

Alexander F. Kemper

Associate Professor

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Google Scholar

RESEARCH APPOINTMENTS

- 2020 **Associate Professor**,
Department of Physics, North Carolina State University, Raleigh, NC.
- 2015 – 2020 **Assistant Professor**,
Department of Physics, North Carolina State University, Raleigh, NC.
- 2012 – 2015 **Luiz W. Alvarez Postdoctoral Fellow**,
Scientific Computing Group, Computational Research Division, Lawrence Berkeley National Laboratory, Berkeley, CA.
Group Leader: Bert de Jong
- 2010 – 2012 **Postdoctoral Research Associate**,
Stanford Institute for Materials and Energy Science (SIMES), Stanford University, Menlo Park, CA.
Advisor: T.P. Devereaux
- 2009 – 2010 **McLaughlin Fellow**,
Department of Physics, University of Florida, Gainesville, FL.
- 2008 – 2009 **Graduate Research Assistant**,
Department of Physics, University of Florida, Gainesville, FL.
- 2004 – 2008 **Alumni Fellow**,
Department of Physics, University of Florida, Gainesville, FL.

VISITING RESEARCH APPOINTMENTS

- 2011 **Visiting researcher**, *Walther-Meißner-Institut*, Garching, Germany,
Host: Rudi Hackl.
- 2010 **Visiting researcher**, *Walther-Meißner-Institut*, Garching, Germany,
Host: Rudi Hackl.
- 2006 **Research Intern**, *Oak Ridge National Laboratory*, Oak Ridge, TN,
Host: Thomas Maier.

EDUCATION

- 2010 **Ph.D. in Physics**,
University of Florida, Gainesville, FL,
Supervised by Drs. P.J. Hirschfeld and H.-P. Cheng.
Thesis: Computational Studies of Correlated Electronic Systems
- 2004 **Bachelors of Science in Math and Physics**,
University of Florida, Gainesville, FL.
Graduated *Magna Cum Laude*

FUNDED PROPOSALS

- 2021 **Modeling of and Co-Design for the Duke STAQ Platform**, National Science Foundation, PI: K. Brown (Duke).
Period 09/01/2021 – 08/31/2023. Kemper group amount: \$180,000
- 2019 **Challenges and Opportunities in Noise-Aware Implementations of Quantum Field Theories on Near-Term Quantum Computing Hardware**, *Quantum Information Science Enabled Discovery (QuantISED) for High Energy Physics*, Department of Energy, High Energy Physics, PI: R. Pooser (ORNL). Co-PIs: P.A. Dreher, A.F. Kemper (NC State).
Period 09/01/2019 – 08/31/2022. Total amount requested: \$344,448.00
- 2018 **A JupyterHub server for ready integration of computing into science courses**, *NCSU STEM Education Initiative*, PI: A.F. Kemper. Co-PI: K. Daniels.
Award amount: \$4,000
- 2017 **Simulating long-time evolution of driven many-body systems with next generation quantum computers**, *Quantum Computing in Chemical and Materials Sciences*, Department of Energy, Basic Energy Sciences, PI: J.K. Freericks (Georgetown) Co-PI: A.F. Kemper (NC State).
Period 09/01/2018 – 08/31/2022. Kemper group amount: \$541,482.00.
- 2017 **CAREER: Excitons, electron-hole plasmas, and electron-hole liquids in the time domain**, National Science Foundation, PI: A.F. Kemper..
Period: 09/15/2018–09/14/2023. Award amount: \$500,000

In negotiation

- 2021 **BeQuEST: Benchmarking Quantum Enhancement in Science & Technology**, *Quantum Benchmarking Volume 1 : Technical and Management Volume*, DARPA, PI: I. Hen (University of Southern California).
Period: 12/01/2021–11/30/2024. Kemper group amount: \$300,000
- 2021 **Center for Ultra-wide Bandgap Extreme-RF Electronics (CUXRFE)**, Army Research Office, PI: Z. Sitar (NC State University).
Period: 10/01/2021–09/30/2026. Kemper group amount: \$400,000

TEACHING

Courses taught

- Spring 2022 **Physics 413 (Thermal Physics).**
Fall 2021 **Physics 753 (Condensed Matter II).**
Fall 2020 **Physics 753 (Condensed Matter II).**
Spring 2020 **Physics 251 (Scientific Computing).**
Fall 2019 **Physics 753 (Condensed Matter II).**
Spring 2019 **Physics 251 (Scientific Computing).**
Fall 2018 **Physics 810 (Physics of Quantum Computers).**
Spring 2018 **Physics 251 (Scientific Computing).**
Fall 2017 **Physics 251 (Scientific Computing).**
Spring 2017 **Physics 852 (Topological aspects of Materials).**
Fall 2016 **Physics 208 (Introduction to electricity and magnetism with calculus).**
Fall 2015 **Physics 208 (Introduction to electricity and magnetism with calculus).**
2009–2010 **Led undergraduate reviews for GRE Physics test.**
Spring 2010 **Discussion section —Introduction to electricity and magnetism without calculus, 2 sections.**
Fall 2009 **Discussion section —Introduction to mechanics with calculus, 4 sections.**
2004 – 2008 **Discussion section —Introduction to electricity and magnetism without calculus, 4 sections.**
2004 – 2010 **Substituted in case of professor absence,**
Undergraduate Electrostatics, Electrodynamics, Mathematical Methods for Physics, Introductory Physics for non-majors.

Workshop courses

- 2017 **UBC Winter School Lecture Series: “What can we learn from time-resolved phenomena?”.**

Educational development

- 2021 **Set up single-photon interferometry in Senior Lab.**
Obtained funding from the College to develop a local fundamental quantum mechanics experimental setup for the advanced lab course. With the recent focus on quantum computing at the university, we expect that this setup will be beneficial for students beyond the physics department and the college. Using single photon sources and detectors, when the lab is fully set up, students will be able to locally perform experiments that get at the foundations of quantum mechanics. Some of these include the quantum eraser and teleportation (a vivid demonstration of quantum entanglement), and testing of Bell’s inequalities.
- 2021 **Sponsored Quantum Computing game development for Senior Design.**
Guided a team from the the Physics’ department senior design students in the development of a arcade/online game designed to convey the basic elements of quantum computing. *QBI Game*
- 2020 **Introduced Quantum Computing in Senior Lab.**
PY452 is the undergraduate advanced laboratory course. During the pandemic, laboratory work of any kind was severely restricted. In order to develop the analytic and computational skills that would be acquired in this course, I guided two groups in using the cloud-based IBM Quantum Computers. These are actual functioning quantum computers, where you can run quantum computing programs and get the results from the hardware. As such, it is essentially a remote fundamental quantum mechanics experimental platform.
- 2018 **Jupyterhub server in PY251.**
Obtained funding to purchase a Jupyter server for educational development in the College of Sciences. This server is now used in PY251 to provide all students access to equal hardware.

2018 Deployed the use of Jupyter notebooks in PY251.

PY251 was developed using PDF notes for the students to follow. The notes contained code, background information and exercises. The students were copying the code into a python interpreter line by line, and doing their exercises there. After the 1st semester, I converted the PDF notes to Jupyter notebooks. The notebook/cell structure is ideal for scaffolded, student-led development and use since the instructor may provide all or parts of the code as a notebook with the pieces already filled in and assign the students to add to or modify those small pieces that illustrate the class concepts.

2017 Introduced oral exams in PY251.

Transitioned PY251 exams from a traditional in-class exam to a set of take-home problems, where students got to tackle more complex ideas in a more relaxed setting. This turned the class from a skills-based course to a broader exposure to open problems in physics.

2016 Implemented Just-In-Time-Teaching in PY208.

Just-in-time-teaching is an evidence-based method for gathering student feedback before class and to adjust the teaching according to what the students understand and what they do not. The rapid feedback provides the opportunity to spend less time on the known subjects, and more time on what is confusing to the students. It also pushes the students to learn outside of class time, and outside of class materials to gain a broader view of the material.

2015 Spearheaded introduction of minicourses.

Due to the ever changing nature of physics research, new topics arise and old topics fall out of interest. However, the new topics do not always necessitate a full 3-credit course, and developing such a course is a lot of effort. To provide an intermediate option, where a topic can be taught with a smaller overhead, we have implemented 1-credit minicourses. I coordinated the deployment and the initial offerings, and have taught two.

PROFESSIONAL SERVICE

International & National

Service

- 2019: Member of South-East Section of APS (SESAPS) Jesse Beams award committee
- 2019: Organized invited session for SESAPS yearly meeting
- 2017 – 2018: Facilitated online development workshop for new faculty through FOLC

Reviewing

- Refereed proposals for the Deutsche Forschungsgemeinschaft (DFG – German Research Foundation), Austrian Science Fund (FWF), Israel Science Foundation (ISF), and Swiss National Science Foundation (SNSF).
- Refereed proposals for the National Science Foundation (NSF), Army Research Office (ARO), Department Of Energy (DOE)
- Sat on National Science Foundation “*Designing Materials to Revolutionize and Engineer our Future (DMREF)*” panel
- Refereed for Science journals, Nature journals, American Physical Society journals, MDPI journals, American Chemical Society journals, IOP journals, Superconducting Science & Technology

NC State

- 2021: Physics Department Head Review Committee (Chair)
- 2021 – current: Department of Physics Personnel Committee (Chair)
- 2020 – current: NCSU Quantum Information Club faculty advisor
- 2020 – current: Department of Physics Faculty Advisory Committee
- 2020 – current: College of Sciences Diversity, Equity and Inclusion Committee (Chair)
- 2019 – current: Department of Physics Diversity, Equity and Inclusion Committee (Member)
- 2018 – current: Member of IBM Q Hub Research and Education Advisory Committee
- 2018 – current: NCSU Physics Undergraduate academic advisor
- 2017 – current: NCSU SPS (Society of Physics Students) faculty advisor
- 2018: Co-ran a NCSU DELTA short workshop on using Jupyter notebooks in education
- 2018 – 2020: NCSU College of Sciences Faculty Advisory Committee (Member)
- 2017 – 2017: Headed graduate curriculum task force at NC State University leading to the creation of mini-courses within the physics department
- 2015 – 2017: NCSU Physics Graduate Recruiting Committee Member

Previous organizations

- 2015: Co-organized Postdoc Coordination Program at Lawrence Berkeley National Laboratory
- 2008: Served as graduate student representative on the Graduate Student Advisory Committee at the University of Florida

MENTORING

Postdoctoral

- Dr. Avinash Rustagi — Currently at Purdue University
- Dr. Xiao Xiao

Graduate

- Dr. Omadillo Abdurazakov, Dr. Ankit Kumar, Akhil Francis, Efehan Kökcü, Anjali Agrawal, Heba Soliman

Undergraduate

- Shannon Dwyer, Elliot Holliday, Kevin Lively, Tim Willard, Noah Jabusch, Pavan Dayal, John Reville, Maggie Loughlin, Anna Honeycutt, Emma Stone, Thomas Steckmann, Viktoriya Anissimova

K-12

- Abhijit Gupta (NCSSM), Paarth Tara (NCSSM)

Visiting Researchers

- Gabriel Topp: Max Planck Institut for Structure and Dynamics of Matter, Hamburg, Germany

STUDENT AWARDS

- 2020 Noah Jabusch – Provost’s Professional Experience Program Scholarship
- 2020 Maggie Loughlin – Provost’s Professional Experience Program Scholarship
- 2019 Timothy Willard – NCSU Physics McCormick Symposium Honorable Mention
- 2018 Timothy Willard – Provost’s Professional Experience Program Scholarship
- 2018 Omadillo Abdurazakov – APS DCMP Honorable Mention Travel Grant Award
- 2018 Omadillo Abdurazakov – Future Of Materials II Oral Presentation Award
- 2018 Ankit Kumar – Travel Grant for the 2018 Gordon Conference on Ultrafast Dynamics in Cooperative Systems
- 2016 Shannon Dwyer – NC State Undergraduate Research Grant Awards
- 2016 Shannon Dwyer – Society of Physics Students (SPS) Travel Award to attend SPS Symposium

PROFESSIONAL DEVELOPMENT

- Aug. 2017 - **Faculty Online Learning Community**, *Online*,
May 2018 Facilitated in a bi-weekly discussion aimed at exchange of ideas and experiences for a group of new faculty members.
- Jul. 2017 **American Association of Physics Teachers (AAPT) New Faculty Workshop**, *College Park, MD*,
Attended as ambassador for the Faculty Online Learning Community.
- Aug. 2016 - **Faculty Online Learning Community**, *Online*,
May 2017 Participated in a bi-weekly discussion aimed at exchange of ideas and experiences for a group of new faculty members.
- Jul. 2016 **American Association of Physics Teachers (AAPT) New Faculty Workshop**, *College Park, MD*,
Attended a workshop focused on modern teaching techniques including active learning, just-in-time-teaching, web-based demo usage and concept inventories, as applied to physics courses at all levels.
- Aug. 2015 **NC State University College of Sciences New Faculty Workshop**, *Raleigh, NC*,
Attended a workshop aimed at developing new faculty members as teachers with a focus on active learning techniques.

OUTREACH

Highlights

- 2020 **Teen Science Cafe**, *North Carolina Museum of Natural Sciences*, Presented at the first-ever virtual Teen Science Cafe at the NC Museum of Natural Sciences. This is normally done in person, and we collaborated in the pre-event organization. This is now a standing feature at the NC Museum.
<https://www.youtube.com/watch?v=Eo8NvARvFog>
- 2019 **Remote Teaching Workshop**, *NC State University, American Modeling Teachers Association, and American Association of Physics Teachers*, As part of the CAREER award, helped organize and advised a remote workshop with AMTA and AAPT. This workshop took place in Spring of 2019 (during the beginnings of the Covid-19 pandemic), where online learning was still arguably in its infancy.
- 2018 **Invisible Worlds**, *NC State University and The Leading Strand*, As part of a collaboration between the Colleges of Sciences and Design, and The Leading Strand, we participated in an art exhibit with design students building a piece based on the work done in Sciences. This semester long project culminated in an art installation in soon-to-be Transfer Food Company in Raleigh, NC.

Other

- 2020 **Skype A Scientist**, *The Episcopal Academy*.
- 2020 **Spring 2020 K-12 Outreach**, *Wake County Elementary Schools*.
- 2017 **Teen Science Cafe**, *North Carolina Museum of Natural Sciences at Whiteville*.
- 2017 **ORaCEL Educational outreach**, *NC State University*.
- 2016 **"Meet me at the museum"**, *North Carolina Museum of Natural Sciences at Whiteville*.
- 2016 **North Carolina Science Festival**, *North Carolina Museum of Natural Sciences*.
- 2015 **ORaCEL Educational outreach**, *NC State University*.
- 2015 **LBNL outreach**, *Lawrence Berkeley National Laboratory*.

MEDIA COVERAGE

- Aug. 19, 2021 **Peake, T.**, “**Partition Function Zeros are ‘Shortcut’ to Thermodynamic Calculations on Quantum Computers**”, *NC State Sciences News*.
<https://go.ncsu.edu/apbgvdw>
- Oct. 29, 2018 “**Shedding light on Weyl fermions**”, *Max Planck Institute for the Structure and Dynamics of Matter News*.
<https://www.mpsd.mpg.de/17430/2018-10-weyl-sentef>
- Jun. 7, 2018 “**Invisible Worlds: Ultrafast Quantum Matter**”, *YouTube*, uploaded by NCState.
<https://youtu.be/bENhaRq3Doo>
- Jun. 7, 2018 “**Exploring Invisible Worlds With Science and Design**”, *YouTube*, uploaded by NCState.
<https://youtu.be/V5dHeOFmpMk>
- Jun. 1, 2018 **Sadler, C.**, “**Bringing Invisible Worlds to Light**”, *NC State Sciences News*,
<https://sciences.ncsu.edu/news/leading-strand-science-design-collaboration/>.
- Mar. 2018 **Kleinmaier, S.**, “**Design Students Make Science Accessible**”, *NC State College of Design News*.
<https://design.ncsu.edu/design-students-make-science-accessible/>
- Apr. 27, 2018 **Eure, J.** “**Scientists Pinpoint Energy Flowing Through Vibrations in Superconducting Crystals**”, *Brookhaven National Laboratory Newsroom*.
<https://www.bnl.gov/newsroom/news.php?a=112871>
- Feb. 1, 2018 **Peake, T.**, “**Creating an Electron-Hole Liquid at Room Temperature**”, *NC State News*.
<https://news.ncsu.edu/2018/02/kemper-ehl/>
- Nov. 29, 2017 **Yang, S.**, “**Watching a Quantum Material Lose Its Stripes**”, *Berkeley Lab News*.
<https://bit.ly/loseStripes>
- Apr. 4, 2017 **Peake, T.**, “**Non-equilibrium Physics Explained: 5 Questions with Lex Kemper**”, *NC State News*.
<https://news.ncsu.edu/2017/04/kemper-5qs/>
- Jan. 17, 2017 “**Studying fundamental particles in materials**”, *Max Planck Research*.
<http://www.mpsd.mpg.de/326856/2016-11-floquet-weyl-huebener>
- Jan. 1, 2017 **Peake, T.**, “**Untangling Complex Interactions – With Lasers**”, *NC State News*.
<https://news.ncsu.edu/2017/01/kemper-laser/>
- Jul. 28, 2016 **Matthews, D.**, “**Quantum weirdness in everyday life**”, *The News Reporter*.
<https://www.physics.ncsu.edu/kemperlab/images/outreach/Lex-Kemper-Article.pdf>
- May 27, 2015 “**Spiraling Laser Pulses Could Change the Nature of Graphene**”, *SLAC News*.
<https://www6.slac.stanford.edu/news/2015-05-27-spiraling-laser-pulses-could-change-nature-graphene.aspx>
- Jan. 31, 2014 **Ross, M.**, “**SIMES Simulations Track Energized Electrons to Understand Complex Materials**”, *SLAC News*, <https://www6.slac.stanford.edu/news/2014-01-31-simes-simulations-track-energized-electrons-understand-complex-materials.aspx>.

PUBLICATIONS UNDER REVIEW

- 2021 **Demonstrating robust simulation of driven-dissipative problems on near-term quantum computers**, *Brian Rost, Lorenzo Del Re, Nathan Earnest, Alexander F. Kemper, Barbara Jones, James K. Freericks*, Under review at PRX Quantum.
arXiv:2108.01183
- 2021 **An Algebraic Quantum Circuit Compression Algorithm for Hamiltonian Simulation**, *Daan Camps, Efehan Kökcü, Lindsay Bassman, Wibe A. de Jong, Alexander F. Kemper, Roel Van Beeumen*, Under review at SIAM Journal on Matrix Analysis and Applications (SIMAX).
arXiv:2108.03283
- 2021 **Fixed Depth Hamiltonian Simulation via Cartan Decomposition**, *E. Kökcü, T. Steckmann, J.K. Freericks, E.F. Dumitrescu and A.F. Kemper*, Under review at PRL.
arXiv:2104.00728
- 2021 **Robust measurement of wave function topology on NISQ quantum computers**, *Xiao Xiao, J.K. Freericks and A.F. Kemper*, Submitted to Quantum.
arXiv:2101.07283
- 2021 **Quantum Markov Chain Monte Carlo with Digital Dissipative Dynamics on Quantum Computers**, *M. Metcalf, E. Stone, K. Klymko, A.F. Kemper, M. Sarovar, W.A. de Jong*, Submitted to QST.
arXiv:2103.03207
- 2021 **Bridging the Gap Between the Transient and the Steady State of a Nonequilibrium Quantum System**, *Herbert F. Fotso, Eric Dohner, Alexander Kemper, James K. Freericks*, Submitted to Phys. Rev. B.
arXiv:2101.00795
- 2021 **Catalogue of phonon modes in several cuprate high-temperature superconductors from density functional theory**, *N. J. Jabusch, P. Dayal, A. F. Kemper*, Submitted to SciPost.
arXiv:2010.10553
- 2020 **Observing coherences with time-resolved photoemission**, *A.F. Kemper and A. Rustagi*, Submitted to Phys. Rev. B.
arXiv:2005.08978
- 2020 **Light-enhanced Charge Density Wave Coherence in a High-Temperature Superconductor**, *S. Wandel, F. Boschini, E.H. da Silva Neto, L. Shen, M.X. Na, S. Zohar, Y. Wang, G.B. Welch, M.H. Seaberg, J.D. Koralek, G.L. Dakovski, W. Hettel, M-F. Lin, S.P. Moeller, W.F. Schlotter, A.H. Reid, M.P. Minitti, T. Boyle, F. He, R. Sutarto, R. Liang, D. Bonn, W. Hardy, R.A. Kaindl, D.G. Hawthorn, J.-S. Lee, A.F. Kemper, A. Damascelli, C. Giannetti, J.J. Turner, G. Coslovich*, Under review at Science.
arXiv:2003.04224

PUBLICATIONS: 91 refereed

- 2021 **Algebraic Compression of Quantum Circuits for Hamiltonian Evolution**, *Efehan Kökcü, Daan Camps, Lindsay Bassman, James K. Freericks, Wibe A. de Jong, Roel Van Beeumen, Alexander F. Kemper*, Accepted for publication in Phys. Rev. A.
arXiv:2108.03282
- 2021 **Quantum Fluctuations of Charge Order Induce Phonon Softening in a Superconducting Cuprate**, *H.Y. Huang, A. Singh, C.Y. Mou, S. Johnston, A.F. Kemper, J. van den Brink, P.J. Chen, T.K. Lee, J. Okamoto, Y.Y. Chu, J.H. Li, S. Komiya, A.C. Komarek, A. Fujimori, C.T. Chen, and D.J. Huang*, Phys. Rev. X 11, 041038 (2021).
10.1103/PhysRevX.11.041038
- 2021 **Relaxation timescales and electron-phonon coupling in optically-pumped $\text{YBa}_2\text{Cu}_3\text{O}_{6+x}$ revealed by time-resolved Raman scattering**, *N. Pellatz, S. Roy, J.-W. Lee, J. L. Schad, H. Kandel, N. Arndt, C.B. Eom, A.F. Kemper, and D. Reznik*, Phys. Rev. B 104, L180505 (2021).
10.1103/PhysRevB.104.L180505
- 2021 **What do the two times in two-time correlation functions mean for interpreting tr-ARPES?**, *J.K. Freericks, A.F. Kemper*, J. Elec. Spec. Rel. Phenom. 251, 147104 (2021).
10.1016/j.elspec.2021.147104
- 2021 **Coherent control of asymmetric spintronic terahertz emission from two-dimensional hybrid metal halides**, *Kankan Cong, Eric Vetter, Liang Yan, Yi Li, Qi Zhang, Yuzan Xiong, Hongwei Qu, Richard D. Schaller, Axel Hoffmann, Alexander F. Kemper, Yongxin Yao, Jigang Wang, Wei You, Haidan Wen, Wei Zhang, Dali Sun*, Nature Communications volume 12, 5744 (2021).
doi:10.1038/s41467-021-26011-6
- 2021 **Simulating Quantum Materials with Digital Quantum Computers**, *L. Bassman, M. Urbanek, M. Metcalf, J. Carter, A.F. Kemper and W.A. de Jong*, Quantum Sci. Technol. 6 043002 .
doi:10.1088/2058-9565/ac1ca6
- 2021 **Topological Quantum Computing on a Conventional Quantum Computer**, *Xiao Xiao, J.K. Freericks and A.F. Kemper*, Quantum 5, 553 (2021) .
doi:10.22331/q-2021-09-28-553
- 2021 **Many Body Thermodynamics on Quantum Computers via Partition Function Zeros**, *Akhil Francis, D. Zhu, C. Huerta Alderete, Sonika Johri, Xiao Xiao, J.K. Freericks, C. Monroe, N. M. Linke, A.F. Kemper*, Science Advances Vol. 7, no. 34, eabf2447 .
doi:10.1126/sciadv.abf2447
- 2021 **Automated tracking of S. pombe spindle elongation dynamics**, *Ana Sofia M. Uzsoy, Parsa Zareiesfandabadi, Jamie Jennings, Alexander F. Kemper, Mary Williard Elting*, Journal of Microscopy 10.1111/jmi.13044.
doi:10.1111/jmi.13044
- 2021 **Timescales of excited state relaxation in $\alpha\text{-RuCl}_3$ observed by time-resolved two photon photoemission spectroscopy**, *Dan Nevo, Alex Bataller, Samanvitha Sridar, Jordan Frick, Shaun O'Donnell, Brandon Zoellner, Paul Maggard, Ankit Kumar, Alexander F. Kemper, Kenan Gundogdu, Daniel B. Dougherty*, Phys. Rev. B 103, 245105 (2021).
doi:10.1103/PhysRevB.103.245105
- 2021 **Probing the interplay between lattice dynamics and short-range magnetic correlations in CuGeO_3 with femtosecond RIXS**, *E. Paris, C. W. Nicholson, S. Johnston, Y. Tseng, M. Rumo, G. Coslovich, S. Zohar, M.F. Lin, V.N. Strocov, R. Saint-Martin, A. Revcolevschi, A. F. Kemper, W. Schlotter, G. L. Dakovski, C. Monney, T. Schmitt*, npj Quantum Materials (2021) 6:51.
doi:10.1038/s41535-021-00350-5

- 2021 **Flat-band-induced itinerant ferromagnetism in RbCo₂Se₂**, Jianwei Huang, Zhicai Wang, Hongsheng Pang, Han Wu, HuiBo Cao, Sung-Kwan Mo, Avinash Rustagi, A. F. Kemper, Meng Wang, Ming Yi, and R. J. Birgeneau, *Phys. Rev. B* 103, 165105 (2021).
doi:10.1103/PhysRevB.103.165105
- 2021 **Fermi Liquid Theory Sheds Light on "Hot" EHL in 1L-MoS₂**, R. L. Wilmington, H. Ardekani, A. Rustagi, A. Bataller, A. F. Kemper, R. A. Younts, and K. Gundogdu, *Phys. Rev. B* 103, 075416 (2021).
doi:10.1103/PhysRevB.103.075416
- 2021 **Nonequilibrium dynamics of spontaneous symmetry breaking into a hidden state of charge-density wave**, Faran Zhou, Joseph Williams, Christosautoma D. Malliakas, Mercouri G. Kanatzidis, Alexander F. Kemper, Chong-Yu Ruan, *Nature Communications* 12, 566 (2021).
doi:10.1038/s41467-020-20834-5
- 2020 **Establishing non-thermal regimes in pump-probe electron-relaxation dynamics**, M.X. Na, F. Boschini, A.K. Mills, M. Michiardi, R.P. Day, B. Zwartsenberg, G. Levy, S. Zhdanovich, A.F. Kemper, D.J. Jones, A. Damascelli, *Phys. Rev. B* 102, 184307 (2020).
doi:10.1103/PhysRevB.102.184307
- 2020 **Driven-dissipative quantum mechanics on a lattice: Describing a fermionic reservoir with the master equation and simulating it on a quantum computer**, Lorenzo Del Re, Brian Rost, A. F. Kemper, J. K. Freericks, *Phys. Rev. B* 102, 125112 (2020).
doi:10.1103/PhysRevB.102.125112
- 2019 **Quantum computation of magnon spectra**, A. Francis, J.K. Freericks, A.F. Kemper, *Phys. Rev. B* 101, 014411 (2020).
doi:10.1103/PhysRevB.101.014411
- 2019 **Direct determination of mode-projected electron-phonon coupling in the time-domain**, MengXing Na, Arthur K. Mills, Fabio Boschini, Matteo Michiardi, Benjamin Nosarzewski, Ryan P. Day, Elia Razzoli, Alexander Sheyerman, Michael Schneider, Giorgio Levy, Sergey Zhdanovich, Thomas P. Devereaux, Alexander F. Kemper, David J. Jones, Andrea Damascelli, *Science* 336, 1231 (2019).
doi:http://dx.doi.org/10.1126/science.aaw1662
- 2019 **Higgs Oscillations in time-resolved Optical Conductivity**, Ankit Kumar and A.F. Kemper, *Phys. Rev. B* 100, 174515 (2019).
doi:10.1103/PhysRevB.100.174515
- 2019 **Theory of time-resolved optical conductivity of superconductors: comparing two methods for its evaluation**, J.P. Reville, A. Kumar, and A.F. Kemper, *Condens. Matter* 2019, 4(3), 79.
doi:10.3390/condmat4030079
- 2019 **Coherent Excitonic Quantum Beats in Time-Resolved Photoemission Measurements**, A. Rustagi and A.F. Kemper, *Phys. Rev. B* 99, 125303 (2019).
doi:10.1103/PhysRevB.99.125303
- 2019 **Band resolved imaging of photocurrent in a topological insulator**, Hadas Soifer, Alexandre Gauthier, A. F. Kemper, Costel R. Rotundu, Shuolong Yang, Hongyu Xiong, Donghui Lu, Makoto Hashimoto, Patrick S. Kirchmann, Jonathan A. Sobota, Zhi-Xun Shen, *Phys. Rev. Lett.* 122, 167401 (2019).
doi:10.1103/PhysRevLett.122.167401
- 2019 **Observation of Chiral Surface Excitons in a Topological Insulator Bi₂Se₃**, H.-H. Kung, P. Goyal, D. L. Maslov, X. Wang, A. Lee, A. F. Kemper, S.-W. Cheong, and G. Blumberg, *Proceedings of the National Academy of Sciences* Feb 2019, 201813514.
doi:10.1073/pnas.1813514116
- 2019 **Dense Electron-Hole Plasma Formation and Ultra-Long Charge Lifetime in Monolayer MoS₂ via Material Tuning**, Alexander W. Bataller, Robert A. Younts, Avinash Rustagi, Yiling Yu, Hossein Ardekani, Alexander Kemper, Linyou Cao, and Kenan Gundogdu, *Nano Letters*, Article ASAP.
doi:10.1021/acs.nanolett.8b04408

- 2019 **Detailed band structure of twinned and detwinned BaFe₂As₂ studied with ARPES**, H. Pfau, C. R. Rotundu, J. C. Palmstrom, M. Hashimoto, D. Lu, **A.F. Kemper**, I. R. Fisher, and Z.-X. Shen, Phys. Rev. B 99, 035118 (2019).
doi:10.1103/PhysRevB.99.035118
- 2019 **Identifying a forward scattering superconductor through pump-probe spectroscopy**, Ankit Kumar, S. Johnston, **A. F. Kemper**, Euro Phys Letters, 124 67002.
doi:10.1209/0295-5075/124/67002
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SOFTWARE

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INVITED TALKS

- Dec. 2021 **University of Michigan Condensed Matter Seminar**, *Ann Arbor, MI*, “Examining topology and thermodynamics quantum quantum computers”.
- Nov. 2021 **Pontifical Catholic University of Rio de Janeiro**, *Virtual*, “Solving problems in condensed matter physics using quantum computing”.
- Nov. 2021 **International Workshop on Ultrafast Dynamics and Metastability**, *Virtual*, “Time-Resolved Photoemission from Excitons and Coherences”.
- Nov. 2021 **Photo-Induced Phase Transitions 7 (PIPT7)**, *Virtual*, “Time-Resolved Photoemission from Excitons and Coherences”.
- Oct. 2021 **Department of Energy PI Meeting: Research Highlight**, *Virtual*, “Many Body Thermodynamics on Quantum Computers via Partition Function Zeros”.
- Oct. 2021 **University of Florida Condensed Matter Seminar**, *Gainesville, FL*, “Examining topology and thermodynamics quantum quantum computers”.
- Sep. 2021 **STAQ Meeting**, *Virtual*, “Many Body Thermodynamics on Quantum Computers via Partition Function Zeros”.
- Sep. 2021 **RIKEN BNL Research Center Seminar**, *Brookhaven, NY*, “Examining topology and thermodynamics using quantum computers”.
- Jul. 2021 **SPIE Optics & Photonics**, *San Diego, CA*, “Time-Resolved Photoemission from Excitons and Coherences”.
- Jun. 2021 **IBM Q Hub Seminar**, *Raleigh, NC*, “Topological Physics on Quantum Computers”.
- May 2021 **NorthEastern University Quantum Matter Seminar**, *Virtual*, “Examining topology and thermodynamics quantum quantum computers”.
https://youtu.be/zxK3XAY_GSQ
- Apr. 2021 **ACS Spring National Meeting**, *Virtual*, “Examining topology and thermodynamics using quantum computers”.
- Feb 2021 **NC State Quantum Lunch Seminar Series**, *Raleigh, NC*, “Many Body Thermodynamics on Quantum Computers via Partition Function Zeros”.
- Dec 2020 **Triangle Hard Matter Workshop at Duke University**, *Durham, NC*, “A room temperature Electron-Hole Liquid in photoexcited semiconductors”.
- Oct. 2020 **Concordia University Colloquium**, *Virtual*, “Solving problems in condensed matter physics using quantum computing.”.
- Oct. 2020 **2020 SSRL/LCLS Users’ Meeting**, *Virtual*, “Time-Resolved Photoemission from excitons and coherences.”.
- May 2020 **Quantum Leap Challenge Institute symposium on quantum computing for biology**, *Virtual*, “Topological quantum computing on NISQ hardware.”.
- Mar. 2020 **ACS Spring National Meeting**, *Philadelphia, PA*, “Examining the physics of spin systems using quantum computers”.
Cancelled due to CoViD19
- Feb. 2020 **Sanibel Symposium**, *St. Simons Island, GA*, “Examining the physics of spin systems using quantum computers”.
- Dec. 2019 **Lawrence Berkeley National Laboratory CCMC Seminar**, *Berkeley, CA*, “Examining the physics of spin systems using quantum computers”.
- Nov. 2019 **86th meeting of the APS Southeastern Section**, *Wrightville beach, NC*, “Physics of Spin Systems using Quantum Computers”.
- Oct. 2019 **Temple University Condensed Matter Seminar**, *Philadelphia, PA*, “Light-induced phase transitions in complex matter”.
- Oct. 2019 **West Virginia University Colloquium**, *Morgantown, WV*, “Light-induced phase transitions in complex matter”.

- Jun. 2019 **Ultrafast and Nonlinear Dynamics of Quantum Materials**, *University of Paris-Diderot, Paris, France*, “A room temperature Electron-Hole Liquid in two-dimensional materials”.
- May 2019 **Caltech Institute for Quantum Information and Matter Seminar**, *Pasadena, CA*, “A room temperature Electron-Hole Liquid in two-dimensional materials”.
- Apr. 2019 **International Workshop on Ultrafast Dynamics and Metastability**, *Georgetown University, Washington*, “A room temperature Electron-Hole Liquid in two-dimensional materials”.
- Dec. 2018 **SUNY Albany Colloquium**, *Albany, NY*, Assumptions and Realities in Non-Equilibrium Many-Body Physics.
- Nov. 2018 **Michigan State University Condensed Matter Seminar**, *East Lansing, MI*, Assumptions and Realities in Non-Equilibrium Many-Body Physics.
- May 2018 **Brookhaven National Laboratory CPMSP Seminar**, *Upton, NY*, Developing theoretical understanding of non-equilibrium phenomena.
- Feb. 2018 **Gordon Research Conference: Ultrafast Phenomena in Cooperative Systems**, *Galveston, TX*, Insights into Time-Resolved Spectroscopy from the Theoretical Perspective.
- Dec. 2017 **Winter School: Ultrafast quantum control of matter: the path to solids**, *Vancouver, Canada*, What can we learn from time-resolved experiments?.
- Nov. 2017 **International Workshop on Ultrafast Dynamics and Metastability**, *Georgetown University, Washington*, “Ultrafast dynamics of quantum materials: Lessons learned from Theory”.
- Sept. 2017 **PCS International Workshop: Non-Linear Effects and Short-Time Dynamics in Novel Superconductors and Correlated Spin-Orbit Coupled Systems**, *IBS Center for Theoretical Physics of Complex Systems, Daejeon, South Korea*, “Time-Resolved Spectroscopy of Superconductors in the Time Domain: Some Observations from Theory”.
- May 2017 **Stanford & SLAC Ultrafast Materials Science workshop**, *Menlo Park, CA*, “Led discussion on ultrafast spectroscopy in materials”.
- Feb. 2017 **University of California San Diego Condensed Matter Seminar**, *La Jolla, CA*, “Theoretical modeling of non-equilibrium spectroscopy”.
- Feb. 2017 **Johns Hopkins University Condensed Matter Seminar**, *Baltimore, MD*, “Theoretical modeling of non-equilibrium spectroscopy”.
- Jan. 2017 **Workshop on Time-resolved Photoelectron Spectroscopy**, *Elettra Sincrotrone, Trieste, Italy*, “Theoretical modeling of non-equilibrium spectroscopy”.
- Dec. 2016 **Duke University, Condensed Matter Seminar**, *Durham, NC*, “Understanding complex materials using non-equilibrium spectroscopy: what can theory tell us?”.
- Oct. 2016 **Workshop on Ultrafast Dynamics in Strongly Correlated Systems**, *Paul Scherrer Institute, Villigen, Switzerland*, “Understanding complex materials using non-equilibrium spectroscopy: what can theory tell us?”.
- Oct. 2016 **(Declined to attend)**, *EMN Meeting on Ultrafast 2016*, Melbourne, Australia.
- Aug. 2016 **International Research School: Electronic States and Phases Induced by Electric or Optical Impacts IMPACT 2016**, *Carg se, France*, “Understanding complex materials using non-equilibrium spectroscopy: what can theory tell us?”.
- Aug. 2016 **Workshop on Experiment and Theory of the Electronic Structure of Correlated f-electron Materials**, *Temple University, Philadelphia, PA*, “Understanding complex materials using non-equilibrium spectroscopy: what can theory tell us?”.
- Jun. 2016 **(Declined) SUPERSTRIPES 2016**, *Ischia, Italy*, “Signatures of electron-boson coupling in the time domain: beyond the equilibrium interpretation”.
- Mar. 2016 **American Physical Society March Meeting**, *Baltimore, MD*, Electron-boson coupling: Beyond the Equilibrium Interpretation.
- Mar. 2016 **University of North Carolina: Wilmington Colloquium**, *Wilmington, NC*, “Non-equilibrium physics of quantum materials”.

- Jul. 2015 **CORPES15: International workshop on strong correlations and angle-resolved photoemission spectroscopy**, *Paris, France*, “Theoretical studies of non-equilibrium spectroscopy”.
- Jul. 2015 **Max Planck Institute for the Structure and Dynamics of Matter, CFEL**, *Hamburg, Germany*, “Theoretical studies of non-equilibrium spectroscopy”.
- Mar. 2015 **Stanford Institute for Materials and Energy Sciences Seminar**, *Stanford, CA*, “Ultrafast spectroscopy of quantum materials”.
- Jan. 2015 **North Carolina State University Colloquium**, *Raleigh, NC*, Non-equilibrium physics of quantum materials.
- Nov. 2014 **University of Tennessee Condensed Matter Seminar**, *Knoxville, TN*, “Ultrafast spectroscopy of quantum materials”.
- Aug. 2014 **Workshop on Many-body Quantum Systems Far from Equilibrium**, *Aspen, CO*, “Control of topological materials with light”.
- Jan. 2014 **Science with SCG seminar**, *Lawrence Berkeley National Laboratory, Berkeley, CA*, “Numerical modeling of non-equilibrium phenomena and spectroscopy”.
- Dec. 2013 **Bay Area Scientific Computing Day**, *Berkeley, CA*, “Numerical modeling of non-equilibrium phenomena and spectroscopy”.
- Feb. 2013 **Short-time Dynamics in Strong Correlated Systems and Novel Superconductors**, *Bochum, Germany*, “Theory for time-domain photon spectroscopy”.
- Feb. 2013 **Walther Meißner Institut Workshop on correlated systems**, *Garching, Germany*, “Insights from time-resolved X-ray diffraction on CDW formation in TbTe_3 ”.
- Mar. 2012 **Workshop on superconductivity in iron-based compounds**, *Munich, Germany*, “Spectroscopy in the spin-density wave state of the iron pnictides: a mean field perspective”.
- Mar. 2012 **Complex Systems Symposium**, *Walther Meißner Institut, Garching, Germany*, “Theory for pump-probe spectroscopy”.
- Mar. 2012 **Fritz-Haber-Institut der Max-Planck-Gesellschaft**, *Berlin, Germany*, “Theory for pump-probe spectroscopy”.
- Jan. 2012 **Lawrence Berkeley National Laboratory**, *Berkeley, CA*, “Theory for pump-probe spectroscopy”.
- Jan. 2012 **SLAC RIXS/REXS Workshop**, *Stanford, CA*, “Theory for pump-probe spectroscopy”.
- Jul. 2011 **Walther Meißner Institut Complex Order and Fluctuations workshop**, *Garching, Germany*, “Degeneracy-driven density waves in RTe_3 ”.
- Jul. 2010 **Walther Meißner Institut Complex Order and Fluctuations workshop**, *Garching, Germany*, “Spin fluctuations in FeAs”.
- Nov. 2006 **University of Florida Physics Graduate Student Seminar**, *Gainesville, FL*, “The effect of strong impurity scattering on superconductivity in the 2D Hubbard model”.

CONFERENCES ATTENDED

- Nov. 2021 **Photo-Induced Phase Transitions (PIPT) 7**, *Virtual*, Invited talk: “Time-Resolved Photoemission from excitons and coherences”.
- Nov. 2021 **International Workshop on Ultrafast Dynamics and Metastability**, *Virtual*, Invited talk: “Time-Resolved Photoemission from excitons and coherences”.
- Jul. 2021 **SPIE Optics & Photonics**, *San Diego, CA*, Invited talk: “Time-Resolved Photoemission from excitons and coherences”.
- Apr. 2021 **ACS Spring National Meeting**, *Virtual*, Invited talk: “Examining topology and thermodynamics using quantum computers”.
- Oct. 2020 **2020 SSRL/LCLS Users’ Meeting**, *Virtual*, Invited talk: “Time-Resolved Photoemission from excitons and coherences”.

- Feb. 2020 **Sanibel Symposium**, *St. Simons Island, Georgia*, Invited talk: Examining the physics of spin systems using quantum computers.
- Feb. 2020 **Gordon Research Conference: Ultrafast Phenomena in Cooperative Systems**, *Lucca, Italy*, Invited session chair.
- Jun. 2019 **Ultrafast and Nonlinear Dynamics of Quantum Materials**, *University of Paris-Diderot, Paris, France*, Invited talk: “A room temperature Electron-Hole Liquid in two-dimensional materials”.
- Mar. 2019 **APS March Meeting**, *Boston, MA*, Contributed talk: Optical conductivity and charge fluctuation spectroscopy in the time domain.
- Mar. 2018 **APS March Meeting**, *Los Angeles, CA*, Contributed talk: Observing excitons with time-resolved ARPES.
- Feb. 2018 **Gordon Research Conference: Ultrafast Phenomena in Cooperative Systems**, *Galveston, TX*, Invited talk: Insights into Time-Resolved Spectroscopy from the Theoretical Perspective.
- Dec. 2017 **Winter School: Ultrafast quantum control of matter: the path to solids**, *Vancouver, Canada*, Invited Lecture Series: What can we learn from time-resolved experiments?.
- Nov. 2017 **International Workshop on Ultrafast Dynamics and Metastability**, *Georgetown University, Washington*, Invited talk: Ultrafast dynamics of quantum materials: Lessons learned from Theory.
- Sept. 2017 **PCS Workshop: Non-Linear Effects and Short-Time Dynamics in Novel Superconductors and Correlated Spin-Orbit Coupled Systems**, *IBS Center for Theoretical Physics of Complex Systems, Daejeon, South Korea*, Invited talk: Time-Resolved Spectroscopy of Superconductors in the Time Domain: Some Observations from Theory.
- May 2017 **Stanford & SLAC Ultrafast Materials Science workshop**, Invited discussion.
- Mar. 2017 **APS March Meeting**, *New Orleans, LA*, Contributed talk: Signatures of forward scattering superconductivity in non-equilibrium experiments.
- Jan. 2017 **Workshop on Time-resolved Photoelectron Spectroscopy**, *Elettra Sincrotrone, Trieste, Italy*, Invited talk: Theoretical modeling of non-equilibrium spectroscopy.
- Oct. 2016 **Ultrafast Dynamics in Strongly Correlated Systems**, *Paul Scherrer Institute, Villigen, Switzerland*, Invited talk: Understanding complex materials using non-equilibrium spectroscopy: what can theory tell us?.
- Aug. 2016 **International Research School: Electronic States and Phases Induced by Electric or Optical Impacts IMPACT 2016**, *Cargèse, France*, Invited talk: Understanding complex materials using non-equilibrium spectroscopy: what can theory tell us?.
- Aug. 2016 **Workshop on Experiment and Theory of the Electronic Structure of Correlated f-electron Materials**, *Temple University, Philadelphia, PA*, Invited talk: Understanding complex materials using non-equilibrium spectroscopy: what can theory tell us?.
- Jul. 2016 **Gordon Conference on Correlated Electron Systems**, *Mount Holyoke College, MA*, Contributed poster: Understanding correlated materials out of equilibrium.
- Mar. 2016 **APS March Meeting**, *Baltimore, MD*, Invited talk: Electron-boson coupling: Beyond the Equilibrium Interpretation.
- Jul. 2015 **CORPES15: International workshop on strong correlations and angle-resolved photoemission spectroscopy**, *Paris, France*, Invited talk: Theoretical studies of non-equilibrium spectroscopy.
- Mar. 2015 **APS March Meeting**, *San Antonio, TX*, Contributed talk: Amplitude mode oscillations in BCS superconductors.
- Aug. 2014 **Workshop on Many-body Quantum Systems Far from Equilibrium**, *Aspen, CO*, Invited talk: Control of topological materials with light.
- Mar. 2014 **APS March Meeting**, *Denver, CO*, Contributed talk: Ultrafast transient decoupling and multi-phonon effects in driven electron-phonon systems.

- Feb. 2014 **Gordon Conference on Ultrafast Phenomena in Cooperative Systems**, *Ventura, CA*, Contributed poster: Simulation of non-equilibrium superconductivity.
- Dec. 2013 **Bay Area Scientific Computing Day**, *Berkeley, CA*, Invited talk: Numerical modeling of non-equilibrium phenomena and spectroscopy.
- Mar. 2013 **APS March Meeting**, *Baltimore, MD*, Contributed talk: Interplay between electron-electron and electron-lattice interactions in the RTe₃ compounds.
- Feb. 2013 **Short-time Dynamics in Strong Correlated Systems and Novel Superconductors**, *Bochum, Germany*, Invited talk: Theory for time-domain photon spectroscopy.
- Feb. 2013 **International workshop on Novel Materials and Superconductors**, *Donnersbach, Austria*, Contributed poster: Modeling lattice interaction in non-equilibrium pump-probe experiments.
- Feb. 2013 **Workshop on correlated systems**, *Walther Meißner Institut, Garching, Germany*, Invited talk: Insights from time-resolved X-ray diffraction on CDW formation in TbTe₃.
- Oct. 2012 **2012 Advanced Light Source User Meeting**, *Lawrence Berkeley National Laboratory, Berkeley, CA*.
- Aug. 2012 **Next Generation Light Source, Science workso: Quantum Materials, Magnetism & Spin Dynamics**, *Berkeley, CA*.
- Mar. 2012 **Workshop on superconductivity in iron-based compounds**, *Munich, Germany*, Invited talk: Spectroscopy in the spin-density wave state of the iron pnictides: a mean field perspective.
- Mar. 2012 **Complex Systems Symposium**, *Walther Meißner Institut, Garching, Germany*, Invited talk: Theory for pump-probe spectroscopy.
- Mar. 2012 **APS March Meeting**, *Boston, MA*, Contributed talk: Modeling lattice interaction in non-equilibrium pump-probe experiments.
- Feb. 2012 **Gordon Conference on Ultrafast Phenomena in Cooperative Systems**, *Galveston, TX*, Contributed poster: Modeling lattice interaction in non-equilibrium pump-probe experiments.
- Jan. 2012 **RIXS/REXS Workshop**, *Stanford, CA*, Invited talk: Theory for pump-probe spectroscopy.
- Oct. 2011 **SSRL/LCLS Users' Conference and Workshops**, *SLAC National Accelerator Laboratory, Menlo Park, CA*.
- Jul. 2011 **Complex Order and Fluctuations workshop**, *Walther Meißner Institut, Garching, Germany*, Invited talk: Degeneracy-driven density waves in RTe₃.
- Aug. 2011 **Multiband and Multiorbital Effects in Novel Materials Summer School**, *Cargèse, France*, Contributed poster: Sensitivity of gap anisotropy to electronic structure in spin-fluctuation pairing models of Fe-pnictide superconductors.
- Mar. 2011 **APS March Meeting**, *Dallas, TX*, Contributed talk: Modeling pump-probe spectroscopy in systems with electron-phonon coupling.
- Oct. 2010 **2010 Advanced Light Source User Meeting**, *Lawrence Berkeley National Laboratory, Berkeley, CA*.
- Jul. 2010 **Walther Meißner Institut, Garching, Germany**, Invited talk: *Spin fluctuations in FeAs*, Complex Order and Fluctuations workshop.
- Mar. 2010 **APS March Meeting**, *Portland, OR*, Contributed talk: Sensitivity of gap anisotropy to electronic structure in spin-fluctuation pairing models of Fe-pnictide superconductors.
- Mar. 2009 **APS March Meeting**, *Pittsburgh, PA*, Contributed talk: Cobalt doping and three-dimensionality in BaFe₂As₂.
- Jun. 2008 **International Summer School on Numerical Methods for Correlated Systems in Condensed Matter**, *Sherbrooke, Canada*, Contributed poster: Influence of oxygen orbitals on impurity states in superconducting cuprates.
- Mar. 2008 **APS March Meeting**, *New Orleans, LA*, Contributed talk: Electronic structure of graphene in the presence of disorder.

- Jul. 2007 **50 years of BCS Summer School**, *Cargèse, France*, Contributed poster: The effect of strong impurity scattering on superconductivity in the 2D Hubbard model.
- Mar. 2007 **APS March Meeting**, *Denver, CO*, Contributed talk: The effect of strong impurity scattering on superconductivity in the 2D Hubbard model.
- Feb. 2007 **Sanibel Symposium**, *St. Simons Island, Georgia*, Contributed poster: The effect of strong impurity scattering on superconductivity in the 2D Hubbard model.
- Jun. 2006 **Center for Nanophase Materials Sciences' 2006 Users Meeting**, *Oak Ridge, Tennessee*, Contributed poster: Electronic Transport using Green's Function Methodologies: From Mesoscopic to Superconducting.
- Feb. 2006 **Sanibel Symposium**, *St. Simons Island, GA*, Contributed poster: Palladium Adsorbed Carbon Nanotubes as Hydrogen Sensors (Poster).