

Department of Physics and Astronomy
University of Oklahoma
440 West Brooks Street
Norman, OK, 73019

Phone: +1-217-4192590
Email: uchoa@ou.edu
[Webpage](#)

BRUNO UCHOA

Job Experience

- Spring 2019 **Visiting Scholar** at University College London, UK
and University of Illinois at Urbana Champaign, IL, USA (sabbatical leave)
- 2017- **Associate Professor** of Physics
Ted and Cuba Webb Presidential Professor
Department of Physics and Astronomy, University of Oklahoma, OK, USA
- 2011-2017 **Assistant Professor** of Physics
Department of Physics and Astronomy, University of Oklahoma, OK, USA
- 2008-2011 **Postdoctoral Fellow**
Physics Department and Institute of Condensed Matter Theory
University of Illinois at Urbana-Champaign, IL, USA
Postdoctoral mentor: Profs. Eduardo Fradkin and Paul Goldbart
- 2006-2008 **Postdoctoral Visiting Scholar**
Physics Department, Boston University, Boston, MA, USA
Postdoctoral mentor: Prof. Antonio H. Castro Neto
- 2005 **Postdoctoral Research Associate**
National Laboratory of Synchrotron Radiation, LNLS, SP, Brazil
Postdoctoral mentor: Dr. Harry Westfahl Jr.

Education

- 2000-2004 **PhD in Physics**, State University of Campinas, SP, Brazil and
Boston University, MA, USA
- Thesis work:** “Nodal liquid superconductivity in transition-metal dichalcogenides”
August, 2004
PhD mentors: Profs. G. G. Cabrera and A. H. Castro Neto

Scientific Profile

Author of 45 papers and preprints, including 9 Physical Review Letters,
1 Reviews of Modern Physics, 1 Science, 1 Nature Physics, 1 Physical Review X
and 1 Proceedings of the National Academy of Sciences

Total citations: >3,500, **h-index:** 21 ([Google Scholar](#))
Average citations per article: 75

Funded by National Science Foundation
Total funding amount: > \$0.8M

Speaker at >70 invited talks in seminars, colloquia, workshops, and conferences

Research Areas

- **Quantum Materials**
2D and 3D Weyl and Dirac semimetals, Quantum Hall effects
unconventional superconductors, Moire materials
- **Strongly Correlated Systems**
Quantum phase transitions, non-Fermi liquid behavior, quantum magnetism
strong localization, quantum many-body physics
- **Quantum transport**
Topological domain walls, hydrodynamics and non-equilibrium

Fellowships and Awards

- | | |
|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| 2019 | Carl T. Bush Lectureship
Awarded by University of Oklahoma, OK, USA |
| 2017 | Ted and Cuba Webb Presidential Professorship
awarded by University of Oklahoma, OK, USA |
| 2014 | Recognition for Exceptional Achievements in Research
awarded by Vice President for Research, University of Oklahoma, OK, USA |
| 2014-2019 | NSF Early Career Award
awarded by National Science Foundation (NSF) |
| 2012-2013 | Junior faculty summer fellowship
awarded by the College of Arts and Sciences, University of Oklahoma, OK, USA |
| 2008-2011 | Postdoctoral fellowship at University of Illinois
awarded by Institute of Condensed Matter Theory, Urbana, IL, USA |
| 2006-2007 | Research fellowship at Boston University
awarded by National Council of Science (CNPq), Brazil |
| 2000-2004 | Graduate fellowship and Visiting scholarship at Boston University
awarded by São Paulo State Research Foundation (FAPESP), Brazil |
| 2001 | Summer school scholarship at ICTP
awarded by International Center for Theoretical Physics (ICTP), Italy |

