with Ultrafast Mid-IR Spectroscopy”, *Phys. Chem. Chem. Phys.*, (2017) 19, 24829-24839. DOI: [10.1039/C7CP04819J](https://doi.org/10.1039/C7CP04819J)
- 11) Ryan D. Pensack, Christopher Grieco, Geoffrey E. Purdum, Samuel M. Mazza, Andrew J. Tilley, Evgeny E. Ostroumov, Dwight S. Seferos, Yueh-Lin Loo, John B. Asbury, John E. Anthony and Gregory D. Scholes, “Solution-Processable, Crystalline Material for Quantitative Singlet Fission”, *Materials Horizons*, (2017) 4, 915-923. DOI: [10.1039/C7MH00303J](https://doi.org/10.1039/C7MH00303J)
- 10) Christopher Grieco, Kurt F. Hirsekorn, Andrew T. Heitsch, Alan C. Thomas, Mark H. McAdon, Britt A. Vanchura, Michael M. Romanelli, Lora L. Brehm, Anne Leugers, Anatoliy N. Sokolov, and John B. Asbury, “Mechanisms of Energy Transfer

- and Enhanced Stability of Carbide Nitride Phosphors for Solid State Lighting”, *ACS Appl. Mater. Interfaces*, (2017) 9, 12547-12555. DOI: [10.1021/acsami.6b15323](https://doi.org/10.1021/acsami.6b15323)
- 9) Kyle T. Munson, Christopher Grieco, Eric R. Kennehan, Robert J. Stewart, and John B. Asbury, “Time-Resolved Infrared Spectroscopy Directly Probes Free and Trapped Carriers in Organo-Halide Perovskites”, *ACS Energy Lett.*, (2017) 2, 651-658. DOI: [10.1021/acseenergylett.7b00033](https://doi.org/10.1021/acseenergylett.7b00033)
  - 8) Christopher Grieco, Grayson S. Doucette, Ryan D. Pensack, Marcia M. Payne, Adam Rimshaw, Gregory D. Scholes, John E. Anthony and John B. Asbury, “Dynamic Exchange During Triplet Transport in Nanocrystalline TIPS-Pentacene Films”, *J. Am. Chem. Soc.*, (2016) 138, 16069-16080. DOI: [10.1021/jacs.6b10010](https://doi.org/10.1021/jacs.6b10010)
  - 7) Ryan D. Pensack, Evgeny E. Ostroumov, Andrew J. Tilley, Samuel Mazza, Christopher Grieco, Karl J. Thorley, John B. Asbury, Dwight S. Seferos, John E. Anthony and Gregory D. Scholes, “Observation of Two Triplet-Pair Intermediates in Singlet Exciton Fission”, *J. Phys. Chem. Lett.*, (2016) 7, 2370-2375. DOI: [10.1021/acs.jpcclett.6b00947](https://doi.org/10.1021/acs.jpcclett.6b00947)
  - 6) Robert J. Stewart, Christopher Grieco, Alec V. Larsen, Grayson S. Doucette and John B. Asbury, “Molecular Origins of Defects in Organohalide Perovskites and Their Influence on Charge Carrier Dynamics”, *J. Phys. Chem. C.*, (2016) 120, 12392-12402. DOI: [10.1021/acs.jpcc.6b03472](https://doi.org/10.1021/acs.jpcc.6b03472)
  - 5) Christopher Grieco, Melissa P. Aplan, Adam Rimshaw, Youngmin Lee, Thinh P. Le, Wenlin Zhang, Qing Wang, Scott T. Milner, Enrique D. Gomez, and John B. Asbury, “Molecular Rectification in Conjugated Block Copolymer Photovoltaics”, *J. Phys. Chem. C.* (2016) 120, 6978-6988. DOI: [10.1021/acs.jpcc.6b00103](https://doi.org/10.1021/acs.jpcc.6b00103)
  - 4) Robert J. Stewart, Christopher Grieco, Alec V. Larsen, Joshua Maier and John B. Asbury, “Approaching Bulk Carrier Dynamics in Organo-Halide Perovskite Nanocrystalline Films by Surface Passivation”, *J. Phys. Chem. Lett.*, (2016) 7, 1148-1153. DOI: [10.1021/acs.jpcclett.6b00366](https://doi.org/10.1021/acs.jpcclett.6b00366)
  - 3) Adam Rimshaw, Chris Grieco, and John B. Asbury, “High Sensitivity Nanosecond Mid-Infrared Transient Absorption Spectrometer Enabling Low Excitation Density Measurements of Electronic Materials”, *Applied Spec.*, (2016) 70, 1726-1732. DOI: [10.1177/0003702816645606](https://doi.org/10.1177/0003702816645606)
  - 2) Adam Rimshaw, Chris Grieco, and John B. Asbury, “Note: Using Fast Digitizer Acquisition and Flexible Resolution to Enhance Noise Cancellation for High Performance Nanosecond Transient Absorbance Spectroscopy”, *Rev. Sci. Instrum.*, (2015) 86, 066107. DOI: [10.1063/1.4923093](https://doi.org/10.1063/1.4923093)
  - 1) Brandon H. Smith, Michael B. Clark Jr., Hao Kuang, Christopher Grieco, Alec V. Larsen, Chenhue Zhu, Alexander Hexemer, John B. Asbury, Michael J. Janik, and Enrique D. Gomez, “Controlling Polymorphism in Poly(3-Hexylthiophene) through Addition of Ferrocene for Enhanced Charge Mobilities in Thin-Film Transistors”, *Adv. Funct. Mater.*, (2015) 25, 542-551. DOI: [10.1002/adfm.201403089](https://doi.org/10.1002/adfm.201403089)