

Zhigang Jiang

School of Physics, 837 State Street
Georgia Institute of Technology, Atlanta, GA 30332

Phone: (404) 385-3906
Email: zhigang.jiang(at)physics.gatech.edu

Education

Northwestern University, Evanston, IL USA (1999 – 2005)

Ph.D., Physics, June 2005

Beijing University, Beijing, P.R. China (1995 – 1999)

B.S., Physics, July 1999

Research Experience and Employment

Professor, Georgia Institute of Technology (2021 – present)

Associate Professor, Georgia Institute of Technology (2014 – 2021)

Assistant Professor, Georgia Institute of Technology (2008 – 2014)

Postdoctoral Fellow, Columbia University jointly with Princeton University and
National High Magnetic Field Laboratory (2005 – 2008)

Award

3M Non-Tenured Faculty Grant, 2011-2013

Georgia Tech Thank a Teacher Certificate, 2013

Recent Talks

1. Joint 23rd Cryogenic Engineering Conference and International Cryogenic Materials Conference, virtual, July 2021
2. Army Research Laboratory, virtual, April 2021
3. Tianjin International Center for Nanoparticles & Nanosystems, virtual, October 2020
4. International Center for Quantum Design of Functional Materials, University of Science and Technology of China, Hefei, China, July 2019
5. High Magnetic Field Laboratory, Hefei, China, July 2019
6. APS March Meeting 2019, Boston, March 2019
7. Tianjin International Symposium on Epitaxial Graphene, Tianjin, July 2018

Recent Synergistic Activities

Panel speaker in Reflection, Insight, and Perspective on Topological Phenomena

Exhibited/Enabled in the Space of Solid State Matters, CEC/ICMC 2021

User Proposal Review Committee member for NHMFL, CNMS, CINT, and SSRL

Review Panels for DOE-BES, NSF-CMP, ARO, ACS-PRF, NASA-EPSCoR, Cottrell, NSERC, HKRGC-RIF, etc.

Referee for Science, Nature Physics, Nature Communications, PRL, PRB, Nano Letters, Science Advances, npj Quantum Materials, Scientific Reports, etc.

Journal Publications

Preprints:

“Protected transport in the epigraphene edge state,” V. Prudkovskiy, Y.R. Hu, K. Zhang, Y. Hu, P. Ji, G. Nunn, J. Zhao, C. Shi, A. Tejada, A. De Cecco, C. Winkelmann, Y. Jiang, T. Zhao, Z. Jiang, L. Ma, C. Berger, and W.A. de Heer, arXiv:1910.03697.

- “Magneto-infrared study of topological insulator Bi_2Se_3 ,” W. Yu, X. Chen, Z. Jiang, I. Miotkowski, H. Cao, Y.P. Chen, D. Smirnov, and L.-C. Tung, arXiv:1508.04363.
- “Spontaneous parity breaking in ferromagnet-superconductor heterostructures with strong spin-orbit coupling,” P.M. Svetlichnyy, Z. Jiang, and C.A.R. Sá de Melo, arXiv:1403.6858.
- “Point-contact Andreev reflection spectroscopy of candidate topological superconductor $\text{Cu}_{0.25}\text{Bi}_2\text{Se}_3$,” X. Chen, C. Huan, Y.S. Hor, C.A.R. Sá de Melo, and Z. Jiang, arXiv:1210.6054.
61. “Landau quantization in tilted Weyl semimetals with broken symmetry,” L. Zhang, Y. Jiang, D. Smirnov, and Z. Jiang, *J. Appl. Phys.* **129**, 105107 (2021) [invited paper to a Special Topic: Topological Materials and Devices].
60. “ $1/f$ Noise in epitaxial sidewall graphene nanoribbons,” O. Vail, J. Hankinson, C. Berger, W.A. de Heer, and Z. Jiang, *Appl. Phys. Lett.* **117**, 083105 (2020).
59. “Structure, morphological and magnetotransport properties of composite semiconducting and semimetallic InAs/GaSb superlattice structure,” M.K. Hudait, M. Clavel, P.S. Goley, Y. Xie, J.J. Heremans, Y. Jiang, Z. Jiang, D. Smirnov, G.D. Sanders, and C.J. Stanton, *Mater. Adv.* **1**, 1099 (2020).
58. “Unraveling the topological phase of ZrTe_5 via magnetoinfrared spectroscopy,” Y. Jiang, J. Wang, T. Zhao, Z.L. Dun, Q. Huang, X.S. Wu, M. Mourigal, H.D. Zhou, W. Pan, M. Ozerov, D. Smirnov, and Z. Jiang, *Phys. Rev. Lett.* **125**, 046403 (2020).
57. “Electron-hole asymmetry of surface states in topological insulator Sb_2Te_3 thin films revealed by magneto-infrared spectroscopy,” Y. Jiang, M.M. Asmar, X. Han, M. Ozerov, D. Smirnov, M. Salehi, S. Oh, Z. Jiang, W.-K. Tse, and L. Wu, *Nano Lett.* **20**, 4588 (2020).
56. “Dirac energy spectrum and inverted bandgap in metamorphic $\text{InAsSb}/\text{InSb}$ superlattices,” S. Suchalkin, M. Ermolaev, T. Valla, G. Kipshidze, D. Smirnov, S. Moon, M. Ozerov, Z. Jiang, Y. Jiang, S.P. Svensson, W.L. Sarney, and G. Belenky, *Appl. Phys. Lett.* **116**, 032101 (2020) [featured as a cover article].
55. “Magnetic field mixing and splitting of bright and dark excitons in monolayer MoSe_2 ,” Z. Lu, D. Rhodes, Z. Li, D.V. Tuan, Y. Jiang, J. Ludwig, Z. Jiang, Z. Lian, S.-F. Shi, J. Hone, H. Dery, and D. Smirnov, *2D Materials* **7**, 015017 (2020).
54. “Valley and Zeeman splittings in multilayer epitaxial graphene revealed by circular polarization resolved magneto-infrared spectroscopy,” Y. Jiang, Z. Lu, J. Gigliotti, A. Rustagi, L. Chen, C. Berger, W.A. de Heer, C.J. Stanton, D. Smirnov, and Z. Jiang, *Nano Lett.* **19**, 7043 (2019).
53. “Polymer stamp-based mechanical exfoliation of thin high-quality pyrolytic graphite sheets,” D. Hahn, B. Jayasena, Z. Jiang, and S.N. Melkote, *J. Micro Nano-Manuf.* **7**, 011005 (2019).
52. “Landau quantization in coupled Weyl points: A case study of semimetal NbP ,” Y. Jiang, Z.L. Dun, S. Moon, H.D. Zhou, M. Koshino, D. Smirnov, and Z. Jiang, *Nano Lett.* **18**, 7726 (2018).
51. “Anomalously large resistance at the charge neutrality point in a zero-gap InAs/GaSb bilayer,” W. Yu, V. Clericò, C. Hernández Fuentevilla, X. Shi, Y. Jiang, D. Saha, W.K. Lou, K. Chang, D.H. Huang, G. Gumbs, D. Smirnov, C.J. Stanton, Z. Jiang,

- V. Bellani, Y. Meziani, E. Diez, W. Pan, S.D. Hawkins, and J.F. Klem, *New J. Phys.* **20**, 053062 (2018).
50. “*Landau-level spectroscopy of massive Dirac fermions in single-crystalline ZrTe₅ thin flakes*,” Y. Jiang, Z.L. Dun, H.D. Zhou, Z. Lu, K.-W. Chen, S. Moon, T. Besara, T.M. Siegrist, R.E. Baumbach, D. Smirnov, and Z. Jiang, *Phys. Rev. B* **96**, 041101(R) (2017).
49. “*Probing the semiconductor to semimetal transition in InAs/GaSb double quantum wells by magneto-infrared spectroscopy*,” Y. Jiang, S. Thapa, G.D. Sanders, C.J. Stanton, Q. Zhang, J. Kono, W.K. Lou, K. Chang, S.D. Hawkins, J.F. Klem, W. Pan, D. Smirnov, and Z. Jiang, *Phys. Rev. B* **95**, 045116 (2017).
48. “*Quantum oscillations at integer and fractional Landau level indices in single-crystalline ZrTe₅*,” W. Yu, Y. Jiang, J. Yang, Z.L. Dun, H.D. Zhou, Z. Jiang, P. Lu, and W. Pan, *Scientific Reports* **6**, 35357 (2016).
47. “*Temperature-driven massless Kane fermions in HgCdTe crystals: verification of universal velocity and rest-mass description*,” F. Teppe, M. Marcinkiewicz, S.S. Krishtopenko, S. Ruffenach, C. Consejo, A.M. Kadykov, W. Desrat, D. But, W. Knap, J. Ludwig, S. Moon, D. Smirnov, M. Orlita, Z. Jiang, S.V. Morozov, V.I. Gavrilenko, N.N. Mikhailov, and S.A. Dvoretckii, *Nature Communications* **7**, 12576 (2016).
46. “*Design of asymmetric peptide bilayer membranes*,” S. Li, A.K. Mehta, A.N. Sidorov, T.M. Orlando, Z. Jiang, N. Anthony, and D.G. Lynn, *J. Am. Chem. Soc.* **138**, 3579 (2016) [featured in JACS Spotlights].
45. “*Magnetoinfrared spectroscopic study of thin Bi₂Te₃ single crystals*,” L.-C. Tung, W. Yu, P. Cadden-Zimansky, I. Miotkowski, Y.P. Chen, D. Smirnov, and Z. Jiang, *Phys. Rev. B* **93**, 085140 (2016).
44. “*Unraveling photoinduced spin dynamics in the topological insulator Bi₂Se₃*,” M.C. Wang, S. Qiao, Z. Jiang, S.N. Luo, and J. Qi, *Phys. Rev. Lett.* **116**, 036601 (2016).
43. “*Terahertz near-field imaging of surface plasmon waves in graphene structures*,” O. Mitrofanov, W. Yu, R. Thompson, Y. Jiang, Z.J. Greenberg, J. Palmer, I. Brener, W. Pan, C. Berger, W.A. de Heer, and Z. Jiang, *Solid State Commun.* **224**, 47 (2015) [invited paper to a Special Issue: Graphene Technology].
42. “*Giant supercurrent states in a superconductor-InAs/GaSb-superconductor junction*,” X. Shi, W. Yu, Z. Jiang, B.A. Bernevig, W. Pan, S.D. Hawkins, and J.F. Klem, *J. Appl. Phys.* **118**, 133905 (2015).
41. “*Rational Design of Multilayer Collagen Nanosheets with Compositional and Structural Control*,” T. Jiang, O. Vail, Z. Jiang, X. Zuo, and V. Conticello, *J. Am. Chem. Soc.* **137**, 7793 (2015).
40. “*Superconducting proximity effect in inverted InAs/GaSb quantum well structures with Ta electrodes*,” W. Yu, Y. Jiang, C. Huan, X. Chen, Z. Jiang, S.D. Hawkins, J.F. Klem, and W. Pan, *Appl. Phys. Lett.* **105**, 192107 (2014).
39. “*Neurofibrillar tangle surrogates: Histone H1 binding to patterned phosphotyrosine peptide nanotubes*,” S. Li, A.N. Sidorov, A.K. Mehta, A.J. Bisignano, D. Das, W.S. Childers, E. Schuler, Z. Jiang, T.M. Orlando, K. Berland, and D.G. Lynn, *Biochemistry* **53**, 4225 (2014).
38. “*Cyclotron resonance of single-valley Dirac fermions in nearly gapless HgTe quantum wells*,” J. Ludwig, Yu.B. Vasilyev, N.N. Mikhailov, J.M. Poumirol, Z. Jiang, O. Vafeek, and D. Smirnov, *Phys. Rev. B* **89**, 241406(R) (2014).

37. "Exceptional ballistic transport in epitaxial graphene nanoribbons," J. Baringhaus, M. Ruan, F. Edler, A. Tejada, M. Sicot, A. Taleb-Ibrahimi, A.-P. Li, Z. Jiang, E.H. Conrad, C. Berger, C. Tegenkamp, and W.A. de Heer, *Nature* **506**, 349 (2014).
36. "Tuning a Schottky barrier in a photoexcited topological insulator with transient Dirac cone electron-hole asymmetry," M. Hajlaoui, E. Papalazarou, J. Mauchain, L. Perfetti, A. Taleb-Ibrahimi, F. Navarin, M. Monteverde, P. Auban-Senzier, C.R. Pasquier, N. Moisan, D. Boschetto, M. Neupane, M.Z. Hasan, T. Durakiewicz, Z. Jiang, Y. Xu, I. Miotkowski, Y.P. Chen, S. Jia, H. Ji, R.J. Cava, and M. Marsi, *Nature Communications* **5**, 3003 (2014).
35. "Probing terahertz surface plasmon waves in graphene structures," O. Mitrofanov, W. Yu, R. Thompson, Y. Jiang, I. Brener, W. Pan, C. Berger, W.A. de Heer, and Z. Jiang, *Appl. Phys. Lett.* **103**, 111105 (2013).
34. "Time resolved ultrafast ARPES for the study of topological insulators: The case of Bi_2Te_3 ," M. Hajlaoui, E. Papalazarou, J. Mauchain, Z. Jiang, I. Miotkowski, Y.P. Chen, A. Taleb-Ibrahimi, L. Perfetti, and M. Marsi, *Eur. Phys. J. Special Topics* **222**, 1271 (2013).
33. "Magnetoplasmons in quasi-neutral epitaxial graphene nanoribbons," J.M. Poumirol, W. Yu, X. Chen, C. Berger, W.A. de Heer, M.L. Smith, T. Ohta, W. Pan, M.O. Goerbig, D. Smirnov, and Z. Jiang, *Phys. Rev. Lett.* **110**, 246803 (2013).
32. "Competition between the structure phase transition and superconductivity in $Ir_{1-x}Pt_xTe_2$ as revealed by pressure effects," A. Kiswandhi, J.S. Brooks, H.B. Cao, J.Q. Yan, D. Mandrus, Z. Jiang, and H.D. Zhou, *Phys. Rev. B* **87**, 121107(R) (2013).
31. "Ultrafast surface carrier dynamics in the topological insulator Bi_2Te_3 ," M. Hajlaoui, E. Papalazarou, J. Mauchain, G. Lantz, N. Moisan, D. Boschetto, Z. Jiang, I. Miotkowski, Y.P. Chen, L. Perfetti, and M. Marsi, *Nano Lett.* **12**, 3532 (2012).
30. "Temperature dependence of Raman-active optical phonons in Bi_2Se_3 and Sb_2Te_3 ," Y. Kim, X. Chen, Z. Wang, J. Shi, I. Miotkowski, Y.P. Chen, P.A. Sharma, A.L. Lima Sharma, M.A. Hekmaty, Z. Jiang, and D. Smirnov, *Appl. Phys. Lett.* **100**, 071907 (2012).
29. "Thermal expansion coefficients of Bi_2Se_3 and Sb_2Te_3 crystals from 10 K to 270 K," X. Chen, H.D. Zhou, A. Kiswandhi, I. Miotkowski, Y.P. Chen, P.A. Sharma, A.L. Lima Sharma, M.A. Hekmaty, D. Smirnov, and Z. Jiang, *Appl. Phys. Lett.* **99**, 261912 (2011).
28. "Measurement of graphite tight-binding parameters using high field magneto-reflectance," L.-C. Tung, P. Cadden-Zimansky, J. Qi, Z. Jiang, and D. Smirnov, *Phys. Rev. B* **84**, 153405 (2011).
27. "Thermoelectric power of graphene as surface charge doping indicator," A.N. Sidorov, A. Sherehiy, R. Jayasinghe, R. Stallard, D.K. Benjamin, Q.K. Yu, Z.H. Liu, W. Wu, H.L. Cao, Y.P. Chen, Z. Jiang, and G.U. Sumanasekera, *Appl. Phys. Lett.* **99**, 013115 (2011).
26. "Ultrafast carrier and phonon dynamics in Bi_2Se_3 crystals," J. Qi, X. Chen, W. Yu, P. Cadden-Zimansky, D. Smirnov, N.H. Tolk, I. Miotkowski, H. Cao, Y.P. Chen, Y. Wu, S. Qiao, and Z. Jiang, *Appl. Phys. Lett.* **97**, 182102 (2010).
25. "Thermal transport in graphene nanostructures: experiments and simulations," L.A. Jauregui, Y.N. Yue, A.N. Sidorov, J.N. Hu, Q.K. Yu, G. Lopez, R. Jalilian, D.K. Benjamin, D.A. Delk, W. Wu, Z.H. Liu, X.W. Wang, Z. Jiang, X.L. Ruan, J.M. Bao, S.S. Pei, and Y.P. Chen, *ECS Trans.* **28**, 73 (2010).

24. “*Electronic transport in chemical vapor deposited graphene synthesized on Cu: quantum Hall effect and weak localization,*” H.L. Cao, Q.K. Yu, L.A. Jauregui, J.F. Tian, W. Wu, Z.H. Liu, R. Jalilian, D.K. Benjamin, Z. Jiang, J.M. Bao, S.S. Pei, and Y.P. Chen, *Appl. Phys. Lett.* **96**, 122106 (2010).
23. “*Interaction-induced shift of the cyclotron resonance in monolayer graphene,*” E.A. Henriksen, P. Cadden-Zimansky, Z. Jiang, Z.Q. Li, L.-C. Tung, M.E. Schwartz, M. Takita, Y.-J. Wang, P. Kim, and H.L. Stormer, *Phys. Rev. Lett.* **104**, 067404 (2010).
22. “*Symmetry breaking in the zero-energy Landau level in bilayer graphene,*” Y. Zhao, P. Cadden-Zimansky, Z. Jiang, and P. Kim, *Phys. Rev. Lett.* **104**, 066801 (2010).
21. “*Band structure asymmetry of bilayer graphene revealed by infrared spectroscopy,*” Z.Q. Li, E.A. Henriksen, Z. Jiang, Z. Hao, M.C. Martin, P. Kim, H.L. Stormer, and D.N. Basov, *Phys. Rev. Lett.* **102**, 037403 (2009).
20. “*Distortion of the 2D Wigner crystal into a ‘quasi-3D’ insulator,*” B.A. Piot, C.R. Dean, G. Gervais, Z. Jiang, L.W. Engel, L.N. Pfeiffer, and K.W. West, *Int. J. Mod. Phys. B* **23**, 2713 (2009).
19. “*Wigner crystallization in a quasi-3D electronic system,*” B.A. Piot, Z. Jiang, C.R. Dean, L.W. Engel, G. Gervais, L.N. Pfeiffer, and K.W. West, *Nature Physics* **4**, 936 (2008).
18. “*Dirac charge dynamics in graphene by infrared spectroscopy,*” Z.Q. Li, E.A. Henriksen, Z. Jiang, Z. Hao, M.C. Martin, P. Kim, H.L. Stormer, and D.N. Basov, *Nature Physics* **4**, 532 (2008).
17. “*Ultrahigh electron mobility in suspended graphene,*” K.I. Bolotin, K.J. Sikes, Z. Jiang, G. Fudenberg, J. Hone, P. Kim, and H.L. Stormer, *Solid State Commun.* **146**, 351 (2008).
16. “*Cyclotron resonance of bilayer graphene,*” E.A. Henriksen, Z. Jiang, L.-C. Tung, M.E. Schwartz, M. Takita, Y.-J. Wang, P. Kim, and H.L. Stormer, *Phys. Rev. Lett.* **100**, 087403 (2008).
15. “*Thermopower oscillation symmetries in a double-loop Andreev interferometer,*” P. Cadden-Zimansky, Z. Jiang, and V. Chandrasekhar, *Physica E* **40**, 155 (2007).
14. “*Quantum Hall states near the charge-neutral Dirac point in graphene,*” Z. Jiang, Y. Zhang, H.L. Stormer, and P. Kim, *Phys. Rev. Lett.* **99**, 106802 (2007).
13. “*Graphene in extremely high magnetic fields,*” Z. Jiang, Y. Zhang, Y.-W. Tan, J.A. Jaszczak, H.L. Stormer, and P. Kim, *Int. J. Mod. Phys. B* **21**, 1123 (2007).
12. “*Quantum Hall effect in graphene,*” Z. Jiang, Y. Zhang, Y.-W. Tan, H.L. Stormer, and P. Kim, *Solid State Commun.* **143**, 14 (2007).
11. “*Impact of spin-orbit coupling on quantum Hall nematic phases,*” M.J. Manfra, R. de Picciotto, Z. Jiang, S.H. Simon, L.N. Pfeiffer, K.W. West, and A.M. Sergent, *Phys. Rev. Lett.* **98**, 206804 (2007).
10. “*Infrared spectroscopy of Landau levels of graphene,*” Z. Jiang, E.A. Henriksen, L.-C. Tung, Y.-J. Wang, M.E. Schwartz, M.Y. Han, P. Kim, and H.L. Stormer, *Phys. Rev. Lett.* **98**, 197403 (2007).
9. “*Charge imbalance, crossed Andreev reflection and elastic co-tunneling in ferromagnet/superconductor/normal-metal structures,*” P. Cadden-Zimansky, Z. Jiang, and V. Chandrasekhar, *New J. Phys.* **9**, 116 (2007).

8. "Room-temperature quantum Hall effect in graphene," K.S. Novoselov, Z. Jiang, Y. Zhang, S.V. Morozov, H.L. Stormer, U. Zeitler, J.C. Maan, G.S. Boebinger, P. Kim, and A.K. Geim, *Science* **315**, 1379 (2007).
7. "Landau-level splitting in graphene in high magnetic fields," Y. Zhang, Z. Jiang, J.P. Small, M.S. Purewal, Y.-W. Tan, M. Fazlollahi, J.D. Chudow, J.A. Jaszczak, H.L. Stormer, and P. Kim, *Phys. Rev. Lett.* **96**, 136806 (2006).
6. "Transport through ferromagnet/superconductor interfaces," Z. Jiang, J. Aumentado, W. Belzig, and V. Chandrasekhar, *Theory of Quantum Transport in Metallic and Hybrid Nanostructures* **230**, 57 (2006).
5. "Quantitative measurements of the thermal conductance of Andreev interferometers," Z. Jiang and V. Chandrasekhar, *Phys. Rev. B (rapid commun.)* **72**, 020502(R) (2005).
4. "The symmetry of phase-coherent thermopower oscillations in Andreev interferometers," Z. Jiang and V. Chandrasekhar, *Chinese J. Phys.* **43**, 693 (2005).
3. "Thermal conductance of Andreev interferometers," Z. Jiang and V. Chandrasekhar, *Phys. Rev. Lett.* **94**, 147002 (2005).
2. "Pinning phenomena in a Nb film with a square lattice of artificial pinning centers," Z. Jiang, D.A. Dikin, V.V. Metlushko, V.V. Moshchalkov, and V. Chandrasekhar, *Appl. Phys. Lett.* **84**, 5371 (2004).
1. "Local thermometry technique based on proximity-coupled superconductor/normal-metal/superconductor devices," Z. Jiang, H. Lim, J. Eom, and V. Chandrasekhar, *Appl. Phys. Lett.* **83**, 2190 (2003).

Conference Papers

8. "Negative magnetoresistance in Ti-cleaned single-layer graphene," A. Fujimoto, C.A. Joiner, Y. Jiang, D. Terasawa, A. Fukuda, Z. Jiang, and E. M. Vogel, *J. Phys.: Conf. Ser.* **603**, 012021 (2015).
7. "THz near-field microscopy of graphene structures," O. Mitrofanov, W. Yu, R. Thompson, Y. Jiang, I. Brener, W. Pan, C. Berger, W.A. de Heer, and Z. Jiang, *Proc. SPIE* **8993**, 89932A (2013).
6. "Analysis of Supramolecular Assemblies via Electrostatic Force Microscopy," S. Li, A.K. Mehta, D. Das, A.N. Sidorov, Z. Jiang, T.M. Orlando, and D.G. Lynn, in the proceedings of the 23rd American Peptide Symposium, American Peptide Society (2013).
5. "Magnetic field induced quenching of photoluminescence in $La_{0.7}Sr_{0.3}MnO_3$ nanopillars embedded in self-assembled, vertically-aligned epitaxial $(ZnO)_{0.5}:(La_{0.7}Sr_{0.3}MnO_3)_{0.5}$ nanocomposite films," W. Pan, Z.X. Bi, K.R. Westlake, T.S. Luk, M.H. Crawford, W. Yu, Z. Jiang, T.D. Tokumoto, S.A. McGill, J.L. MacManus-Driscoll, and Q.X. Jia, in the proceedings of the 21st Annual International Conference on Composites/Nano Engineering (2013).
4. "Cyclotron Resonance near the Charge Neutrality Point of Graphene," Z. Jiang, E.A. Henriksen, P. Cadden-Zimansky, L.-C. Tung, Y.-J. Wang, P. Kim, and H.L. Stormer, *AIP Conf. Proc.* **1399** 773 (2011).
3. "Molecular dynamics simulation of melting and vacancy movement in graphene nanoribbons," J.N. Hu, X.L. Ruan, Z. Jiang, and Y.P. Chen, in the proceedings of the 30th International Thermal Conductivity Conference (2009).

2. “*Negative Differential Thermal Conductance in Graphene Nanoribbons: Toward Graphene Thermal Circuits*,” J.N. Hu, X.L. Ruan, Z. Jiang, and Y.P. Chen, in the proceedings of the 2009 TECHCON Conference (2009).

1. “*Molecular Dynamics Calculation of Thermal Conductivity of Graphene Nanoribbons*,” J.N. