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Curriculum Vitae of

# Sean E. Shaheen

Professor, Department of Electrical, Computer, and Energy Engineering
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## 1. EDUCATION

1999 Ph.D. Physics, University of Arizona, Tucson, AZ
1991 B.S. Physics, Carnegie Mellon University, Pittsburgh, PA

## 2. PROFESSIONAL EXPERIENCE

### 2a. Professional Appointments

2022 - 24 **Assoc. Chair for Research and Graduate Education,** Dept. of Electrical, Computer, and Energy Engineering, University of Colorado Boulder

2021 - **Professor,** Dept. of Electrical, Computer, and Energy Engineering, University of Colorado Boulder

2020 - **Editor-in-Chief,** *Journal of Photonics for Energy*

2018 - 19 **Interim Faculty Director,** Multi-Functional Materials Interdisciplinary Research Theme, University of Colorado Boulder

2017 - **University Faculty Joint Appointment**, National Renewable Energy Laboratory (NREL), Golden, Colorado

2015 - 18 +Spring22 **Associate Chair for Education,** Dept. of Electrical, Computer, and Energy Engineering, University of Colorado Boulder

2014 - **Associate Professor by Courtesy**, Dept. of Physics, University of Colorado Boulder

2013 - **Fellow**, Renewable and Sustainable Energy Institute, University of Colorado Boulder

2013 - 21 **Associate Professor,** Dept. of Electrical, Computer, and Energy Engineering, University of Colorado Boulder

2009 - 13 **Associate Professor,** Dept. of Physics and Astronomy, University of Denver, Colorado

2007 - 09 **Assistant Professor,** Dept. of Physics and Astronomy, University of Denver, Colorado

2005 - 07 **Senior Scientist I,** National Renewable Energy Laboratory (NREL), Golden, Colorado

2002 - 05 **Scientist II,** National Renewable Energy Laboratory (NREL), Golden, Colorado

1999 - 01 **Lise Meitner Postdoctoral Fellow,** Physical Chemistry Department, Johannes Kepler University of Linz, Austria (N. S. Sariciftci, research director)

1994 - 09 **Graduate Research Assistant,** Optical Sciences Center and Department of Physics, University of Arizona, Tucson, Arizona (N. Peyghambarian and S. Mazumdar, advisors)

1993 - 94 **Graduate Research Assistant,** Medium energy physics group, Los Alamos National Laboratory, Los Alamos, New Mexico (J. Simon-Gillo, advisor)

1991 **Research Assistant,** NASA Goddard Space Flight Center, Greenbelt, Maryland (M. Aschwanden, advisor)

### 2b. Awards and Recognitions

2024 The paper "Status Report on Emerging Photovoltaics", A. Anctil et al., *Journal of Photonics for Energy* **13** (4), 042301 (2023) was included in the SPIE Selections Series book "50 Years of Solar Energy Research", Editors Karin Kinzer, Robert Hainsey, and Matthew Jungwirth, SPIE Press, ISBN: 9781510680487 (2024). It was one of 18 papers selected out of ~14,000 publications in the field of solar energy in the SPIE digital library.

2023 ECEE Department Outstanding Service Award

2020 Selected as Editor-in-Chief for the SPIE Journal of Photonics for Energy

2017 Provost Faculty Achievement Award, University of Colorado Boulder

Chancellor's Award for Excellence in STEM Education, University of Colorado Boulder

ECEE Department Outstanding Service Award

2013 University of Denver Physics and Astronomy Teacher of the Year (as voted by the Society of Physics Students)

2011 Research Corporation for Science Advancement Scialog Fellow

2007 NREL Director's Award

2006 NREL Outstanding Mentor Award

2005 Featured in *Science Magazine*'s online column *Science Careers* in article entitled "Powered by Nature"

NREL Outstanding Performance Award

2004 NREL Employee of the Month, November

NREL Outstanding Mentor Award

2001 Work featured in the Nature article "Wall-to-wall power", by Philip Ball http://www.nature.com/news/2001/011106/full/news011108-5.html

Work featured in the Nature article "More power from plastic", by Philip Ball. http://www.nature.com/news/2001/010215/full/news010215-9.html

1999 Lise-Meitner Postdoctoral Fellowship award recipient, Austrian Ministry of Science

## 3. RESEARCH ACTIVITIES

### 3a. Grant Funding

Project title: "Two Dimensional Heterostructures as Low Energy Competing Elements"
Principal Investigator(s): Sean Shaheen, University of Colorado Boulder and Justin Johnson, National Renewable Energy Laboratory
Source of support: CU Renewable and Sustainable Energy Institute
Total amount: $27 K
Project period: 07/01/25 – 02/01/26

Project title: "Two-Dimensional Ferromagnetic Systems"
Principal Investigator(s): Sean Shaheen
Co-Principal Investigator(s):
Source of support: National Renewable Energy Laboratory
Total amount: $208,756
Project period: 04/30/25 - 09/30/27

Project title: "New Frontiers in Bio-Integrated Organic Computing & Low-energy Innovative Carbon-based Manufacturing (BIO-CLIC)"
Principal Investigator(s): Jeffrey Cameron, University of Colorado Boulder
Co-Principal Investigator(s): Sean Shaheen, Juliet Gopinath, Victor Bright, Ivan Smalyukh, Jian Tay (CU Boulder)
Source of support: CU Boulder Research and Innovation Office (RIO)
Total amount: $50 K
Project period: 06/01/24 – 05/31/25

Project title: "Toward Energy-Efficient Quantum Reservoir Computing with Exciton-Polariton Materials"
Principal Investigator(s): Sean Shaheen, University of Colorado Boulder
Co-Principal Investigator(s): Jao van de Lagemaat, National Renewable Energy Laboratory
Source of support: CU Renewable and Sustainable Energy Institute
Total amount: $23 K
Project period: 01/01/23 – 08/15/23

Project title: "Unconventional Computing with Organic Electronics"
Principal Investigator(s): Sean Shaheen, University of Colorado Boulder
Co-Principal Investigator(s): Juan Restrepo, Gregory Whiting, Robert McLeod, Robert MacCurdy
Source of support: CU Multi-Functional Materials Interdisciplinary Theme (MFM-IRT)
Total amount: $20 K, ($9 K to Shaheen)
Project period: 01/01/22 – 06/30/22

Project title: "3D Printed Organic Integrated Circuits: leveraging multimaterial 3D print-in-place capability to make heterogeneous materials that sense and compute"
Principal Investigator(s): Robert MacCurdy, University of Colorado Boulder
Co-Principal Investigator(s): Gregory Whiting, Robert McLeod, Sean Shaheen, Jianliang Xiao
Source of support: CU Multi-Functional Materials Interdisciplinary Theme (MFM-IRT)
Total amount: $25 K, ($2 K to Shaheen)
Project period: 01/01/22 – 06/30/22

Project title: "Printed Organic Electrochemical Sensors: Accurate, Low-cost, Scalable, Soft Systems"
Principal Investigator(s): Gregory Whiting, University of Colorado Boulder
Co-Principal Investigator(s): Robert McLeod, Robert MacCurdy, Sean Shaheen, Jianliang Xiao
Source of support: CU Multi-Functional Materials Interdisciplinary Theme (MFM-IRT)
Total amount: $20 K, ($1.5 K to Shaheen)
Project period: 01/01/22 – 06/30/22

Project title: "Precisions Semiconductor Measurement Equipment for ECEE Teaching Labs"
Principal Investigator(s): Sean Shaheen
Source of support: CU Engineering Excellence Fund / ECEE Department
Total amount: $38,153
Project period: Award spring 2021

Project title: "Organic Reservoir Computing: A Joint Theory-Experiment Study"
Principal Investigator(s): Sean Shaheen
Co-Principal Investigator(s): Juan Restrepo, University of Colorado Boulder
Source of support: CU RIO Seed Grant Program
Total amount: $45 K, ($23 K to Shaheen)
Project period: 07/01/20 – 12/31/21

Project title: "Collaborative: Multidimensional Tracking of Local Environment-Affected Transport Pathways in Perovskite Solar Cells"
Principal Investigator(s): Sean Shaheen

Co-Principal Investigator(s): Mark Siemens, University of Denver
Source of support: National Science Foundation, DMR-1906029
Total amount: $270 K to CU Boulder (Shaheen) + $270 K to University of Denver (Siemens)
Project period: 09/01/19 – 08/31/22

Project title: "Modeling of Perovskite Modules"
Principal Investigator(s): Sean Shaheen
Co-Principal Investigator(s):
Source of support: National Renewable Energy Laboratory
Total amount: $390 K (includes support for 1 graduate student at NREL)
Project period: 03/01/19 – 02/28/22

Project title: "Room Temperature Coherence and Condensation in Exciton-Polariton States: Toward Practical Quantum Phenomena in Cavity-Coupled Perovskite Materials"
Principal Investigator(s): Sean Shaheen
Co-Principal Investigator(s): Markus Raschke
Source of support: University of Colorado Boulder, Research & Innovation Office, QuEST Program
Total amount: $50 K
Project period: 01/15/19 – 12/31/20

Project title: "RET Site: Authentic Research Experiences for Teachers (ARETe): Connecting Community College Faculty and Students to University Engineering and Computer Science Labs"
Principal Investigator(s): Sean Shaheen
Co-Principal Investigator(s): Janet Yowell
Source of support: National Science Foundation, EEC-1801756
Total amount: $599 K
Project period: 09/15/18 – 08/31/21

Project title: "High Temperature Superconductivity in Organic Solids"
Principal Investigator(s): Daniel Dessau
Co-Principal Investigator(s): Sean Shaheen, Josef Michl, Gang Cao, Charles Musgrave
Source of support: Keck Foundation
Total amount: $1.0 M (~$150 K to Shaheen)
Project period: 09/01/18 – 08/31/21

Project title: "Scaling, Processing, and Characterization of Perovskite Solar Cells"
Principal Investigator(s): Sean Shaheen
Co-Principal Investigators:
Source of support: National Renewable Energy Laboratory, authorization no. UGA-0-41026-104
Total amount: $103 K
Project period: 10/19/17 – 11/09/18

Project title: "STTR Phase I: Perovskite Solar Cells with Tin Oxide Electron Transport Layers for Optimized Performance and Lifetime"
Principle Investigator(s): Sean Shaheen
Co- Principle Investigator(s): Augusto Kunrath, MVSystems Inc.
Source of support: National Science Foundation, IIP-1722390
Total amount: $225 K ($100 K to Shaheen)
Project period: 06/01/17 – 05/31/18

Project title: "Collaborative Research: Creating Academic Pathways in STEM (CAPS): A Model Ecosystem for Supporting Two-Year Transfer"
Principal Investigator(s): Noah Finkelstein
Co- Principal Investigator(s): Sean Shaheen, Anne-Barrie Hunter
Source of support: National Science Foundation, OIA-1641961
Total amount: $286 K (support staff salary only)

Project period: 01/01/17 – 06/30/18

Project title: "Bismuth-Based Organometallic Materials for Photovoltaics & Other Applications"
Principal Investigator(s): Sean Shaheen, Michael Marshak, and Joseph Berry (NREL)
Co-Principal Investigators:
Source of support: University of Colorado Boulder, RASEI Seed Grant Program
Total amount: $20 K
Project period: 11/01/16 – 10/31/17

Project title: "Processing and Device Physics of Perovskite Solar Cells on Flexible Glass for SERIIUS"
Principal Investigator(s): Sean Shaheen
Co-Principal Investigators:
Source of support: National Renewable Energy Laboratory, authorization no. UGA-0-41026-88
Total amount: $117 K
Project period: 09/01/16 – 02/28/18

Project title: "Memristors for Neuromorphic Electronics"
Principal Investigator(s): Sean Shaheen
Co-Principal Investigators:
Source of support: University of Colorado Boulder, LEAP Individual Growth Grant
Total amount: $5 K
Project period: 07/01/16 – 06/30/17

Project title: "MRI: Development of an infrared scanning near-field optical microscope (IR s-SNOM) for broadband nano-imaging and -spectroscopy"
Principal Investigator(s): Markus Raschke
Co-Principal Investigators: Prashant Nagpal, Sean Shaheen, Thomas Perkins, Steven Cundiff
Source of support: National Science Foundation, MRI-1531996
Total amount: $604 K (for instrumentation only)
Project period: 09/15/15 – 09/14/18

Project title: "Precision Organic Electrochemical Transistors for Single-Cell Electrophysiology"
Principal Investigator(s): Robert McLeod
Co-Principal Investigators: Sean Shaheen
Source of support: National Science Foundation, ECCS-1509909
Total amount: $390 K (~$150 K to Shaheen)
Project period: 06/01/15 – 05/31/19

Project title: "Processing and Device Physics of Perovskite Solar Cells"
Principal Investigator(s): Sean Shaheen
Co-Principal Investigators:
Source of support: National Renewable Energy Laboratory, authorization no. UGA-0-41026-74
Total amount: $103 K
Project period: 01/01/15 – 08/31/16

### 3a.1. Previously at the University of Denver

Project title: "Supramolecular Non- Fullerene Electron Acceptors for Organic PVs – A Pathway Towards 20% Efficient Cells at a Cost Less than $0.50/W"
Principal Investigator(s): Sean Shaheen, Michael Chabinyc (University of California at Santa Barbara), Alan Sellinger (Colorado School of Mines)
Co-Principal Investigators:
Source of support: Research Corporation for Science Advancement, Scialog Program
Total amount: $100 K
Project period: 01/01/13 – 12/31/13

Project title: "Thermophilic Bacteria for Robust Biofuel Production: From Enzyme Kinetics to Cellular Decision Making"
Principal Investigator(s): Kingshuk Ghosh, David Patterson, Sean Shaheen
Co-Principal Investigators:
Source of support: University of Denver, Office of the Associate Provost for Research (Cathryn Potter)
Total amount: $50 K
Project period: 01/15/12 – 01/14/13

Project title: "Holographic Spectrum Splitting for Multijunction Organic Photovoltaics"
Principal Investigator(s): Sean Shaheen, Raymond Kostuk (University of Arizona), Christine Luscombe (University of Washington)
Co-Principal Investigators:
Source of support: Research Corporation for Science Advancement, Scialog Program
Total amount: $100 K
Project period: 01/01/12 – 12/31/12

Project title: "Fractals as a Promising Geometry for Enhanced Solar Energy Conversion"
Principal Investigator(s): Frank Osterloh (University of California at Davis), Sean Shaheen, Richard Taylor (University of Oregon), Boaz Ilan (University of California at Merced)
Co-Principal Investigators:
Source of support: Research Corporation for Science Advancement, Scialog Program
Total amount: $100 K
Project period: 01/01/12 – 12/31/12

Project title: "SOLAR Collaborative: Photonic Enhancement of Organic Photovoltaics to Enable Higher Efficiencies and Novel Mechanisms"
Principal Investigator(s): Won Park, David Walba, Mark Ablowitz, Jao van de Lagemaat (NREL), and Garry Rumbles
Co-Principal Investigators:
Source of support: National Science Foundation, CHE-1125937
Total amount: $1.5 M ($40 K to University of Denver; $1.1 M to CU Boulder)
Project period: 09/01/11 – 08/31/14

Project title: "Energy Pooling as Novel Thermodynamic Mechanism for Organic Photovoltaics"
Principal Investigator(s): Sean Shaheen
Co-Principal Investigators:
Source of support: Research Corporation for Science Advancement, Scialog Fellows Program
Total amount: $100 K
Project period: 07/01/11 –06/30/14

Project title: "Excitons, Charge Transport, and Interfaces: Joint Fabrication and Simulation Studies in OPV"
Principal Investigator(s): Sean Shaheen
Co-Principal Investigators:
Source of support: National Renewable Energy Laboratory
Total amount: $281 K (for graduate student research on the NREL campus)
Project period: 02/04/11 – 02/03/13

Project title: "Understanding and Controlling Defects in Organic Photovoltaic Materials"
Principal Investigator(s): Sean Shaheen
Co-Principal Investigators:
Source of support: National Science Foundation, DMR-1006930
Total amount: $317 K
Project period: 07/01/10 – 06/30/13

Project title: "High Performance Flexible Electrochromic Windows"
Principal Investigator(s): Sean Shaheen
Co-Principal Investigators:
Source of support: National Renewable Energy Laboratory
Total amount: $119 K (for graduate student research on the NREL campus)
Project period: 09/27/10 –09/26/13

Project title: "Critical Spectroscopy Upgrades for Dynamic Energy Transport Measurements in Nanostructures and Novel Materials"
Principal Investigator(s): Mark Siemens, Barry Zink, Sean Shaheen
Co-Principal Investigators:
Source of support: University of Denver, Office of the Associate Provost for Research (Cathryn Potter)
Total amount: $65 K
Project period: 01/01/11 –12/31/11

Project title: "Materials and Physics of Organic Optoelectronic Device"
Principal Investigator(s): Sean Shaheen
Co-Principal Investigators:
Source of support: National Renewable Energy Laboratory
Total amount: $267 K (for graduate student research on the NREL campus)
Project period: 12/01/09 – 11/30/12

Project title: "Using Nanoparticles to prevent and/or disrupt the aggregation of Alzheimer's causing proteins"
Principal Investigator(s): Christine Coughlan
Co-Principal Investigators: Sean Shaheen
Source of support: University of Denver PROF program
Total amount: $15 K
Project period: 07/01/08 – 06/30/10

Project title: "Device Physics and Novel Architectures for Organic Photovoltaics"
Principal Investigator(s): Sean Shaheen
Co-Principal Investigators:
Source of support: National Renewable Energy Laboratory
Total amount: $323 K (for graduate student research on the NREL campus)
Project period: 12/03/07 – 12/02/10

Project title: "Economic On-Grid Solar Energy via Organic Thin Film Technology"
Principal Investigator(s): Sean Shaheen
Co-Principal Investigators:
Source of support: Plextronics, Inc. subcontract under the DOE Solar America Initiative PV Incubator program
Total amount: $150 K
Project period: 12/01/07 – 03/31/10

### 3a.2. Previously at the National Renewable Energy Laboratory

Project title: "Low Band Gap Materials for Organic Photovoltaics"
Principal Investigator(s): Sean Shaheen
Co-Principal Investigators:
Source of support: Xcel Energy Corporation Renewable Development Fund
Total amount: $1.0 M (transferred to Dr. Nikos Kopidakis as PI upon my leaving full time employment at NREL), Project period: 2005-07

Project title: "Low Band Gap Materials for Organic 3rd Generation Photovoltaics"
Principal Investigator(s): Sean Shaheen
Co-Principal Investigators:
Source of support: NREL Laboratory Director's Research Discretionary fund
Total amount: $250 K, Project period: 2005-06

Project title: "Organic Light Emitting Diodes for High Efficiency Solid State Lighting"
Principal Investigator(s): Sean Shaheen
Co-Principal Investigators:
Source of support: NREL Laboratory Director's Research Discretionary fund
Total amount: $300 K, Project period: 2003-05

### 3b. Citation Metrics

Google Scholar page: https://scholar.google.com/citations?user=Q0ZjBPcAAAAJ

| | All | Since 2021 |
|---|---|---|
| Citations | 22177 | 3917 |
| h-index | 64 | 29 |
| i10-index | 105 | 56 |

ORCID: https://orcid.org/0000-0002-7179-9230

### 3c. Journal Publications

1. L. A. Hurley and S. E. Shaheen, "Impact of vanishing regularization on the early time dynamics and valid prediction times of reservoir computing", submitted to *Chaos.*

2. R. Wilcken, B. L. Esses, R. S. N. Kumar, L. A. Hurley, S. E. Shaheen, and M. B. Raschke, "Correlated nanoimaging of structure and dynamics of cation-polaron coupling in hybrid perovskites", *Science Advances* **11**, eads3706 (2025). https://doi.org/10.1126/sciadv.ads3706

3. E. J. Strand, A. Gopalakrishnan, M. J. Palizzi, C. A. Crichton, O. Lee, E. Bihar, T. Borsa, S. E. Shaheen, R. R. McLeod, and G. L. Whiting, "Ultrathin Screen-Printed Plant Wearable Capacitive Sensors for Environmental Monitoring", *Applied Sensor Research*, 2400177 (2025). https://doi.org/10.1002/adsr.202400177

4. L. A. Hurley, J. G. Restrepo, and S. E. Shaheen, "Tuning the activation function to optimize the forecast horizon of a reservoir computer", *Journal of Physics: Complexity* (2024). https://doi.org/10.1088/2632-072X/ad5e55

5. S. Shaheen, "Growing Agrivoltaics", *Journal of Photonics for Energy* **14** (3), 030101 (2024). https://doi.org/10.1117/1.JPE.14.030101

6. S. Shaheen, "Photonics for Energy in the Age of AI", *Journal of Photonics for Energy* **14** (1), 010101 (2024). https://doi.org/10.1117/1.JPE.14.010101

7. S. Shaheen, "The Continuing Emergence of Photovoltaics", *Journal of Photonics for Energy* **13** (4), 040101 (2023). https://doi.org/10.1117/1.JPE.13.040101

8. A. Anctil, et al., "Status Report on Emerging Photovoltaics", *Journal of Photonics for Energy* **13** (4), 042301 (2023). https://doi.org/10.1117/1.JPE.13.042301

9. J. Nishida, P. T. S. Chang, J. Ye, P. Sharma, D. M. Wharton, S. C. Johnson, S. E. Shaheen, and M. B. Raschke, "Nanoscale heterogeneity of ultrafast many-body carrier dynamics in triple cation perovskites", *Nature Communications* **13**, 6582 (2022). https://doi.org/10.1038/s41467-022-33935-0

10. S. Shaheen, "Solar cells combining hot carriers and multijunctions: synergies and insights from Maxime Giteau, Samy Almosni, and Daniel Suchet", *Journal of Photonics for Energy* **12** (3) 032202 (2022). https://doi.org/10.1117/1.JPE.12.032202

11. B. D. Chrysler, S. E. Shaheen, R. K. Kostuk, "Lateral Spectrum Splitting System with Perovskite Photovoltaic Cells", *Journal of Photonics for Energy* 12 (2), 022206 (2022). https://doi.org/10.1117/1.JPE.12.022206

12. V. V. Zhelyaskova, P. Sharma, P. I. Dron, V. Martinez, J. Michl, M. F. Toney, D. S. Dessau, S. E. Shaheen, "Increased Crystallite Size in Thin Films of $C_{60}$ and *p*-Terphenyls via PDMS-Assisted Crystallization", *Journal of Materials Chemistry C* **10**, 5657 (2022). https://doi.org/10.1039/D1TC04516D

13. Y. Tuchman, T. N. Mangoma, P. Gkoupidenis, Y. van de Burgt, R. A. John, N. Mathews, S. E. Shaheen, R. Daly, G. G. Malliaras, and A. Salleo, "Organic neuromorphic devices: Past, present, and future challenges", *Materials Research Society Bulletin* **45**, 619-630 (2020). https://doi.org/10.1557/mrs.2020.196

14. J. C. Perez and S. E. Shaheen, "Neuromorphic-based Boolean and reversible logic circuits from organic electrochemical transistors", *Materials Research Society Bulletin* **45**, 649-654 (2020). https://doi.org/10.1557/mrs.2020.202

15. J. Nishida, A. H. Alfaifi, T. P. Gray, S. E. Shaheen, and M. B. Raschke, "Heterogeneous Cation-Lattice Interaction and Dynamics in a Triple Cation Perovskite Revealed by Infrared Vibrational Nanoscopy", *ACS Energy Lett.* **5**, 5, 1636-1643 (2020). DOI: 10.1021/acsenergylett.0c00522

16. J. Tong et al., "Carrier lifetimes of >1 μs in Sn-Pb perovskites enable efficient all-perovskite tandem solar cells", *Science* **364** (6439), 475-479 (2019). DOI: 10.1126/science.aav7911

17. B. Dou, J. B. Whitaker, K. Bruening, D. T. Moore, L. M. Wheeler, J. Ryter, N. J. Breslin, J. J Berry, S. M Garner, F. Barnes, S. E Shaheen, C. J. Tassone, K. Zhu, M. F. A. M. van Hest, "Roll-to-Roll Printing of Perovskite Solar Cells", *ACS Energy Letters* **3** (10), 2558-2565 (2018). DOI: 10.1021/acsenergylett.8b01556

18. S. P. Dunfield, D. T. Moore, T. R. Klein, D. M. Fabian, J. A. Christians, A. G. Dixon, B. Dou, S. Ardo, M. C. Beard, S. E. Shaheen, J. J. Berry, M. F. A. M. van Hest, "Curtailing Perovskite Processing Limitations via Lamination at the Perovskite/Perovskite Interface", *ACS Energy Letters* **3** (5), 1192-1197 (2018). DOI: 10.1021/acsenergylett.8b00548

19. B. Dou, L. M. Wheeler, J. A. Christians, D. T. Moore, S. P. Harvey, J. J. Berry, F. S. Barnes, S. E. Shaheen, M. F.A.M. van Hest, "Degradation of highly alloyed metal halide perovskite precursor inks: mechanism and storage solutions", *ACS Energy Letters* **3** (4), 979-985 (2018). DOI: 10.1021/acsenergylett.8b00305

20. J. S. Brown, S. E. Shaheen "Introducing Correlations into Carrier Transport Simulations of Disordered Materials through Seeded Nucleation: Impact on Density of States, Carrier Mobility, and Carrier Statistics, *Journal of Physics: Condensed Matter Physics* **30**, 135702 (2018). DOI: 10.1088/1361-648X/aaacb8

21. A. G. Dixon, R. Visvanathan, N. A. Clark, N. Stingelin, N. Kopidakis, S. E. Shaheen, "Molecular weight dependence of carrier mobility and recombination rate in neat P3HT films", *Journal of Polymer Science Part B Polymer Physics* **56** (1) 31-35 (2018). DOI: 10.1002/polb.24531

22. B. Dou, E. M. Miller, J. A. Christians, E. M. Sanehira, T. R. Klein, F. S. Barnes, S. E. Shaheen, S. M. Garner, S. Ghosh, A. Mallick, D. Basak, M. F. A. M. van Hest, "High-Performance Flexible Perovskite Solar Cells on Ultrathin Glass: Implications of the TCO", *Journal of Physical Chemistry Letters* **8** (19), 4960–4966 (2017). DOI: 10.1021/acs.jpclett.7b02128

23. J. T. Friedlein, J. Rivnay, D.H. Dunlap, I. McCulloch, S.E. Shaheen, R. R. McLeod, and G. G. Malliaras, "Influence of disorder on transfer characteristics of organic electrochemical transistors", *Applied Physics Letters* **111**, 023301 (2017). DOI: 10.1063/1.4993776

24. K. A. O'Hara, D. P. Ostrowski, U. Koldemir, C. J. Takacs, S. E. Shaheen, A. Sellinger, and M. L. Chabinyc, "Role of Crystallization in the Morphology of Polymer:Non-fullerene Acceptor Bulk Heterojunctions", *ACS Applied Materials & Interfaces* **9** (22), 19021-19029 (2017). DOI: 10.1021/acsami.7b03529

25. D. H. Weingarten, M. D. LaCount, J. van de Lagemaat, G. Rumbles, M. T. Lusk, S. E. Shaheen, "Experimental Demonstration of Photon Upconversion via Cooperative Energy Pooling", *Nature Communications* **8**, 14808 (2017). DOI: 10.1038/ncomms14808

*26.* V. L. Pool, B. Dou, D. G. Van Campen, T. R. Tockert, F. S. Barnes, S. E. Shaheen, M. I. Ahmad, M. F. A. M. van Hest, and M. F. Toney, "Thermal Engineering of FAPbI3 Perovskite Material via Radiative Thermal Annealing and in-situ XRD", *Nature Communications* **8**, 14075 (2017). DOI: 10.1038/ncomms14075

27. R. A. Nawrocki, R. M. Voyles, and S. E. Shaheen, "A Mini Review of Neuromorphic Architectures and Implementations", *IEEE Transactions on Electron Devices* **63** (10), 3819-3829, (2016). DOI: 10.1109/TED.2016.2598413

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### 3d. Patents

1. US2023/0313032A1, "Sensitization Enhancement of Solid-State Photonic Upconversion", Sean Shaheen, Daniel Weingarten, Michael LaCount, Mark T. Lusk, Jao van de Lagemaat, Garry Rumbles, 2023-10-05, https://image-ppubs.uspto.gov/dirsearch-public/print/downloadPdf/20230313032

2. US11540909B2. "Azobenzene polymer network, and uses thereof for biofilm removal and control over cell attachment" Devatha P. Nair, Robert McLeod, Sean Shaheen, Gannon Kehe, Michael Schurr, Ram Nagaraj. 3 January 2023, https://patents.google.com/patent/US11540909B2/en

3. US 2018/00666132 A1. "Conductive Polymer Compositions and Applications" Devatha P. Nair, Malik Y. Kahook, Zefram MARKS, Sean Shaheen, Robert R. Mcleod. Publication date: 03/08/2018. http://pdfaiw.uspto.gov/.aiw?Docid=20180066132

4. US 2006/0107996 A1. "Photovoltaic Cell", Sean Shaheen, Christoph Brabec, Thomas Fromherz, Franz Padinger, Serdar Sariciftci, and Erhard Gloetzl. May 25, 2006. http://pdfaiw.uspto.gov/.aiw?Docid=20060107996

5. US 6,933,436 B2. "Photovoltaic Cell", Sean Shaheen, Christoph Brabec, Thomas Fromherz, Franz Padinger, Serdar Sariciftci, and Erhard Gloetzl. Aug. 23, 2005. https://pdfpiw.uspto.gov/.piw?Docid=06933436

6. US 6,812,399 B2. "Photovoltaic Cell", Sean Shaheen, Christoph Brabec, Thomas Fromherz, Franz Padinger, Serdar Sariciftci, and Erhard Gloetzl. Nov. 2, 2004. https://pdfpiw.uspto.gov/.piw?Docid=06812399

**3e. Book Chapters**

1. A. Anctil, et al., "Status Report on Emerging Photovoltaics", *Journal of Photonics for Energy* **13** (4), 042301 (2023) was included in the SPIE Selections Series book "50 Years of Solar Energy Research", Editors Karin Kinzer, Robert Hainsey, and Matthew Jungwirth, SPIE Press, ISBN: 9781510680487 (2024).

2. R. A. Nawrocki, R. M. Voyles, S. E. Shaheen, "Polymer and Nanoparticle-Composite Bistable Devices: Physics of Operation and Initial Applications" in *Springer Series in Cognitive and Neural Systems*, 1, Volume 4, *Advances in Neuromorphic Memristor Science and Applications, Part 3, Pages 291-314;* R. Kozma, R. E. Pino, and G. E. Pazienza, Eds., Springer (2012).

3. S. E. Shaheen, D. S. Ginley, "Photovoltaics for the Next Generation: Organic-Based Solar Sells", in *Dekker Encyclopedia of Nanoscience and Nanotechnology*, Schwarz, Contescu, and Putyera, Eds., Marcel Dekker, Inc., New York, pp. 2879-2895, (2004).

**3f. Editorials**

1. S. Shaheen, "Continued Need for Higher Efficiency Photovoltaics", *Journal of Photonics for Energy* b (4), 040101 (2021). https://doi.org/10.1117/1.JPE.11.040101

2. S. Shaheen, "Energy in Focus", *Journal of Photonics for Energy* **11** (3), 030101 (2021). https://doi.org/10.1117/1.JPE.11.030101

3. S. Shaheen, "Expanding the Scope of JPE", *Journal of Photonics for Energy* **11** (4), 020101 (2021). https://doi.org/10.1117/1.JPE.11.020101

4. S. Shaheen, "From "old" photons to "new" photons: advancing new research in photonics and energy", *Journal of Photonics for Energy* **11** (1), 010101 (2021). https://doi.org/10.1117/1.JPE.11.010101

### 3g. Edited Volumes and Proceedings

1. K. -S. Choi, R. T. Collins, S. E. Shaheen, K. Ulrich, Volume Organizers for the 2011 *Materials Research Society Bulletin*, Volume **36** (2011).

2. General Editor for Spring 2011 European Materials Research Society, Symposium S: Organic Photovoltaics: Science and Technology Proceedings, Elsevier *Energy Procedia*, Volume **31**, 1-172 (2012). http://www.sciencedirect.com/science/journal/18766102/31

3. V. R. Bommisetty, N. S. Sariciftci, K. Narayan, G. Rumbles, S. E. Shaheen, P. Peumans, J. van de Lagemaat, and G. Dennler, "Organic photovoltaics and related electronics: from excitons to devices", *Proceedings of the Materials Research Society* 2010 Spring Meeting, San Francisco, 2010.

4. S. E. Shaheen, D. S. Ginley, G. E. Jabbour, "Organic Based Photovoltaics", *Materials Research Society Bulletin*, Volume 30, No. 1, January 2005.

### 3h. Keynote and Plenary Talks

1. "The Thermodynamic and Economic Potentials of Organic Photovoltaics", Plenary Talk, Solar Energy + Technology, SPIE, San Diego, August 2011. http://www.youtube.com/watch?v=z7tgDyupr2Q

2. "Nanostructured Oxide / Conjugated Polymer Composite Materials for Photovoltaic Devices", The European Conference on Organic Electronics and Related Phenomena, Keynote Address, Imperial College of London, September 2003.

### 3i. Invited Talks, Colloquia, and Webinars

1. "Strong Light-Matter Coupling in 2D Materials", 2024 Rocky Mountain Chapter AVS Symposium, Westminster, CO, September 2024. https://www.rmcavs.org/2024-symposium/

2. "New directions for polaritonic-based quantum computing", Rocky Mountain Materials Research Society Chapter Workshop on Materials and Devices in Quantum Computing, CU Boulder, June 2024.

3. "Optimization of Reservoir Computers for Chaotic Time Series Prediction and their Implementation in Organic Electrochemical Systems", online seminar for the COINFLIPS project, Sandia National Laboratory, November 2023. https://coinflipscomputing.org/output

4. "Materials that Think: Paradigms for Ultra-Energy-Efficient Reservoir Computing", CU Boulder 2023 *Innovation in Materials Symposium,* August 2023.

5. "Opportunities and Challenges for Energy-Efficient Computing", talk for the RASEI *Odyssey of the Mind Series*, CU Boulder, December, 2022.

6. "Simulation and Implementation of Multi-gate OECT Reservoir Computing Circuits", S. E. Shaheen, J. C. Perez, V. G. Venkata, N. W. Landry, R. B. MacCurdy, J. G. Restrepo, Invited talk presented at the Materials Research Society Spring 2022 Meeting, Symposium EQ11: Neuromorphic Computing and Biohybrid Systems—Materials and Devices for Brain- Inspired Computing, Adaptive Biointerfacing and Smart Sensing.

7. "Cooperative Energy Pooling: Is Singlet-Fusion a Viable Photon Upconversion Strategy?", Tutorial presented virtually at the Next Generation Solar Energy Conference (NGSE) 6 (Virtual). December 2021. https://www.ngse.info

8. Webinar presentation on "Neuromorphic-Based Boolean and Reversible Logic Circuits from Organic Electrochemical Transistors" given as part of the MRS OnDemand Webinar Series on *Organic semiconductors for brain-inspired computing*. August 2020. https://mrs.digitellinc.com/mrs/sessions/31874/view

9. "Photonic Upconversion in Organic Nanoparticles via Cooperative Energy Pooling", Material Research Society Fall 2019 Meeting, Session SB05.01: Fundamentals of Light-Matter Interaction in Biology I, Boston, December 2019.

10. "Device Physics and Fast Operation of Organic Electrochemical Transistors", 1st Workshop on Organic Neuromorphic Devices", Instituto Italiano di Tecnologia (IIT)-Center for Translational Neurophysiology (CTNSc), June 2019.

11. "Cooperative Energy Pooling of Singlet Exciton for Photonic Upconversion", Dept. of Physics and Astronomy, University of Denver, May 2018.

12. "Photonic Upconversion via Cooperative Energy Pooling in Solid-State Molecular Materials", Optical Society of America Light, Energy, and Environment Congress, Session PM4A Optical Nanostructures and Advanced Materials for Photovoltaics, Boulder, November 2017.

13. "Neuromorphic Computing Devices: Toward Hardware-Implemented Parallel Distributed Processing", Department of Physics, Colorado School of Mines, September 2017.

14. "Recent Advances and Future Prospects for Organic and Hybrid Organic-Inorganic Perovskite Photovoltaics", Renewable Energy Summit, University of Wyoming, June 2016.

15. "In Defense of the Exciton: Pathways and Mechanisms to Higher Efficiencies in OPV", Telluride Science Research Center (TSRC) Workshop on Multiscale Simulations of Organic Electronic Materials July 13 – 17, 2015.

16. "Why Carriers Live So Long in Perovskite Solar Cells", Workshop on Hybrid Inorganic Organic Perovskites, National Renewable Energy Laboratory, September 2015.

17. "Monte Carlo Simulations of Carrier Dynamics in Pi-Conjugated Polymers: Understanding the Roles of Energetic Traps and Correlations", Workshop on Multiscale Simulations of Organic Electronic Materials, Telluride Science Research Center, Telluride, June 2015.

18. "Pattern formation and collective behavior in bacterial colonies in stressed environments", Department of Applied Mathematics, University of Colorado Boulder, April 2015.

19. "Modeling of Organic Photovoltaics: Charge Transport, Charge Transfer Kinetics, and Exciton Dynamics", Department of Applied Mathematics, University of Colorado Boulder, April 2014.

20. "Understanding Exciton Dynamics in Multi-chromophore Macromolecules", Materials Research Society Spring 2014 Meeting, April 2014.

21. "Exciton Dynamics in Multi-Chromophore Systems: Biomimetic Pathways for Higher Efficiencies in Organic Photovoltaics", Solar Solutions to Energy and Environmental Problems, Telluride Science Research Center, August 2013.

22. "Fundamental and Practical Limitations to OPV Device Efficiencies", India-US Workshop on OPV, National Renewable Energy Laboratory, June 2013.

23. "Pathways to a New Efficiency Regime for Organic Photovoltaics: The Science and Engineering of Plastic Solar Cells", Dept. of Electrical, Computer, and Energy Engineering and Renewable and Sustainable Energy Institute, University of Colorado Boulder, April 2013.

24. "Organic Solar Cell Efficiency Limits and Pathways to Overcoming Them", Polymers for Energy Storage and Conversion Focus Session, American Physical Society March Meeting, Baltimore, March 2013.

25. "Materials and Mechanisms for High Efficiency Organic Photovoltaics", Chemical and Biological Engineering Department, University of Colorado Boulder, November 2012.

26. "Pathways to a New Efficiency Regime for OPV", International Organic Excitonic Solar Cells Conference, Coolum Beach, Australia, September 2012.

27. "Pathways to a New Efficiency Regime for Organic Photovoltaics", Center for Revolutionary Solar Photoconversion Joint Research Symposium, Boulder, August 2012.

28. "Implications of Quantum Effects for Organic Photovoltaics: Harnessing Coherence to Enable Higher Efficiencies", Gordon Conference on Electron Donor-Acceptor Interactions, Rhode Island, August 2012.

29. "Organic Photovoltaics: Overview and Aspects of Theory, Modeling, and Simulation", NSF Workshop on Challenges in PV Science, Technology, and Manufacturing: A workshop on the role of theory, modeling, and simulation", Purdue University, August 2012.

30. "Understanding Charge Transfer and Transport in OPV Device Physics: from Marcus Theory to Defect States", University of Texas at Austin, Center for Nano- and Molecular Science and DOE Energy Frontier Research Center, June 2012.

31. "Thermodynamic Analysis and Pathways to a New Efficiency Regime for OPV", Physical Chemistry Department, University of Linz, Austria, April 2012.

32. "The Thermodynamic and Industrial Potentials of Organic Photovoltaics", Abdus Salam International Center for Theoretical Physics, Trieste, Italy, April 2012.

33. "OPV: What is it Good For? Pathways to a New Efficiency Regime for Organic (and Organometallic) Photovoltaics", Dept. of Physics, Colorado School of Mines, February 2012.

34. "Device Physics and Thermodynamics of OPV", OrgaNet Workshop, Eindhoven University of Technology, December 2011.

35. "Tackling the Challenge of Truly Large Scale Photovoltaics: The Industrial and Thermodynamic Potentials of Organic Solar Cells", Renewable and Sustainable Energy Institute Big Energy Seminar Series, University of Colorado Boulder, November, 2011.

36. "Progress and Possibilities in Photovoltaics based on Earth-Abundant Organic and Inorganic Materials", American Chemical Society 15$^{th}$ Annual Green Chemistry & Engineering Conference, Washington DC, June 2011.

37. "Measurement, Modeling, and Modification of Electrode Interfaces in Bulk Heterojunction OPV", MRS Spring Meeting, Symposium CC, Hybrid Interfaces and Devices, San Francisco, April 2011.

38. "Charge Transport and Band Structure of OPV Materials Studied by TOF Experiments and Monte Carlo Simulations", institute Materials for Electronics and Energy Technology (iMEET), University of Erlangen-Nürnberg, Germany, March, 2011.

39. "Organic Photovoltaics: Progress and Possibilities for Plastic Solar Cells", Dept. of Chemistry and Chemical Biology / Dept. of Physics and Astronomy, University of New Mexico, February 2011.

40. "Disorder, Defects, and Band Diagrams: Characterization and Modeling of Bulk Heterojunction OPVs", Symposium on Organic and Polymers Electronics, Institute of Materials Research and Engineering (IMRE, A*STAR), Singapore, December 2010.

41. "Organic Electronics: Harvesting Power from Sunlight….and Beyond", ECE Department, University of Denver, November 2010.

42. "Disorder, Defects, and Band Diagrams: Mechanisms of Operation of Bulk Heterojunction Organic Photovoltaics", University of Colorado Boulder, Dept. of Physics, November 2010.

43. "Heterogeneity and Disorder in OPV Materials: Case Studies in Energy Transfer and Charge Transport", LCOPV 2010 Workshop on Directing Nanoscale Organization in Organic Photovoltaics: Liquid Crystals for Renewable Energy, University of Colorado Boulder, August 2010.

44. "Morphology, Transport, and Device Physics in the Bulk Heterojunction", CSIRO / Univ. of Melbourne, Australia, July 2010.

45. "OPV Device Physics and Modeling", Center for Advanced Molecular Photovoltaics (CAMP) Annual Meeting, Stanford University, June 2010.

46. "Bulk Heterojunction Organic Photovoltaics", University of Chicago, Dept. of Chemistry, May 2010.

47. "OPV R&D Issues", NSF Workshop on Catalyzing Innovation in PV Manufacturing, Golden, Colorado, May 2010.

48. "OPV Device Physics and Pathways to Higher Efficiencies", Intertech-pira Organic Photovoltaics 2010, Philadelphia, April 2010.

49. "The Role of Defects on Charge Transport in Organic Photovoltaic Materials and Devices", 11$^{th}$ Pacific Polymer Conference, Cairns Australia, December 2009.

50. "Organic Photovoltaics for Low Cost Solar Energy Harvesting", NSF CMMI Research and Innovation Conference 2009, Honolulu, Hawaii, June 2009.

51. "Recent Progress in Understanding the Device Physics of Organic Photovoltaics", Intertech-pira Organic Photovoltaics 2009, Philadelphia, April 2009.

52. "Device Physics and Architectures for Organic Photovoltaics", Dept. of Chemistry, University of Toronto, March 2009.

53. "Molecular Design and Device Physics of Organic Photovoltaics", ECE Department, UCSD, November 2008.

54. "Organic Photovoltaics: from Molecular Design to Industrial Scale Fabrication", Liquid Crystal Materials Research Center, University of Colorado Boulder, October 2008.

55. "Organic Photovoltaics: from Molecular Design to Industrial Scale Fabrication", Dept. of Chemistry, University of Washington, October 2008.

56. "Examining Low Bandgap Materials for OPV", Excitonic Solar Cell Conference 2008, Warwick, UK, September 2008.

57. "New Materials Discovery in Organic Photovoltaics: the Search for the Magic Donor-Acceptor Pair", Zernike Institute for Advanced Materials, University of Groningen, the Netherlands, August 2008.

58. "Some Issues in OPV: from Excitons to Charges to Device Stability", Department of Chemistry, University of Cologne, Germany, August 2008.

59. "An Introduction to "Bulk-Heterojunction (Plastic) PV Technology I & II", pre-conference workshop, Intertech-pira Organic Photovoltaics 2008, Philadelphia, April 2008.

60. "Methods in Chemistry Seminar", Speaker and panelist for a student organized seminar and discussion on becoming a professor, University of Colorado Boulder, February 2008.

61. "Solution Processable Organic Photovoltaics I & II", NSF-INT Molecular Solar Energy Workshop, Estes Park, CO, September 2007.

62. "Molecular Design and Device Physics of Organic Solar Cells", Dept. of Chemistry and Biochemistry, University of Northern Colorado, February 2007.

63. "Solution Processable Organic Photovoltaics: The Plastic Solar Cell", Dept. of Physics, Colorado School of Mines, November 2006.

64. "Solution Processable Organic Photovoltaics", Dept. of Physics, Case Western Reserve University, October 2006.

65. "Nanostructured Solution-Processable Organic Photovoltaics", University of Minnesota Dept. of Chemical Engineering and Material Science IPrime Annual Meeting, May 2006.

66. "Nanostructured Organic Photovoltaics", 1st Nanoscience and Applications Conference, NIST Boulder, October 2005.

67. "Organic and Nanostructured Photovoltaics - from Molecules to Devices", University of Michigan Dept. of Materials Science and Engineering Colloquium, November 2005.

68. "Solution Processable Organic and Organic-Inorganic Nanocomposite Photovoltaics", Minisymposium on Organic and Inorganic Photovoltaic Technologies, University of Minnesota Materials Research Science and Engineering Center, January 2005.

69. "Organic Solar Cells, Dept. of Energy Workshop on Fundamental Research Needs in Organic Electronic Materials", Salt Lake City, May 2003.

70. "Organic Solar Cells from Nanostructured Donor – Acceptor Heterojunctions", Materials Science and Engineering Dept. Colloquium, Stanford University, April 2003.

71. "Conjugated Polymer: Fullerene Bulk Heterojunction Photovoltaic Devices", Air Force Research Labs Workshop on Polymer and Organic-Based Photovoltaics, Wright-Patterson Air Force Base, Ohio, June 2001.

72. "Conjugated Polymer: Fullerene Bulk Heterojunction Photovoltaic Devices", Physics Department Colloquium, Ludwig-Maximilians-Universität, Munich, Germany, March 2001.

### 3j. Conference Proceedings

1. T. Kaarsberg, et al., "Energy Efficiency Scaling for 2 Decades (EES2) Roadmap for Computing", 2024 IEEE High Performance Extreme Computing, September 2024. https://doi.org/10.1109/HPEC62836.2024.10938468

2. L. A. Hurley, D. Ghoshal, J. van de Lagemaat, S. E. Shaheen, "Comparing Exciton-Polariton Couplings in Two-Dimensional MoS2 Cavities" SPIE Proceedings Volume 13110, Active Photonic Platforms (APP) 2024; 1311005 (2024). https://doi.org/10.1117/12.3028284

3. A. H. Alfaifi, S. P. Dunfield, A. E. Hasse, B. W. Larson, M. O. Reese, J. J. Berry, M. van Hest, N. Alhosiny, D. Balzar, and S. E. Shaheen "Investigating the effect of lamination on FAMACs: toward a new phase space of perovskite solar cell fabrication", *Proc. SPIE 11094, Organic, Hybrid, and Perovskite Photovoltaics XX*, 1109420 (10 October 2019); https://doi.org/10.1117/12.2529904

4. B. Dou, D. T. Moore, J. B. Whitaker, S. E. Shaheen, F. S. Barnes, K. Zhu, M. F. A. M van Hest, "One-Step High-Throughput Blade Coating of Perovskite Solar Cells", *2018 IEEE 7th World Conference on Photovoltaic Energy Conversion (WCPEC)*, June 2018. (Finalist for Best Graduate Student Paper.) https://doi.org/10.1109/PVSC.2018.8547498

5. J. T. Friedlein, G. G. Malliaras, S. E. Shaheen, R. R. McLeod, "A Better Understanding of Organic Electrochemical Transistors for Biosensing Applications", *Proc. SPIE* 9568, *Organic Field-Effect Transistors XIV; and Organic Sensors and Bioelectronics VIII, 95681H*, October 5, 2015. https://doi.org/10.1117/12.2190417

6. Shelby D. Vorndran, Silvana Ayala, Yuechen Wu, Juan M. Russo, Raymond K. Kostuk, Jacob Friedlein, Sean E. Shaheen, "Holographic Spectral Beamsplitting for Increased Organic Photovoltaic Conversion Efficiency", *Proc. SPIE 9184, Organic Photovoltaics XV*, 918423, October 6, 2014. https://doi.org/10.1117/12.2061773

7. Jacob T. Friedlein, Sean E. Shaheen, Robert R. McLeod, "Optical Method for Making Spatially and Temporally Resolved Measurements of the Hole Concentration in Organic Electrochemical Transistors", *Proc. SPIE 9185, Organic Field-Effect Transistors XIII; and Organic Semiconductors in Sensors and Bioelectronics VII*, 91851X, October 7, 2014. https://doi.org/10.1117/12.2063564

8. David P. Ostrowski, Unsal Koldemir, Ryan Anderson, Alan Sellinger, Sean E. Shaheen, "High Open Circuit Voltage Organic Photovoltaics: Minimizing Energetic Loss with a High Band Gap Donor Polymer and a Small-Molecule Acceptor", *Proceedings of the 40th IEEE Photovoltaic Specialists Conference*, 1-3, 2014. https://doi.org/10.1109/PVSC.2014.6925265

9. Alexandre M. Nardes, Craig L. Perkins, Peter Graf, Jian V. Li, Sean E. Shaheen, David Ostrowski, Andrew Watt, Dana C. Olson, and Nikos Kopidakis, "Thermal Annealing Affects Vertical Morphology, Doping and Defect Density in BHJ OPV Devices", *Proceedings of the 40th IEEE Photovoltaic Specialists Conference*, 2575-2580, (2014). https://doi.org/10.1109/PVSC.2014.6925457

10. Michael Gordon, Deming Zhang, Shelby Vorndran, Juan M. Russo, Christine K. Luscombe, Sean E. Shaheen, Raymond K. Kostuk "Planar holographic spectrum-splitting PV module design", *Proc. SPIE 8468, High and Low Concentrator Systems for Solar Electric Applications VII*, 846808 (2012). https://doi.org/10.1117/12.929387

11. R. A. Nawrocki, S. E. Shaheen, R. M. Voyles, "A Neuromorphic Architecture from Single Transistor Neurons with Organic Bistable Devices for Weights", *2011 International Joint Conference on Neural Networks (IJCNN)*, IEEE Conference Publications, 450-456, (2011). https://doi.org/10.1109/IJCNN.2011.6033256

12. R. A. Nawrocki, X. Yang, S. E. Shaheen, R. M. Voyles, "Structured Computational Polymers for a Soft Robot: Actuation and Cognition", *2011 IEEE Conference on Robots and Automation (ICRA)*, 5115 - 5122, (2011). https://doi.org/10.1109/ICRA.2011.5980122

13. R. A. Nawrocki, R. M. Voyles, S. E. Shaheen, "Structured Computational Polymers for Safety, Security, and Rescue Robotics", *2011 IEEE International Symposium on Safety, Security, and Rescue Robotics (SSRR)*, 68-71 (2011). https://doi.org/10.1109/SSRR.2011.6106800

14. A. K. Sigdel, P. F. Ndione, Y. Ke, N. E. Widjonarko, J. D. Perkins, M. F.A.M. van Hest, S. E. Shaheen, T. Gennett, D. S. Ginley, J. J. Berry, "Superimposed RF/DC magnetron sputtering of transparent Ga:ZnO with high conductivity for photovoltaic contacts applications", *2010 35th IEEE Photovoltaic Specialists Conference*, June 2010. https://doi.org/10.1109/PVSC.2010.5616854

15. R. A. Nawrocki, R. M. Voyles, S. E. Shaheen, "Simulating Hardware Neural Networks with Organic Memristors and Organic Field Effect Transistors", *Proceedings of the Artificial Neural Networks in Engineering Conference (ANNIE) 2010, Intelligent Engineering Systems through Artificial Neural Networks*, Volume 20 (2010). https://doi.org/10.1115/1.859599.paper59

16. R. A. Nawrocki, , S. E. Shaheen, X. Yang, R. M. Voyles, "Towards an All-Polymer Robot for Search and Rescue", *2009 IEEE International Workshop on Safety, Security & Rescue Robotics (SSRR)*, 1-4 (2009). https://doi.org/10.1109/SSRR.2009.5424154

17. S. E. Shaheen, "Mechanisms of Operation and Degradation in Solution-Processable Organic Photovoltaics", *2007 IEEE International Reliability Physics Symposium Proceedings. 45th Annual*, April 2007. https://doi.org/10.1109/RELPHY.2007.369900

18. M. O. Reese, A. J. Morfa, M. S. White, N. Kopidakis, S. E. Shaheen, G. Rumbles, D. S. Ginley, "Short-Term Metal/Organic Interface Stability Investigations of Organic Photovoltaic Devices", *33rd IEEE Photovoltaic Specialists Conference*, 1-3, 2008. https://doi.org/10.1109/PVSC.2008.4922720

19. J. van de Lagemaat, T. Barnes, G. Rumbles, T. J. Coutts, S. E. Shaheen, C. Weeks, P. Glatkowski, I. Levitsky, J. Peltola, "Efficient Organic Excitonic Solar Cells with Carbon Nanotubes Replacing In2O3: Sn as the Transparent Electrode", *IEEE 4th World Conference on Photovoltaic Energy Conference* 1, 183-185, 2006. https://doi.org/10.1109/WCPEC.2006.279412

20. D.C. Olson, A. Miedaner, C. Curtis, G. Rumbles, R. T. Collins, B. A. Gregg, D. S. Ginley, S. E. Shaheen, "Conjugated Polymer/Nanostructured Oxide Semiconductor Composite Photovoltaic Devices", *Conference Record of the Thirty-first IEEE Photovoltaic Specialists Conference, 2005*. https://doi.org/10.1109/PVSC.2005.1488071

21. T. Kaydanova, M. F. A. M. van Hest, A. Miedaner, C. J. Curtis, J. L. Alleman, M. S. Dabney, E. Garnett, S. Shaheen, L. Smith, R. Collins, J. I. Hanoka, A. M. Gabor, D. S. Ginley, "Direct write contacts for solar cell", *Conference Record of the Thirty-first IEEE Photovoltaic Specialists Conference, 2005*. https://doi.org/10.1109/PVSC.2005.1488380

22. S. E. Shaheen, D. C. Olson, M. S. White, B. A. Gregg, G. Rumbles, D. S. Ginley, R. T. Collins, "Morphological Changes of Conjugated Polymers in Nanostructured Environments", Proceedings - Electrochemical Society (Vol. PV 2004-22, pp. 443-449), 2006. https://books.google.com/books?id=hE6FhXn-Q6sC

23. O. M. Osiele, D. T. Britton, M. Harting, P. Sperr, M. Topic, S. E. Shaheen, and H. M. Branz, "Positron Annihilation Characteristics of Polymer Films for Photovoltaic Applications," *Proceedings of the International Conference on Positron Annihilation 13*, 445-6, 337-339, (2004). http://dx.doi.org/10.4028/www.scientific.net/MSF.445-446.337

24. W. Geens, S. E. Shaheen, C. J. Brabec, J. Poortmans, N. S. Sariciftci, "Field-Effect mobility measurements of conjugated polymer/fullerene photovoltaic blends", *AIP Conference Proceedings* 544 (1), 516-520 (2000). https://doi.org/10.1063/1.1342566

**3k. Select Conference Presentations Without Proceedings (since 2013)**

1. J. Nishida, P. T. S. Chang, J. Ye, P. Sharma, S. E. Shaheen, M. B. Raschke, "Ultrafast Heterodyne Infrared Nano-Imaging of Polaron Dynamics in Lead Halide Perovskites", Conference on Lasers and Electro-Optics (CLEO: QELS_Fundamental Science, 2021 - ): OSA, 2021.
2. V. Zhelyaskova, P. Sharma, D. S. Dessau, S. E. Shaheen, "Improving Crystallite Size and Orientation in Organic Semiconductor Thin Films using PDMS-Assisted Crystallization", APS March Meeting (Virtual), Polymer Physics (DPOLY) – 01.13.00 surfaces, interfaces, thin films, and coating, Denver, March 2020. https://virtualmarchmeeting.com/presentations/improving-crystallite-size-and-orientation-in-organic-semiconductor-thin-films-using-pdms-assisted-crystallization
3. J. Nishida, S. C. Johnson, S. A. Doenges, A. H. Afaifi, S. Shaheen, M. B. Raschke, "Ultrafast infrared nano-spectroscopic imaging of heterogeneous photoinduced dynamical processes", American Physical Society March Meeting, Denver, 2020 (Cancelled).
4. G. Diederich, A. Halaoui, A. Alfaifi, S. Shaheen, M. Siemens, "Investigation of Spectral Diffusion due to Static and Dynamic Disorder in Perovskite Thin Films", American Physical Society March Meeting, Denver, 2020 (Cancelled).
5. C. W. Sharp, I. F. Vasconcelos, A. Sellinger, S. E. Shaheen, "Inhibited photoluminescence quenching in a silicon phthalocyanine derivative via reduced self-aggregation", Brazilian Materials Research Society Meeting XVII, Natal, September, 2018.
6. D. Weingarten, "Singlet-Based Cooperative Energy Pooling for Photon Upconversion", Telluride Workshop Solar Solutions to Energy and Environmental Problems Aug. 3-7, 2015.
7. S. Shaheen, "*The Prospects of Using Spectrum Splitting as a Feasible Route to Exceeding the Shockley Queisser Limit*", Telluride Workshop Solar Solutions to Energy and Environmental Problems Aug. 3-7, 2015.
8. D. Weingarten, M. LaCount, G. Rumbles, J. van de Lagemaat, M. T. Lusk, S. E. Shaheen, "Photon Upconversion in Multichromophore Organic Thin Films", SPIE Optics + Photonics, San Diego, 2015.
9. D. Weingarten, M. LaCount, N. Hu, A. J. Ferguson, D. S. Dessau, D. M. Walba, J. van de Lagemaat, M. T. Lusk, G. Rumbles, S. E. Shaheen, "Measuring and Modeling Exciton Dynamics in Multichromophore Macromolecules", American Physical Society March Meeting, Denver, 2014.
10. A. Dixon, N. Kopidakis, S. Shaheen, "The Effect of Molecular Weight on Charge Transport Properties in P3HT", American Physical Society March Meeting, Denver, 2014.
11. D. P. Ostrowski, U. Koldemir, A. Sellinger, S. E. Shaheen, "Small Molecule Acceptors for Organic Photovoltaics", American Physical Society March Meeting, Denver, 2014.
12. J. Friedlein, R. McLeod, S. Shaheen, "Stability and performance of organic electrochemical transistors made from PEDOT:PSS", Materials Research Society Spring Meeting, San Francisco, 2014.
13. S. E. Shaheen, D. H. Weingarten, M. LaCount, N. Hu, A. J. Ferguson, D. S. Dessau, D. M. Walba, J. van de Lagemaat, M. T. Lusk, Garry Rumbles, "Understanding Exciton Dynamics

in Multi-chromophore Macromolecules", Materials Research Society Spring Meeting, San Francisco, 2014.

14. D. P. Ostrowski, U. Koldemir, A. Sellinger, S. E. Shaheen, "Low Band Gap Small Molecular Acceptors for Organic Photovoltaics", Materials Research Society Spring Meeting, San Francisco, 2014.
15. S. E. Shaheen, M. T. Lusk, D. H. Weingarten, M. LaCount, J. van de Lagemaat, G. Rumbles, "Energy Pooling Using Molecular Chromophores as a Route to Increased Solar Energy Conversion", Research Corporation Scialog Meeting, Tucson, October 2014.
16. S. Pradhan, D. P. Ostrowski, S. E. Shaheen, "Studying Recombination Dynamics of High Efficiency Inverted Bulk Heterojunction OPVs with Transient Photovoltage Measurements", Telluride Science Research Center workshop on Excitonic Photovoltaics (XPV) 2014, Telluride, August.
17. M. LaCount, S. E. Shaheen, G. Rumbles, J. van de Lagemaat, "Computational Analyis of Energy Pooling to Harvest Low-Energy Solar Energy in Organic Photovoltaic Devices", Telluride Science Research Center workshop on Excitonic Photovoltaics (XPV) 2014, Telluride, August.
18. J. Friedlein, R. McLeod, S. Shaheen, "Investigation of the cycling stability of an ionically-gated organic thin-film transistor", APS 4 Corners Section Meeting, University of Denver, October 2013.
19. A. Dixon, N. Kopidakis, S. Shaheen, "The Effect of Morphology on Charge Transport Properties in OPVs", APS 4 Corners Section Meeting, University of Denver, October 2013.
20. D. P. Ostrowski, U. Koldemir, A. Sellinger, S. E. Shaheen, "Low Band Gap Small Molecule Acceptors for Organic Photovoltaics", APS 4 Corners Section Meeting, University of Denver, October 2013.
21. A. Nava, L. Laurens, N. Sweeney, S. Shaheen, "Weakening the Cell Elasticity of Chlorella Vulgaris under Nitrate Starvation", APS 4 Corners Section Meeting, University of Denver, October 2013.
22. M. LaCount, S. Shaheen, G. Rumbles, J. van de Lagemaat, N. Hu, D. Ostrowski, M. Lusk, "Computational Analysis of Energy Pooling to Harvest Low-Energy Solar Energy in Organic Photovoltaic Devices", APS 4 Corners Section Meeting, University of Denver, October 2013.
23. X. Jiang, A. Nardes, A. Dixon, N. Kopidakis, "Mott-Schottky Analysis of Normal and Inverted Organic Photovoltaic Devices", APS 4 Corners Section Meeting, University of Denver, October 2013.
24. S. E. Shaheen, C. K. Kuscombe, R. K. Kostuk, "Organic PV – Holographic Spectrum Splitting Systems", Research Corporation Scialog Meeting, Tucson, October 2013.
25. S. E. Shaheen, A. Sellinger, M. Chabinyc "Non-Fullerene Acceptors", Research Corporation Scialog Meeting, Tucson, October 2013.

### 3l. Career Development Workshops and Summer Schools Attended

| | |
|---|---|
| 2021-22 | Excellence in Leadership Program, CU Boulder |
| 2009 | Aspen Center for Physics "Bacteria Meets Physics" workshop |
| 2008 | American Association of Physics Teachers New Faculty Workshop |
| 1999 | Summer School on Complex Systems, Santa Fe Institute for Complex Systems |

## 4. TEACHING, MENTORING, AND ADVISING

### 4a. Classes Taught at the University of Colorado Boulder, 2013 - present

| | |
|---|---|
| 2026, Spring | PHYS 4710 / ECEN 4000 Quantum Forge II |
| 2025, Fall | PHYS 4700 / ECEN 4000 Quantum Forge I |
| | ECEN 4002 Semiconductor Device Laboratory |
| 2025, Spring | ECEN 4001/5001 Neuromorphic and Unconventional Computing |
| | ECEN 3400 Electromagnetic Fields & Waves |
| 2024, Fall | ECEN 4915/5915 Foundations of Quantum Engineering |
| 2024, Spring | ECEN 4395/5395 Organic Electronic Materials and Devices |
| 2023, Fall | ECEN 2450 Electronic and Semiconductor Device Laboratory |
| 2023, Spring | ECEN 5005 Graduate Laboratory |
| 2022, Fall | ECEN 2450 Electronic and Semiconductor Device Laboratory |
| | ECEN 4915 / 5915 Foundations of Quantum Engineering |
| 2021, Fall | ECEN 2060 Electronic and Semiconductor Device Laboratory |
| | ECEN 5100 Graduate Seminar and Professional Development |
| 2021, Spring | ECEN 4005/5005 Organic Electronic Materials and Devices |
| 2021, Spring | Faculty consultant for PHYS 4810 Research Seminar |
| 2020, Fall | ECEN 2060 Electronic and Semiconductor Device Laboratory |
| 2020, Fall | Faculty consultant for PHYS 4810 Research Seminar |
| 2019, Fall | ECEN 2060: Special Topic: Electronic and Semiconductor Device Laboratory |
| 2019, Spring | ECEN 4005/5005: Special Topic: Organic Electronics |
| | ECEN 2250: Introduction to Circuits and Electronics |
| 2018, Fall | ECEN 1500: Sustainable Energy (Unofficially co-taught with Prof. A. Mickelson) |
| 2018, Spring | ECEN 3400: Electromagnetic Fields & Waves |
| 2017, Fall | ECEN 2250: Introduction to Circuits and Electronics |
| 2017, Spring | ECEN 4005/5005: Special Topics: Photovoltaic Devices |
| 2016, Fall | ECEN 1500: Sustainable Energy |
| 2016, Spring | ECEN 3400: Electromagnetic Fields & Waves |
| 2015, Fall | ECEN 4005: Special Topic: Photovoltaic Devices |
| 2015, Spring | ECEN 6005: Special Topic: Solar Energy Conversion |
| 2014, Fall | ECEN 5008: Special Topic: Complexity and Dynamical Systems |
| 2014, Spring | ECEN 5005: Special Topic: Organic Electronic Devices |

### 4b. Classes Taught at the University of Denver, 2007 - 2013

| | |
|---|---|
| 2013, Spring | PHYS 2252 Modern Physics II |

| | |
|---|---|
| | PHYS 4003: Introduction to Research III |
| 2013, Winter | PHYS 3700, Special Topic: Complex Systems and the Science of Sustainability |
| 2012, Fall | PHYS 1213 University Physics III |
| 2012, Spring | PHYS 2252: Modern Physics II |
| 2012, Winter | PHYS 1112: General Physics II |
| 2011, Fall | FSEM 1111: First Year Seminar: Complexity and Cooperation in Science and Society |
| | PHYS 4001: Introduction to Research I |
| 2011, Spring | PHYS 1212: University Physics II |
| 2011, Winter | PHYS 4112: Graduate Quantum Mechanics II |
| 2010, Fall | PHYS 4111: Graduate Quantum Mechanics I |
| | BIOP 4100: Graduate Biophysics I (team taught with K. Gosh and D. Loerke) |
| 2010, Spring | PHYS 1212: University Physics II |
| 2010, Winter | PHYS 4112: Graduate Quantum Mechanics II |
| 2009, Fall | PHYS 4111: Graduate Quantum Mechanics I |
| 2009, Spring | PHYS 4811: Graduate Statistical Mechanics |
| 2009, Winter | PHYS 4112: Graduate Quantum Mechanics II |
| 2008, Fall | PHYS 4111: Graduate Quantum Mechanics I |
| 2008, Spring | PHYS 4811: Graduate Statistical Mechanics |
| 2008, Winter | PHYS 4112: Graduate Quantum Mechanics II |
| 2007, Fall | PHYS 1111: General Physics I |

**4c. Postdoctoral Research Associates Mentored**

**Current (0)**

**Past (4)**

- Prachi Sharma – Ph.D. Electrical Engineering 2018, Rensselaer Polytechnic Institute. Currently at the Colorado School of Mines
- David Ostrowski – Ph.D. Physical Chemistry 2012, UT Austin. Currently at NREL.
- Alexandre Nardes – Ph.D. Applied Physics 2007, TU Eindhoven. Currently at ArcScan, Inc.
- William Mitchell – Ph.D. Chemistry 2000, U. Oxford. Currently at Merck.

**4d. Graduate Students Mentored**

**Ph.D. students, current (3)**

- Spencer Hall – Ph.D. student Physics, CU Boulder
- Lauren Harley – Ph.D. student Electrical Engineering, CU Boulder
- Jessica McDivitt – Ph.D. student Materials Science & Engineering, CU Boulder

**Ph.D. students, past (16)**

- Michelle Pirrone – (Titular) Ph.D. student Electrical Engineering, CU Boulder. Advised by Dr. Adam Wunderlich (NIST)
- Vesta Zhelyaskova – Ph.D. Electrical Engineering 2023, CU Boulder
- Sean Dunfield – Ph.D. Materials Science & Engineering 2021 (Co-advised with Dr. Joseph Berry, NREL), CU Boulder.
- Nina Popovic Schlomann – Ph.D. Electrical Engineering 2020, CU Boulder
- Joshua Brown – Ph.D. Electrical Engineering 2019, CU Boulder
- Eric Carlson – Ph.D. Chemistry 2019, CU Boulder (Co-advised with Prof. David Walba)
- Benjia Dou – Ph.D. Electrical Engineering 2018, CU Boulder (Co-advised with Dr. Maikel van Hest, NREL)
- Daniel Weingarten – Ph.D. Physics 2017, CU Boulder
- Alexander Dixon – Ph.D. Physics 2016, University of Denver
- Robert Nawrocki – Ph.D. Electrical Engineering 2014, University of Denver
- Xin Jiang – Ph.D. Physics 2013; now at Cadence Design Systems, Inc.
- Stephen Ray – Ph.D. Physics 2013; now faculty at Texas State University
- Ajaya Sigdel – Ph.D. Physics 2013; now at Intel Corporation
- Brian Bailey – Ph.D. Physics 2012; now at Intel Corporation
- Matthew White – Ph.D. Physics 2009, CU Boulder. (Co-advised with Dr. David Ginley and Prof. Charles Rogers.)
- Dana Olson – Ph.D. Materials Science 2006, Colorado School of Mines. (Co-advised by Dr. David Ginley and Prof. Reuben Collins).

**4d.1. Table of Ph.D. Student Outcomes**

| Student | Degree | Current position |
|---|---|---|
| **Vesta Zhelyaskova** | Ph.D. ECEE, 2023 | Materials Engineer, U.S. Bureau of Reclamation https://www.linkedin.com/in/vestavz |
| **Sean Dunfield** | Ph.D. MSE, 2021 | Tandem PV, https://www.f6s.com/member/sean-dunfield |
| **Nina Popovic Schlomann** | Ph.D. ECEE, 2020 | Senior Research Engineer at HRL Laboratories, LLC https://www.linkedin.com/in/nina-popovic-schlomann-09581a43 |
| **Joshua Brown** | Ph.D. EE, 2019 | Software Engineer at Oak Ridge National Laboratory, https://www.ornl.gov/staff-profile/joshua-s-brown |
| **Eric Carlson** | Ph.D. Chemistry, 2019 | Philips, https://www.linkedin.com/in/carlsone |
| **Benjia Dou** | Ph.D. EE, 2018 | Director of R&D, CubicPV, https://www.linkedin.com/in/dak-benjia-dou-3093687b |
| **Daniel Weingarten** | Ph.D. Physics, 2017 | Optiwatt |
| **Alexander Dixon** | Ph.D. Physics, 2016 (Univ. Denver) | Lab Manager at the Colorado School of Mines, https://www.mines.edu/shared-facilities/alex-dixon/ |
| **Robert Nawrocki** | Ph.D. EE, 2014 (Univ. Denver) | Assistant Professor, Polytechnic Institute, Purdue University, https://polytechnic.purdue.edu/profile/rnawroc |
| **Xin Jiang** | Ph.D. Physics, 2013 (Univ. Denver) | Cruise, https://www.linkedin.com/in/xin-jiang-54a47245 |

| | | |
|---|---|---|
| **Stephen Ray** | Ph.D. Physics, 2013 (Univ. Denver) | Assoc Professor of Instruction — Physics, Texas State University, https://faculty.txstate.edu/profile/2102021 |
| **Ajaya Sigdel** | Ph.D. Physics, 2013 (Univ. Denver) | LTD Process Engineer, Intel Corporation https://www.linkedin.com/in/ajaya-sigdel-27100a1b |
| **Brian Bailey** | Ph.D. Physics, 2012 (Univ. Denver) | Engineering Group Lead, Intel Corporation, https://www.linkedin.com/in/brian-bailey-4b853213 |
| **Matthew White** | Ph.D. Physics 2009, (CU Boulder) | Associate Professor of Physics at the University of Vermont. https://www.uvm.edu/cas/physics/profiles/matthew-white |
| **Dana Olson** | Ph.D. Materials Science, 2006 (Colorado School of Mines) | Global Solar Segment Leader at DNV GL. https://www.dnvgl.com/energy/experts/dana-olson.html |

**M.S. student theses mentored, past (4)**

- Jacob Perez – M.S. in Electrical Engineering 2020, CU Boulder
- Gregory Pach – M.S. Electrical Engineering, CU Boulder
- Antonio Nava, Jr. – M.S. Physics 2012, University of Denver
- Rezwan Ramunur – M.S. Physics 2007, University of Denver

**Research associates, past (1)**

- Michael Stark – B.S. in Physics 2021, CU Boulder

**4e. Undergraduate Researchers and Senior Thesis/Capstone Projects Mentored**

**Current (1)**

- Leon Weigert – B.S. student in Electrical Engineering, CU Boulder

**Past (14)**

- Robert Winter – B.S. student in Physics, CU Boulder
- Dawson Hewatt – B.S. student in Physics, University of Denver
- Spencer Hall – B.S. student in Physics, CU Boulder
- Michael Stark – B.S. student in Physics, CU Boulder
- Jiselle Ye – B.S. student in Electrical Engineering, CU Boulder, now at the Colorado School of Mines
- Jacob Jeffries, Jacob Perez, Keifer Bowen, Christopher Bishop, Connor Troy – ECEE Senior Design (Capstone) Project Team Spring 2019
- Cody Sharp – B.S. Physics 2018, CU Boulder. Now at TandemPV.
- Taylor Camp – B.S. Environmental Sciences 2018, CU Boulder (Co-advisee for Senior Thesis)
- Carlo Scanelli – B.S. Electrical Engineering 2017, CU Boulder
- Soo Rin Park – B.S. Electrical Engineering 2016, CU Boulder. Now Platform Software Engineer Willow Tree.
- Victor Palacios – B.S. Electrical Engineering 2016, CU Boulder

- Matthew Watwood – B.S. Physics 2014, University of Denver. Now Ph.D. student Applied Mathematics, CU Boulder. https://www.colorado.edu/amath/matthew-watwood
- Andrew Watt – B.S. Physics 2014, University of Denver. Now Senior Manager of Data Operational Analytics at Label Insight, Inc.
- Kari Storslett – B.S. Physics 2012, University of Denver. Subsequent Ph.D. Chemical Engineering, University of California Berkeley. Now Product Development Scientist at Clorox Company.
- Donald Dressen – B.S. Physics 2008, University of Denver. Subsequent Ph.D. Biophysics/Applied Physics, Harvard University 2015. Now Senior Data Scientist at Nike.

**4f. Summer Interns Mentored**

- Miller Vu – REU student, Summer 2022, B.S. student in Physics, Emory University
- Dawson Hewatt – B.S. student in Physics, University of Denver
- Lauren Hurley – REU student, Summer 2020, B.S. student in Physics, Villanova University (virtual due to COVID-19)
- Gabrielle Koknat – REU student, Summer 2018, B.S. student in Physics, University of Cincinnati. Now at Ph.D. student in Mechanical Engineering & Materials Science, Duke University, group of Prof. David Mitzi.
- Robert Enright – REU student, Summer 2016, B.S. student in Chemistry, Ripon College. Now Ph.D. student Polymer Science and Engineering and NSF Graduate Research Fellowship recipient at the University of Massachusetts Amherst.
- Samantha Collin – REU student, summer 2016, B.S. student in Physics, Rollins College. Now Technical Coordinator at Epic, Inc.
- Ilan Rosen – REU student, Summer 2014, B.S. student in Physics, University of California Santa Barbara. Now a Ph.D. student in Physics, Stanford University, group of Pr`of. David Goldhaber-Gorden.
- Talia Gershon – NREL SULI program 2007, B.S. Physics, MIT. Now at Director, Research Strategy & Growth Initiatives, IBM Research.
- Bryan Boudouris – NREL graduate intern 2006. Now Associate Prof. Chemistry, Purdue University.
- Derek Stevens – NREL graduate intern 2006
- Jennifer Wang – NREL SULI program 2006
- Kamalu Koenig - NREL SULI program 2006. Now Senior Engineer Structural Integrity Associates.
- Jodie Fahey – NREL SULI program 2006. Now Associate Professor of Chemistry, Mount Saint Mary College.
- Karen Harrell – NREL Laboratory Science Teacher Development Program 2004
- Bonnie McLaughlin – NREL Laboratory Science Teacher Development Program 2004
- Samuel Wilson – NREL SULI program 2003

**4g. International Scholar and Students Hosted**

- Rachithe S. N. Kumar, Ph.D. student, University of Hasselt, Fall 2022 – Spring 2023.
- Prof. Igor Vasconcelos, Associate Professor, Federal University of Ceará, 2018
- Egon Pavlica, Assistant Professor, Laboratory of Organic Matter Physics, University of Nova Gorica, Slovenia, 2018.

- Kusum Kumari, Assistant Professor, Department of Physics, National Institute of Technology, Warangal, India, 2017.
- Aniket Rana, graduate student from National Physical Laboratory New Delhi, India, 2016.
- Philipp Köder, graduate student from the University of Erlangen-Nuremberg, 2015-16.
- Santanu Pradhan, graduate student from IIT Kharagpur, 2014.
- Jonas Boé, graduate student from the University of Erlangen-Nuremberg, 2014.
- Niels van der Kaap, graduate student from the University of Groningen, 2012.
- Gerhard Sauer, undergraduate student from the University of Erlangen-Nuremberg, 2011.
- Elsa Couderc, graduate student from CNRS, Grenoble, France, 2011.
- Wolfgang Tress, graduate student from the Technical University of Dresden, Germany, 2010.
- Nils Kronenberg, graduate student from the University of Cologne, Germany, 2010.

## 5. PROFESSIONAL SERVICE – EXTERNAL

### 5a. Editor-in-Chief, SPIE Journal of Photonics for Energy

2020 - In this role I oversee all aspects of the *Journal of Photonics for Energy* content, review process, and editorial board membership and activities. Key goals are to expand the scope of the journal to new, emerging areas in renewable energy and beyond as well as to improve the impact of the journal through new media and outreach efforts.

### 5b. Outreach and Diversity Enhancement Activities

2020 Attended (virtually) the 2020 NSBE National Leadership Conference (NLC), for outreach and recruiting.

2018 - Principal Investigator to the Authentic Research Experiences for Teachers (ARETe), a 3-year, $600 K project funded by the NSF Research Experiences for Teachers (RET) program. ARETe will bring up to 30 Community College faculty from the Colorado Front Range region to CU Boulder to perform research during the summer. Based on their experiences, the teachers will then develop curricular materials that they will take back to their home institutions as part of a "train the trainer" model to greatly expand the broader impact of the program. The program website is here: https://www.colorado.edu/project/arete/

### 5c. Conferences, Workshops, and Summer Schools Organized

2022 Program committee member for the IEEE Photonics Conference, topical session on *Photonics for Climate Change Mitigation and Adaptation*, November 2022, Vancouver.

Co-organizer for the 2nd Workshop on Organic Neuromorphic Devices (October 2022, Crete, Greece), along with Paschalis Gkoupidenis (MPI Mainz), Emil List-Kratochvil (Humboldt University), and Yoeri van der Bergt (TU Eindhoven). Following the 1st workshop (June 2019, Ferrara, Italy), https://sites.google.com/view/neuromorphic-workshop-ferrara/

2019 Scientific Advisory Committee member for the 12th International Summit on Organic and Hybrid Photovoltaics Stability (ISOS-12), Karlsruhe Institute of Technology, October 2019. http://www.isos12.kit.edu/index.php

29th International Conference on Photochemistry (ICP 2019), session organizer for Device-Inspired Photochemistry and Photophysics (#DEVInsp). https://www.colorado.edu/conference/icp2019/

2007 - 19 Program committee member and/or session chair for SPIE Optics + Photonics conference on *Organic Photovoltaics* and *Organic and Hybrid Photovoltaics*

2010 - 18 Program committee member for SPIE Optics + Photonics conference on *Next Generation Technologies for Solar Energy Conversion*, San Diego

2015 Organizer for ICAM workshop on "Energy Transport Materials and Systems: Designing for Adaptive Character and Emergent Properties", University of Colorado Boulder, December. http://www.colorado.edu/rasei/2015/12/03/icam-energy-transport-workshop-boulder-2015

2014 Organizer for Telluride Science Research Center workshop on Excitonic Photovoltaics (XPV) 2014, Telluride, August

Organizer for the American Physical Society March Meeting in Denver, GERA Focus Topics on "Novel Photophysics and Transport Mechanisms for Nanostructured Photovoltaics", and on "Organic Electronic Systems for Solar Energy Conversion"

2013 Co-organizer along with Christoph Brabec (University Erlangen-Nürnberg) and moderator for a discussion panel on Emerging and Future Photovoltaic Technologies, SPIE Optics + Photonics, San Diego

Organizer for the American Physical Society March Meeting, GERA Focus Topic on "Novel Photophysics and Transport Mechanisms for Nanostructured Photovoltaics", Baltimore

2012 International Advisory Committee member for the International Organic Excitonic Solar Cells Conference 2012, Brisbane, Australia

Organizer for the RASEI / I-CAMP 2012 Summer School on Renewable and Sustainable Energy, along with Carl Koval, Garry Rumbles, Jao van de Lagemat, and Ivan Smalyukh, Boulder, which ran for nearly a month from July to August and host ~130 students from 36 different counties, Boulder, http://i-camp.colorado.edu/i-camp2012/

2011 Scientific Committee Chair for the European-MRS Spring 2011 meeting, Symposium S, Organic Photovoltaics Science and Technology (OPV), Nice, France

2010 Organizer for the 2010 workshop on Complex Interactions and Mechanisms in Organic Photovoltaics (CIMOPV), as part of the 2010 Inter-Continental Advanced Materials for Photonics (I-CAMP2010) Summer School, University of Sydney and University of Queensland, Australia

Symposium organizer for MRS Spring Meeting, Symposium HH: Organic Photovoltaic Science and Technology, San Francisco

2009 Organizer for the National Academy of Engineering 2009 German American Frontiers of Engineering Symposium in Berlin, Germany

2005 Symposium organizer for MRS Fall Meeting, Symposium D: Organic and Nanostructured Composite Photovoltaics and Solid-State Lighting, Boston

**5d. Short-Courses and Tutorials Taught**

1. "Novel PV Approaches – Organics, Third Generation, and Beyond", (with Andrew Ferguson and Joseph Luther, NREL), tutorial given at the 38th IEEE Photovoltaics Specialist Conference, Austin, June 2012.

2. "Organic Photovoltaics - Current Challenges and Opportunities", tutorial given at the Materials Research Society Fall Meeting, Boston, November 2011.

3. "The Science and Technology of Organic Photovoltaics", tutorial given at the 37th IEEE Photovoltaics Specialist Conference, Seattle, June 2011.

4. "Organic Photovoltaics", 1 week short-course at the Institute of Microelectronics, University of São Paulo, Brazil, June 2011.

5. "Organic Photovoltaics", 4-lecture workshop, Inter-Continental Advanced Materials for Photonics (I-CAMP) Summer School 2011, Montevideo, Uruguay, June 2011. http://icamconferences.org/i-camp2011/

6. "Introduction to OPV Materials, Mechanisms, and Devices", I-CAMP / CIMOPV 2010, Brisbane, Australia, July 2010. http://icamconferences.org/cimopv/

7. "The Science and Technology of Organic Photovoltaics", tutorial given at the 34th IEEE Photovoltaics Specialist Conference, Philadelphia, June 2009.

**5e. Other Synergistic Activities**

2022 - *present* Member of the DOE Advanced Materials and Manufacturing Technologies Office (AMMTO_, Semiconductor Industry Energy Efficiency Scaling (EES2) Roadmap Working Groups on *Materials & Devices* and *Circuits & Architectures*.

Workshops: https://ees2.slac.stanford.edu

Draft report: https://www.energy.gov/eere/ammto/articles/doe-seeks-input-dramatically-increase-energy-efficiency-semiconductor

2021 Panelist for the U.S. Dept. of Energy, AMO Virtual Workshop on Manufacturing and Integration Challenges for Analog and Neuromorphic Computing, August 2021. https://www.energy.gov/eere/amo/events/semiconductor-rd-workshop-3-analog-neuromorphic-computing

Guest lecture on "Technologies and Transitions in Photovoltaic Solar Energy", for a course on Sustainable Energy at the Josef Korbel School of International Studies, University of Denver, April 2021. Host: Prof. Frank Laird.

Provided input to the NSF-sponsored nanoHUB program, led by Purdue University and the San Diego Supercomputer Center, for their renewal. https://nanohub.org

2020 Participant in the Santa Fe Institute Roundtable on Emergent Engineering, https://www.santafe.edu/events/emergent-engineering-conversation-flack-mitchell

Member of NREL's Postdoc Academic Advisory Panel

Speaker at NREL's Workshop on Navigating the Academic/Faculty Application Process

2019 "Powered by the Sun: Turning Light into Electricity with Photovoltaic Cells", public lecture given for the CU Saturday Physics Series, January 2019.

https://www.colorado.edu/physics/events/outreach/saturday-physics-series/previous-saturday-physics-series-lectures

Participant in an IBM Research early-stage project on developing innovative tools for the materials science computing, in collaboration with members of the Emerging Technology Experiences team.

2016 "Tips and Tricks for the Academic Job Search Process", Postdoctoral Development Seminar given at NREL

2015 Member of the Fellowship Committee for the Institute for Complex Adaptive Matter (http://icam-i2cam.org), 2014-15

2014 Panelist for the Colorado School of Mines, Renewable Energy Materials Research Science and Engineering Center, panel discussion on "Life after Graduation: Exploring Career Options for Scientists and Engineers"

2012 Member of the Near Zero Expert Elicitation panel for a report on "How Low Will Photovoltaic Prices Go?", http://www.nearzero.org/reports/pv-learning

Participant and Scribe, NSF / ONR Workshop on "Key Scientific and Technological Issues for the Development of Next Generation Organic Solar Cells", Arlington

Facilitator for the American Institute of Physics Industrial Physics Forum 2012: "Capacity Building for Industrial Physics in Developing and Emerging Economies", ICTP Trieste, Italy

2011 Volume Organizer for the Materials Research Society Bulletin

Steering committee member for the NIST workshop on Grand Challenges for Advanced Photovoltaic Technologies and Measurements, Denver

Panelist for the NSF Third-Generation Solar Technologies Multidisciplinary Workshop, Boston

2010 Panelist for the NSF Hybrid Flexible Electronics and Photonics Workshop, panel on "Challenges for Printable Electronics and Photonics"

Discussion Leader for 2010 Gordon Research Conference on Electronic Processes in Organic Materials, Mount Holyoke College

Panel moderator for the SPIE conference panel on Commercialization of Emerging Photovoltaic Technologies (2008 (founding organizer of event) – 2010), San Diego

Reviewer for the World Renewable Energy Congress, Sweden

2009 Panelist for the NSF CMMI Workshop on Multifunctional Materials and Distributed Renewable Energy for Sustainable Infrastructure, Honolulu

Panelist for IntertechPira Organic Photovoltaics 2009, Philadelphia

2005 Panelist for the DOE workshop on Basic Research Needs for Effective Solar Energy Utilization

### 5f. Review Panels

#### 5f.1. Funding agency review panels, in-person and teleconference

2025 Panelist for the NRC Research Associateship Programs Fellowships, December 2025

Panelist for the ARL Distinguished Postdoctoral Fellowship program, August 2025

Panelist for the NREL LDRD Game Changer program, May 2025

Panelist for the NSF ECCS program, March 2025

2024 Panelist for the NRC Research Associateship Programs Fellowships, March, June, and December 2024

Panelist for the NSF EPMD program, October, 2024

Panelist for the NSF ECCS Future Manufacturing program, June, 2024

2023 Panelist for the NSF CREST PRP Program, November, 2023

Panelist for the NSF SBIR AA/AI program, September, 2023

Panelist for the DOE EFRC Management Review, March, 2023

Panelist for the NRC Research Associateship Programs Fellowships, March, 2023

2022 Panelist for the Civil Research Defense Foundation (CRDF) 2022 U.S.-Ukraine Alternative Energy Research Competition, April, 2022.

2021 Review Committee member for University of California 2022 UC Multicampus-National Laboratory Collaborative Research and Training Awards, October

NSF Panel reviewer for the Research Experiences for Undergraduates (REU) Program, November

Panelist for the Civil Research Defense Foundation (CRDF) 2021 U.S.-Ukraine Alternative Energy Research Competition, April, 2021.

2020 NSF Panel reviewer for the Electrical, Communications, and Cyber Systems CAREER Program, October

Panelist for the Civil Research Defense Foundation (CRDF) 2020 U.S.-Ukraine Alternative Energy Research Competition, May, 2020.

2019 Panel reviewer for the AAAS Research Competitiveness Program for Saudi Arabian Ministry of Education Research and Development Office (RDO) International Collaboration Grant proposals (Teleconference panel)

NSF Panel reviewer for the Research Experiences for Teachers (RET) program

2018 NSF panel reviewer for Electronic, Photonic, and Magnetic Materials (EPMD) CAREER Awards program

NSF panel reviewer for Solid State and Materials Chemistry program

NSF panel reviewer for Civil, Mechanical, and Manufacturing Innovation (CMMI) program

Panel reviewer for the AAAS Research Competitiveness Program review for the King Abdulaziz City for Science and Technology (KACST) (Teleconference panel)

2017 NSF panel reviewer for Electronic, Photonic, and Magnetic Materials (EPMD) program

2016 NSF panel reviewer for Electronic, Photonic, and Magnetic Materials (EPMD) program

Reviewer for the Colorado School of Mines Interdisciplinary Research Groups (IRG), NSF MRSEC

2015 NSF panel reviewer for Electronic, Photonic, and Magnetic Materials (EPMD) program

Reviewer for US-Brazil Consortium for Innovation on Nanotechnology, Energy and Materials (CINEMA)

2014 NSF panel reviewer for DMR Electronic and Photonic Materials (EPM) program

2013 AAAS Research Competitiveness Program review for the King Abdulaziz City for Science and Technology (KACST)

2012 NSF panel reviewer for Partnership for Research and Education in Materials (PREM) program

NSF panel reviewer for Electronic and Photonic Materials (EPM) program

2011 DOE panel reviewer for Solar Energy Technologies Program, Foundational Program to Advance Cell Efficiency (F-PACE)

NSF panel reviewer for DMR Centers of Excellence in Materials Research and Innovation program

NSF panel reviewer for PV and Related Technologies SBIR program

2010 DOE panel reviewer for Solar Energy Technologies Program, High Impact PV Supply Chain funding opportunity

DOE panel reviewer for Solar Energy Technologies Program, PV Incubator funding opportunity

NSF panel reviewer for Electronic and Photonic Materials 2011 CAREER awards

NSF panel reviewer for Photovoltaics and Energy Harvesting SBIR program

2007 Panelist for the DOE Ames Laboratory review

2006 DOE review panel for Scientific Discovery through Advanced Computing

2005 NSF panel reviewer for program on Nanoscale Science and Engineering Initiative

2004 NSF panel reviewer for program on ECCS Organic Electronics program

**5f.2. Mail-in reviews performed for funding agencies, foundations, and user facilities**

2023 Proposal review for the Gordon and Betty Moore Experimental Physics Investigators Initiative
Proposal review for the Knut and Alice Wallenberg Foundation, Sweden

2020 Proposal review for the University of Sharjah, United Arab Emirates, April

2018 U.S. Department of Energy, Energy Frontiers Research Center (EFRC) program

U.S. Department of Energy Early Career Award program

U.S. Department of Energy Basic Energy Sciences program

2016 Colorado School of Mines MRSEC program

2016 Chilean National Science and Technology Commission

2015 U.S. Department of Energy Basic Energy Sciences

2015 Research Corporation for Science Advancement

2013 Research Corporation for Science Advancement

2013 American Association for the Advancement of Science KACST program

2012 National Science Foundation Partners in Research and Education (PIRE) program

2012 National Science Foundation Materials World Network program

2012 U.S. Department of Energy Basic Energy Sciences

2011 - 12 Stanford Synchrotron Radiation Lightsource (SSRL)
2011 Iowa Office of Energy Independence
2011 U.S.-Israel Binational Science Foundation
2010 National Science Foundation Materials Research Centers and Teams program
2010 National Renewable Energy Laboratory
2010 Stanford Global Climate and Energy Project
2010 American Chemical Society Petroleum Research Fund
2009 U.S. Department of Energy Golden Field Office
2009 U.S. Department of Energy SBIR /STTR program
2009 National Renewable Energy Laboratory
2008 Science Foundation of Arizona
2008 National Renewable Energy Laboratory
2008 American Chemical Society Petroleum Research Fund
2007 National Science Foundation Office of International Science and Engineering (OISE) program
2006 Bank of America
2006 U.S. Department of Energy SBIR /STTR program
2005 University of California Energy Institute
2005 - 06 U.S. Department of Energy Basic Energy Sciences
2003 - 06 National Renewable Energy Laboratory
2004 U.S. Department of Energy SBIR /STTR program
2004 U.S. Department of Energy Solid State Lighting Technologies program
2003 Stanford Global Climate and Energy Project

**5g. Journal Article Editing and Reviewing**

2020 - Editor-in-Chief, SPIE *Journal of Photonics for Energy*, as of 7/1/20. https://www.spiedigitallibrary.org/journals/journal-of-photonics-for-energy

**Other Journals** (approximate total # reviews performed in parenthesis)

- *Accounts of Chemical Research (1)*
- *ACS Applied Materials and Interfaces (4)*
- *Advanced Energy Materials (2)*
- *Advanced Functional Materials (11)*
- *Advanced Materials (4)*
- *Applied Physics A (2)*
- *Applied Physics Letters (13)*
- *Chemistry of Materials (7)*
- *Energy & Environmental Science (2)*

- *Joule (2)*
- *Journal of Applied Physics (2)*
- *Journal of Materials Chemistry A & C (4)*
- *Journal of Materials Research (3)*
- *Journal of Photonics for Energy (~100 edited)*
- *Journal of Physical Chemistry (6)*
- *Journal of Physical Chemistry Letters (1)*
- *Journal of Physics D: Applied Physics (1)*
- *Journal of Polymer Science, Part B: Polymer Physics (1)*
- *Materials (1)*
- *Materials Science & Engineering B (1)*
- *Materials Today (1)*
- *Nature (1)*
- *Nature Communications (7)*
- *Nature Energy (1)*
- *Nature Flexible Electronics (2)*
- *Nature Photonics (1)*
- *Nature Scientific Reports (4)*
- *Organic Electronics (17)*
- *Organic Letters (1)*
- *Proceedings of the National Academy of Sciences (1)*
- *Science Advances (1)*
- *Science News (1)*
- *Solar RRL (1)*
- *Thin Solid Films (6)*

**5h. Reviews Performed for External Faculty Promotion and Tenure Reviews**

2019 National Center for Solar Energy Technology, King Abdulaziz City for Science and Technology (KACST)

2018 Dept. of Physics and Astronomy, Macquarie University

2011 Dept. of Chemical Engineering and Materials Science, University of California at Davis

2010 Dept. of Chemistry, Rochester Institute of Technology

**5i. External Ph.D. Dissertation Reviews & Committees**

2023 Rachith S. N., U. of Hasselt, Belgium

2017 Neeti Gupti, U. of New South Wales (write-in review)

2016 Lingeng Wu, U. of New South Wales (write-in review)

2011 Paul Schwenn, U. of Queensland, Centre for Organic Photonics & Electronics (write-in review)

2011 Stefan Oosterhout, Eindhoven University of Technology, Molecular Materials and Nanosystems (in-person committee member)

## 6. PROFESSIONAL SERVICE – INTERNAL

### 6a. University of Colorado Boulder, 2013 - present

#### 6a.1. University of Colorado system-level activities

2021-22 Participant in the University of Colorado Excellence in Leadership Program, https://www.cu.edu/employee-services/professional-growth-training/leadership/elp/current_program

#### 6a.2. University-level Service

2025 Co-organizer for the Boulder Energy and Resilient Sustainability (BEaRS) summer workshop 2025. https://www.colorado.edu/rasei/bears-info

2024 CHIPS / Semiconductor Workforce Development lead

Student panel discussion organizer, Colorado Semiconductor Workforce and Innovation Forum, CU Boulder, January, 2024. https://www.colorado.edu/researchinnovation/colorado-semiconductor-workforce-and-innovation-forum

2021 Reviewer for the Beverly Sears & Cynthia H. Schultz Graduate Student Research Grants

Reviewer for the Research & Innovation Office (RIO) Seed Grant Competition

Member of the search committee for the Q-SEnSE Director of Education and Workforce Development

2020 Reviewer for the Beverly Sears & Cynthia H. Schultz Graduate Student Research Grants

2019 - CEAS representative for the CUbit/NSF Q-SEnSE Education and Workforce Development team

2018 Member of the Provost Faculty Achievement Award review committee

2015 - Member of the working group on Creating Academic Pathways in STEM (CAPS), funded by the NSF INCLUDES program. https://www.colorado.edu/stempathways/

#### 6a.3. College of Engineering & Applied Science (CEAS) service

2024 Biomedical Engineering Undergraduate Studies Committee

2022 - 23 Biomedical Engineering Graduate Studies Committee

2019 - Point person for the development of a Professional Master's degree and an undergraduate minor degree in Quantum Engineering

2019 - Member of the Materials Science & Engineering Executive Committee

2019 - 20 Member of the Biomedical Engineering program committee

2018 - 19 Interim Director of the Multi-Functional Materials Interdisciplinary Research Theme (MFM-IRT)

2018 - 19 Member of the faculty search committee in quantum materials and devices

2016 Engineering Chair of the PHYS 1140 Experimental Physics transformation committee (with Heather Lewandowski of the Department of Physics as the overall chair)

2015 - 18 Member of the Undergraduate Education Council (UEC)

2015 - 16 Member of Faculty Leadership Advancement Group (FLAG), convened by Dean Robert Davis

**6a.4. Dept. of Electrical, Computer, and Energy Engineering (ECEE) service**

2025 Member of the Teaching Professor Faculty Search Committee, AY 25-26

Member of the quantum engineering Gustafson endowed chair faculty search committee in ECEE, AY24-25

2024 - Faculty POC for the ECEE Quantum Engineering Minor

2024 - Chair/member of the ECEE Workforce Development Working Group

2024 Member of the quantum engineering faculty search committee

Moderator for the PhD Virtual Visit Alumni Panel, https://drive.google.com/file/d/1V6JmmCXlsk-sOgCUcx1P5xXvnZn0V_ri/view

Moderator for the Alumni Day Panel Discussion on Quantum Computing

Faculty promotion and tenure committee

2022 - 24 Associate Chair for Research and Graduate Education

2022 Associate Chair for Undergraduate Education, Spring 2022

2021 Chair of a research faculty hiring committee, Fall 2021

2020 - 21 Chair of the Graduate Studies Committee

Member of the ECEE Executive Committee

2019 - Climate Committee Chair, spring semester

2018 - 19 Member of the ECEE ad hoc promotion and tenure committee

2017 Chair of Primary Unit Evaluation Committee (PUEC) for the promotion of Prof. Carol Cogswell

2017 Member of the ECEE ARPAC committee

2016 - 18 Accreditation Board for Engineering and Technology (ABET) report, site review, and response coordinator

2015 - 19 Member of the ECEE Executive Committee

2015 - 18 Associate Chair for Education. Significant activities included:

- Managing the department ABET accreditation process 2016 - 2018
- Aiding faculty in proposing and developing of new courses
- Managing faculty teaching assignments and TA and grader assignments
- Hiring Lecturers
- Observing courses and carrying out student feedback sessions for faculty
- Reviewing student curriculum petitions
- Mentoring the ECEE Undergraduate Advisors and aiding them in responding to student academic issues
- Aiding in the initiation of a new degree program with Colorado Mesa University

- Working with the Advancement Office to establish industry collaborations in support of laboratory courses

2015 - 17 Chair of the Department Action Team (DAT) and later Committee on Learning and Undergraduate Education (CLUE)

2015 - 17 Member of the ECEE Curriculum Committee

2015 - Member of the Graduate Preliminary Examination Committee for the Bio-Optics-Nano (BON) group, Chair 2016 - 17.

2014 Promotion and Tenure Committee

Strategic Vision Committee, Chair

2013 - 14 New Faculty Search Committee, Bioengineering

**6a.5. Department of Physics service**

2014 - Member of the Graduate Committee

**6a.6. Renewable and Sustainable Energy Institute (RASEI) service**

2025 Co-organizer for the Boulder Energy and Resilient Sustainability (BEaRS) summer workshop 2025. https://www.colorado.edu/rasei/bears-info

2023 Member of the Fellows Reappointment Committee

Panel reviewer for RASEI Seed Grants

2022 - Member of the Facilities and Space committee

2018 Faculty search committee (broad area). Resulted in successful hire of a new RASEI Fellow with Joint Appointment between NREL and ECEE Department

2014 - 15 Faculty search in chemical synthesis, Chair. Resulted in successful hire of new RASEI faculty with home department of Chemistry and Biochemistry.

**6a.7. Materials Science and Engineering program service**

2020 - 21, 24 Member of the Graduate Studies Committee

2019 Member of the Executive Committee

**6b. University of Denver, 2007 - 2013**

**6b.1. University-level service**

2011- 12 Review panelist for the Professional Research Opportunities for Faculty (PROF) program

2010 - 12 Member of the Advanced Seminar Committee

**6b.2. Division of Natural Sciences and Mathematics (NSM) service**

2009 - 10 Promotion and Tenure Committee (equivalent to PUEC)

2011 - 13 NSM Faculty Committee, Chair in 2013

2009 - 13 High Performance Computing Committee, Chair 2009 - 11

2009 - 10 Molecular and Cellular Biophysics Graduate Program Committee

**6b.3. Department of Physics and Astronomy service**

2010 - 13 Promotion and Tenure Committee, Chair 2010-11

2007 - 13 Graduate Committee, Chair 2010-13

2009 - 10 Undergraduate Committee

2009 – 10 New faculty search committee in condensed matter, resulted in 2 successful hires

2008 - 09 New faculty search committee (Chair) in biophysics; resulted in successful hire

2007 - 08 New faculty search committee in biophysics; resulted in successful hire

**6b.4. Other Synergistic Activities**

2013 Co-organizer for a public lecture at the University of Denver by Prof. Lisa Randall, Frank B. Baird, Jr. Professor of Science at Harvard University. As part of the American Physical Society's April Meeting, Prof. Randall accepted the Andrew Gemant Award from the American Institute of Physics and presented a public lecture entitled "Truth, Beauty, and Other Scientific Misconceptions" during her visit. It was accompanied by physics demonstrations carried out by the DU Society of Physics students.

2012 Organizer for visit by Dr. William Colglazier, Science Advisor to the Secretary of State, as part of the University of Denver Presidential Debate Event Series, Denver