Teaching

- | | |
|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2011- | Physics Instructor , University of Oklahoma
Classical Mechanics (PHY- 5153) - Fall 2011-2013, 2016
Quantum Mechanics II (PHY- 5403) - Spring 2012-2014, 2018, 2020
Advanced Condensed Matter (PHY-6243) - Fall 2014, 2017
Physics II for Life Science Majors (PHY-2424) - Fall 2015, Spring 2017
Statistical Mechanics (PHY-5163) - Spring 2016
undergraduate Quantum Mechanics II (PHYS-4803) Fall 2018, 2019 |
| Oct 15, 2009 | Invited Lecturer , University of Illinois at Urbana-Champaign
Major Topics in Mesoscopies and Nanoscience (PHY-598MN) |

Professional Activities and Services

- **Referee** for Physical Review Letters, Physical Review B
Nature Physics, Nature Communications, Nano Letters
Proceedings of the National Academy of Sciences
Scientific Reports, Europhysics Letters, New Journal of Physics
Carbon, Reports on Progress in Physics
- **Panelist** for the National Science Foundation (NSF)
Regular and CAREER panels
- **Referee** for the National Science Foundation (NSF), Army Research Office (ARO), German-Israeli Foundation for Scientific Research, ISR
Netherlands Foundation for Fundamental Research on Matter, NLD
Marsden Fund, Royal Society of New Zealand, NZL
Fonds de Recherche du Quebec - Nature et Technologies, CAN
United States-Israel Binational Science Foundation (BSF), ISR
Austrian Science Fund (FWF), AUS
Deutsche Forschungsgemeinschaft (DFG), GER
Agence Nationale de la Recherche (ANR), FRA
- **Member** of the American Physical Society
- **Chair** of the APS march meeting in 2008, 2009, and 2011
- **Chair** of the 2012 APS March meeting invited session: “Excitonic and correlation effects in single-layer graphene”
- **Sorter** of the 2011 APS march meeting
- **Coordinator** of the condensed matter theory seminars at Boston University from Jan 2007 to Aug 2008

Supervised Postdocs and Students

2020–	Mr. Sankalp Prajapati, Graduate Student
2017–	Mr. Geo Jose, Graduate Student
2015-2020	Dr. Sang Wook Kim, Graduate Student Currently Postdoctoral Fellow, University of Vermont, VT, USA
2016-2019	Dr. Kangjun Seo, Postdoctoral Fellow
2012-2018	Dr. Xu Dou, Graduate Student Currently at Rigol Technologies, Suzhou, China
2012-2014	Dr. Akbar Jaefari, Postdoctoral Fellow Currently Assistant Professor of Physics, Western New England University, MA, USA

External and Internal Funding

- **NSF** grant, “Novel quantum effects in strongly correlated materials”
Period: 2020-2023, PI
Amount funded: \$360,000
- **Carl T Bush Lectureship**, University of Oklahoma
Period: 2019-2022
Amount funded: \$45,000
- **NSF Early CAREER Award**
“Interactions and quantum effects in nodal materials”
Period: 2014-2019, PI
Amount funded: \$402,000
- **Junior Faculty Summer Fellowship**, College of Arts and Sciences
Title: “Electrons in low dimensional carbon”
Period: 2013
Amount funded: \$7,000
- **Junior Faculty Summer Fellowship**, College of Arts and Sciences
Title: “Quantum phenomena in low dimensional systems”
Period: 2012
Amount funded: \$7,000

Publications

- [47] **Response function of momentum resolved electron spectroscopy in layered systems**
B. Uchoa, A. A. Husain, M. Mitrano, P. Abbamonte
In preparation
- [46] **Excitonic condensation in incoherent semimetals**
G. Jose, B. Uchoa
In preparation
- [45] **Topological sensing with photonic arrays of resonant circular waveguides**
K. E. Arledge, B. Weng, B. Uchoa
[arXiv:2009.10148 \(2020\)](#) Submitted to Physical Review Letters
- [44] **Unbounded hydrodynamics in nodal-line semimetals**
S. W. Kim, G. Jose, B. Uchoa
[arXiv:2009.01271 \(2020\)](#) Submitted to Physical Review Letters
- [43] **Coulomb interactions and renormalization of semi-Dirac fermions near a topological Lifshitz transition**
V. N. Kotov, B. Uchoa, and O. P. Sushkov
[arXiv:2008.04326 \(2020\)](#) Submitted to Physical Review B
- [42] **Quantum critical scaling of gapped phases in nodal-line semimetals**
G. Jose, B. Uchoa
Physical Review B **101**, 115123 (2020) [[PRB](#)]
- [41] **Crossover of charge fluctuations across the strange metal phase diagram**
A. A. Husain, M. Mitrano, M. S. Rak, S. I. Rubeck, B. Uchoa, J. Schneeloch, R. Zhong,
G. D. Gu, P. Abbamonte
Physical Review X **9**, 041062 (2019) [[PRX](#)]
- [40] **Quantum criticality of semi-Dirac fermions in 2+1 dimensions**
M. D. Uryszek, E. Christou, A. Jaefari, F. Kruger, B. Uchoa
Physical Review B **100**, 155101 (2019) [[PRB](#)]
- [39] **Ferromagnetic Mott state in twisted graphene bilayers at the magic angle**
K. Seo, V. N. Kotov, B. Uchoa
Physical Review Letters **122**, 246402 (2019) [[PRL](#)]
- [38] **Elastic gauge fields and zero-field 3D quantum Hall effect in hyperhoneycomb lattices**
S. W. Kim, B. Uchoa
Physical Review B **99**, 201301(R) (2019) [[RapidComm](#)]
- [37] **Possible chiral topological superconductivity in CrO₂ bilayers**
X. Dou, K. Seo, B. Uchoa
Physical Review B **99**, 104503 (2019) [[PRB](#)]
- [36] **Hidden charge order of interacting Dirac fermions on the honeycomb lattice**
E. Christou, B. Uchoa, F. Kruger
Physical Review B **98**, 161120(R) (2018) [[RapidComm](#)]
- [35] **Anomalous density fluctuations in a strange metal**
M. Mitrano, A. A. Husain, S. Vig, A. Kogar, M. S. Rak, S. I. Rubeck, J. Schmalian, B. Uchoa
J. Schneeloch, R. Zhong, G. D. Gu, P. Abbamonte
Proceedings of the National Academy of Sciences **115**, 5392 (2018) [[PNAS](#)]

- [34] **3D quantum anomalous Hall effect in hyperhoneycomb lattices**
S. W. Kim, K. Seo, B. Uchoa
Physical Review B **97**, 201101(R) (2018) [[RapidComm](#)]
- [33] **Superconducting states of semi-Dirac fermions at zero and finite magnetic fields**
B. Uchoa, K. Seo
Physical Review B **96**, 220503(R) (2017) [[RapidComm](#)]
- [32] **Designing quantum spin-orbital liquids in artificial Mott insulators**
X. Dou, V. N. Kotov, B. Uchoa
Scientific Reports **6**, 31737 (2016) [[SciRep](#)]
- [31] **A reexamination of the effective fine structure constant of graphene, as measured in graphite**
Y. Gan, G. P. Munoz, A. Kogar, B. Uchoa, D. Casa, T. Gog, E. Fradkin, P. Abbamonte
Physical Review B **93**, 195150 (2016) [[PRB](#)]
- [30] **Andreev reflection in edge states of time reversal invariant Landau levels**
S. Gunawardana, B. Uchoa
Physical Review B **91**, 241402(R) (2015) [[RapidComm](#)]
- [29] **Line of Dirac nodes in hyperhoneycomb lattices**
K. Mullen, B. Uchoa, D. Glatzhofer
Physical Review Letters **115**, 026403 (2015) [[PRL](#)]
- [28] **Valley order and loop currents in graphene on hexagonal boron nitride**
B. Uchoa, V. N. Kotov, M. Kindermann
Physical Review B **91**, 121412(R) (2015) [[RapidComm](#)]
- [27] **Quasiparticle renormalization in ABC graphene trilayers**
X. Dou, A. Jaefari, Y. Barlas, B. Uchoa
Physical Review B **90**, 161411(R) (2014) [[RapidComm](#)]
- [26] **Adatoms and Anderson localization in honeycomb lattices**
J. H. Garcia, B. Uchoa, L. Covaci, and T. G. Rappoport
Physical Review B **90**, 085425 (2014) [[PRB](#)]
- [25] **Orbital symmetry fingerprints for magnetic adatoms in graphene**
B. Uchoa, L. Yang, S.-W. Tsai, N. M. R. Peres, and A. H. Castro Neto
Editors choice for New Journal of Physics ‘Highlights of 2014’ collection
New Journal of Physics **16**, 013045 (2014) [[NJP](#)]
- [24] **Superconducting states in pseudo-Landau levels of strained graphene**
B. Uchoa, Y. Barlas
Physical Review Letters **111**, 046604 (2013) [[PRL](#)]
- [23] **Odd momentum pairing and superconductivity in graphene heterostructures**
F. Guinea, B. Uchoa
Physical Review B **86**, 134521 (2012) [[PRB](#)]
- [22] **Zero energy modes and gate-tunable gap in graphene on hexagonal boron nitride**
M. Kindermann, B. Uchoa, and D. M. Lee
Physical Review B **86**, 115415 (2012) [[PRB](#)]

- [21] **Electron-electron interactions in graphene: current status and perspectives**
V. N. Kotov, B. Uchoa, V. M. Pereira, A. H. Castro Neto, and F. Guinea
Reviews of Modern Physics **84**, 1067 (2012) [[RMP](#)]
- [20] **The electron many-body problem in graphene**
B. Uchoa, J. P. Reed, Y. Il Joe, D. Casa, T. Gog, E. Fradkin, P. Abbamonte
Proceedings of the “Nobel symposium in graphene ”, June 2010, Saltsjobaden, Sweden
Physica Scripta T **146**, 014014 (2012) [[PST](#)]
- [19] **Magnetic exchange mechanism for electronic gap opening in graphene**
T. G. Rappoport, M. Godoy, B. Uchoa, R. R dos Santos and A. H. Castro Neto
Europhysics Letters **96**, 27010 (2011) [[EPL](#)]
- [18] **Transport through Andreev bound states in a graphene quantum dot**
T. Dirks, T. L. Hughes, S. Lal, B. Uchoa, Y.-F. Chen, C. Chialvo, P. Goldbart, N. Mason
Nature Physics **7**, 386 (2011) [[NatPhys](#)]
- [17] **Kondo quantum criticality of magnetic adatoms in graphene**
B. Uchoa, T. G. Rappoport, A. H. Castro Neto
Physical Review Letters **106**, 016801 (2011) [[PRL](#)]
- [16] **The effective fine structure constant of freestanding graphene measured in graphite**
J. P. Reed, B. Uchoa, Y. Il Joe, D. Casa, T. Gog, E. Fradkin, P. Abbamonte
Science **330**, 805 (2010) [[Science](#)]
- [15] **Magnetism and magnetotransport in disordered graphene**
T. G. Rappoport, B. Uchoa, A. H. Castro Neto
Physical Review B **80**, 245408 (2009) [[PRB](#)]
- [14] **Theory of scanning tunneling spectroscopy for magnetic adatoms in graphene**
B. Uchoa, C. Ling, S.-W. Tsai, N. M. R. Peres, A. H. Castro Neto
Physical Review Letters **103**, 206804 (2009) [[PRL](#)]
- [13] **1/N expansion in correlated graphene**
V. N. Kotov, B. Uchoa, A. H. Castro Neto
Physical Review B **80**, 165424 (2009) [[PRB](#)]
- [12] **Comment on “BCS superconductivity of Dirac fermions in graphene layers”**
B. Uchoa, A. H. Castro Neto
Physical Review Letters **102**, 109701 (2009) [[PRL](#)]
- [11] **Adatoms in graphene**
A. H. Castro Neto, V. N. Kotov, J. Nilson, V. M. Pereira, N. M. R. Peres, B. Uchoa
Solid State Communications **149**, 1094 (2009) [[SSC](#)]
- [10] **Polarization charge distribution in gapped graphene**
V. N. Kotov, V. M. Pereira, B. Uchoa
Selected for Virtual Journal of Nanoscale Science & Technology **18** (10) (2008)
Physical Review B **78**, 075433 (2008) [[PRB](#)]
- [9] **Localized magnetic states in graphene**
B. Uchoa, V. N. Kotov, N. M. R. Peres, A. H. Castro Neto
Selected for Virtual Journal of Nanoscale Science & Technology **18** (3) (2008)
Physical Review Letters **101**, 026805 (2008) [[PRL](#)]

- [8] **Electron-electron interactions in the vacuum polarization of graphene**
V. N. Kotov, B. Uchoa, A. H. Castro Neto
Physical Review B **78**, 035119 (2008) [[PRB](#)]
- [7] **Tailoring graphene with metals on top**
B. Uchoa, C.-Y. Lin, A. H. Castro Neto
Physical Review B **77**, 035420 (2008) [[PRB](#)]
- [6] **Superconducting states of pure and doped graphene**
B. Uchoa, A. H. Castro Neto
Physical Review Letters **98**, 146801 (2007) [[PRL](#)]
- [5] **Comment on “New mean-field theory of the $tt't''J$ model applied to the high- T_c superconductors”**
A. Ferraz, E. Kochetov, B. Uchoa
Physical Review Letters **98**, 069701 (2007) [[PRL](#)]
- [4] **Magnetic structure and critical behavior of GdRhIn₅: resonant x-ray diffraction and renormalization group analysis**
E. Granado, B. Uchoa, A. Malachias, R. Lora-Serrano, P. G. Pagliuso, H. Westfahl Jr.
Physical Review B **74**, 214428 (2006) [[PRB](#)]
- [3] **Nodal liquid and s -wave superconductivity in transition metal dichalcogenides**
B. Uchoa, G. G. Cabrera, A. H. Castro Neto
Physical Review B **71**, 184509 (2005) [[PRB](#)]
- [2] **Ferromagnetic domains in finite systems: mean-field critical exponents and applications**
B. Uchoa, G. G. Cabrera
invited chapter in *New developments in ferromagnetism research*, (Nova Science), edited by V. N. Murray, chap. 4, pp. 101-120. [arXiv:0109499 \(2005\)](#)
- [1] **Electromagnetic response of layered superconductors with broken lattice inversion symmetry**
B. Uchoa, A. H. Castro Neto, G. G. Cabrera
Physical Review B **69**, 144512 (2004) [[PRB](#)]

Invited Talks, Symposia and Workshops

- [75] “Unbounded hydrodynamics in nodal-line semimetals”
Jan, 2021, Department of Physics, University of Kentucky, KY, USA
- [74] “Unbounded hydrodynamics in nodal-line semimetals”
Dec, 2020, Institute of Materials, Federal Polytechnic School of Lausanne, Switzerland
- [73] “Unbounded hydrodynamics in nodal-line semimetals”
Oct, 2020, Department of Physics, Columbia University, NY, USA
- [72] “Designing novel Mott states with a twist”
Feb, 2020, **Colloquium**, Department of Physics, University of Cincinnati, OH, USA
- [71] **Workshop** on “Future directions in topological states of matter: beyond the single particle picture”
Jan, 2020, Aspen Center for Physics, Aspen, CO, USA
- [70] **Workshop** on “Moire materials: strong correlations in synthetic superlattices”
June, 2019, Aspen Center for Physics, Aspen, CO, USA
- [69] “3D Quantum Hall effects in Dirac loops”
April, 2019, Department of Physics, University of Illinois at Urbana-Champaign, IL, USA
- [68] “3D Quantum Hall effects in Dirac loops”
April, 2019, Department of Physics, University of Cincinnati, OH, USA
- [67] “3D Quantum Hall effects in Dirac loops”
Feb, 2019, Department of Physics, Universite Paris-Sud, Paris, FR
- [66] “Topology and quantum phenomena in nodal matter”
Feb, 2019, **Colloquium**, London Centre for Nanotechnology, University College London, UK
- [65] “3D Quantum Hall effects in Dirac loops”
Jan, 2019, Department of Physics, University of Cambridge, Cambridge, UK
- [64] Gordon conference on: “Strongly Correlated Electron Systems”
June, 2018, South Hadley, MA, USA
- [63] “Topology and quantum phenomena in nodal matter”
April, 2018, **Colloquium**, University of Mississippi, MS, USA
- [62] “Quantum Hall condensates”
Feb, 2018, **Colloquium**, University of Central Florida, FL, USA
- [61] “Quantum simulation of SU(4) symmetric spin lattice models”
Oct, 2017, **Invited speaker** at the Symmetry 2017 Conference, Barcelona, Spain
- [60] “Quantum simulation of SU(4) symmetric spin lattice models”
June, 2017, Federal Polytechnic School of Lausanne, Switzerland
- [59] “3D anomalous Hall effects in hyperhoneycomb lattices”
June, 2017, Department of Physics, University of Wuzburg, Germany
- [58] “Designing quantum spin liquids in artificial spin lattices”
May, 2017, Department of Physics, University of California San Diego, CA, USA

- [57] “Quantum Hall condensates”
May, 2017, **Colloquium**, University of California San Diego, CA, USA
- [56] “Designing quantum spin liquids in artificial spin lattices”
May, 2017, Department of Physics, University of California Irvine, CA, USA
- [55] “Quantum phenomena in nodal materials”,
Sept, 2016, **Colloquium**, Department of Physics and Astronomy, University of Oklahoma, OK, USA
- [54] Gordon conference on: “Correlated Electron Systems”
June, 2016, South Hadley, MA, USA
- [53] “Designing quantum spin-orbital liquids in artificial Mott insulators”
June, 2016, Imdea Nanoscience Institute, Madrid, Spain
- [52] “Quantum Hall condensates”
Feb, 2016, **Colloquium**, Department of Physics, University of Texas Dallas, TX, USA
- [51] “Superconducting states in time reversal invariant Landau levels”
Aug, 2015, Department of Physics, University of Cambridge, Cambridge, UK
- [50] “Anomalous Hall effect in graphene”
Aug, 2015, Rutherford Appleton Laboratory, University College of London, Oxfordshire, UK
- [49] **Workshop** on “Understanding strongly coupled systems in high energy and condensed matter physics”
May, 2015, Aspen Center for Physics, Aspen, CO, USA
- [48] “Anomalous Hall effect in graphene”
April, 2015, Department of Physics, Rice University, Houston, TX, USA
- [47] “Anomalous Hall effect in graphene”
Nov, 2014, Department of Physics, University of California at Riverside, CA, USA
- [46] Gordon conference on: “Correlated Electron Systems”
June, 2014, South Hadley, MA, USA
- [45] “Anomalous Hall effect in graphene”
April, 2014, Department of Physics, Columbia University, NY, USA
- [44] “Flat bands in graphene”
April, 2014, Department of Physics, University of Illinois at Urbana-Champaign, IL, USA
- [43] “Strong correlations in graphene”
March, 2014, **Invited speaker** in the tutorial session at the **APS March Meeting**, Denver, CO
- [42] **Workshop** on “Unconventional order in strongly correlated systems”
Jan, 2014, Aspen Center for Physics, Aspen, CO, USA
- [41] Anderson localization in honeycomb lattices
October, 2013, **Colloquium**, Dept. of Physics, Oklahoma State University, Stillwater, OK, USA
- [40] “Superconducting states in graphene”
September, 2013, **Invited speaker** at the Midwest Solid State Conference, KA, USA
- [39] “Flat bands in graphene”
June, 2013, Institute of Materials Science of Madrid, Madrid, Spain

- [38] “Massive Dirac fermions: Localization gap and superconductivity”
April, 2013, Department of Physics, University of Indiana, Bloomington, IN, USA
- [37] “Superconducting states in graphene”
March 2013, **Invited Speaker** at the **APS March Meeting**, Baltimore, MD, USA
- [36] “Localization gap and zero-energy modes in 2 dimensional carbon”
Feb 2013, **Colloquium**, Department of Physics, University of Arkansas, AR, USA
- [35] “Localization gap and zero-energy modes in graphene”
August, 2012. Department of Physics, Texas A&M University, College Station, TX, USA
- [34] Gordon conference on: “Correlations and Topology in Electron Systems”
June, 2012, South Hadley, MA, USA
- [33] “The dielectric constant of graphene”
Workshop on “The physics of graphene”
Jan, 2012, Kavli Institute for theoretical Physics, KITP, Santa Barbara, CA, USA
- [32] “Quantum critical magnetism in graphene”
May, 2011, Department of physics, University of Cincinnati, OH, USA
- [31] “Roadmap to the many-body problem in graphene”
May, 2011, **Colloquium**, Department of physics, University of Oklahoma, OK, USA
- [30] “Electron-electron interactions and quantum criticality in graphene”
April, 2011, Department of Physics, Yale University, NH, USA
- [29] “Electron-electron interactions and quantum criticality in graphene”
March, 2011, School of Physics, Georgia Institute of Technology, GA, USA
- [28] “Electron-electron interactions and quantum criticality in graphene”
Feb, 2011, Department of Physics, University of Illinois at Urbana-Champaign, IL, USA
- [27] “Roadmap to the many-body problem in graphene”
Feb, 2011, **Colloquium**, Department of Physics, University of North Carolina Chapel Hill, NC, USA
- [26] “Quantum magnetism in graphene”
Invited plenary speaker at the Sanibel Symposium on “Magnetism in nano-structures”
Feb, 2011, St. Simons Island, GA, USA
- [25] **Workshop** on “Contrasting Superconductivity of Pnictides and Cuprates”
Jan, 2011, Aspen Center for Physics, Aspen, CO, USA
- [24] **Symposium** on “QFT & CMP, new developments”
Dec, 2010, Stanford Institute of Theoretical Physics, Stanford University, Palo Alto, CA, USA
- [23] “Quantum critical magnetism in graphene”
Oct, 2010, Department of Physics, Stanford University, Palo Alto, CA, USA
- [22] “Interactions and quantum criticality in graphene”
Oct, 2010, Department of Physics, University of California, Los Angeles, CA, USA
- [21] “Magnetism on the thinnest cloth”
Oct, 2010, **Colloquium**, IBM Almaden Research Center, CA, USA
Colloquium, Department of Physics, California State University, Northridge, CA, USA

- [19] “Interactions and quantum criticality in graphene”
 Oct, 2010, Department of Physics, University of California at San Diego, CA, USA
 Department of Physics, University of California at Riverside, CA, USA
 Department of Physics, University of California at Irvine, CA, USA
- [16] “Magnetism on the thinnest cloth”
 Sept, 2010, **Colloquium**, Department of Physics, Ohio University, OH, USA
- [15] “Magnetism and STM spectroscopy on graphene”
Invited Speaker at the Graphene Satellite Symposium, Nanotube 2010 Conference
 June 2010, Montreal, Canada
- [14] Gordon conference on: “Correlated Electron Systems”
 June, 2010, South Hadley, MA, USA
- [13] “Magnetism in graphene”
 June, 2010, Institute of Materials Science of Madrid, Madrid, Spain
- [12] **Nobel symposium** on “The physics of graphene”
 June 2010, Nobel Foundation, Stockholm, Sweden
- [11] “Magnetism in graphene”
 March 2010, **Invited Speaker** at the **APS March Meeting**, Portland, OR, USA
- [10] “Tailoring the thinnest cloth: how to induce and control magnetism in graphene”
 Feb 2010, **Colloquium**, Department of Physics, University of Vermont, VT, USA
- [9] “Tailoring the thinnest cloth: how to induce and control magnetism in graphene”
 Feb 2010, **Colloquium**, Department of Physics, College of William and Mary, VA, USA
- [8] **Workshop** on “Electronic and transport properties in nanoscopic materials”
 Jan, 2009, Vina del Mar, Chile
- [7] “Magnetic instabilities in graphene”
 Nov, 2008, Department of Physics, University of California at Riverside, CA, USA
- [6] “Magnetic superlattices in graphene”
 Oct, 2008, Condensed matter theory seminars, University of Illinois, IL, USA
- [5] **Workshop** on graphene,
 June, 2008, Aspen Center for Physics, Aspen, CO, USA
- [4] “Tailoring electronic properties in graphene”
 April, 2008, Condensed matter theory kids seminar, Harvard University, MA, USA
- [3] “Tailoring electronic properties in graphene”
 Feb, 2008, Department of Physics, University of Illinois at Urbana-Champaign, IL, USA
- [2] “Superconducting states in graphene”
Program: “Electronic properties of graphene”
 Jan, 2007, Kavli Institute for theoretical Physics, KITP, Santa Barbara, CA, USA
- [1] “Superconductivity in metal coated graphene”
 Sept, 2006, Condensed matter theory seminars, Boston University, MA, USA

Contributed Talks and Schools

- [9] “3D quantum anomalous Hall effect in a nodal line semimetal”
2018, **APS March Meeting**, Los Angeles, CA, USA
- [8] “Andreev reflection in edge states of time reversal invariant Landau levels”
2016, **APS March Meeting**, Baltimore, MD, USA
- [7] “Valley order and loop currents in graphene on boron nitride”
2015, **APS March Meeting** focus session, Dallas, TX, USA
- [6] “Kondo quantum criticality in graphene”
2011, **APS March Meeting** focus session, Dallas, TX, USA
- [5] “STM signatures for magnetic impurities in graphene”
2009, **APS March Meeting** focus session, Pittsburgh, PA, USA
- [4] “Tailoring electronic properties in coated graphene”
2008, **APS March Meeting** focus session, New Orleans, AL, USA
- [3] “Superconductivity in metal coated graphene”
2007, **APS March Meeting** focus session, Denver, CO, USA
- [2] “Nodal superconductivity in transition metal dichalcogenides”
May, 2005, **Conference**: “XXVII National condensed matter meeting”, Santos, Brazil
- [1] **Summer school** on “Low dimensional quantum systems: theory and experiment”,
July, 2001, International Center for Theoretical Physics, ICTP, Trieste, Italy

Public Lectures

- [6] “Measure that cat: an overview on quantum mechanics”
April, 2018, Norman North High School, Norman, OK, USA
- [5] “Measure that cat: an overview on quantum mechanics”
Nov, 2016, Oklahoma School of Science and Mathematics, Oklahoma City, OK, USA
- [4] “Measure that cat: an overview on quantum mechanics”
Nov, 2015, Norman North High School, Norman, OK, USA
- [3] “The science of novel materials”
Oct, 2014, Moore Public Library, OK, USA
- [2] “Measure that cat: an overview about quantum mechanics and new states of matter”
Sept, 2014, Osher Institute, OK, USA
- [1] “The science of novel materials”
Feb, 2013, Osher Institute, OK, USA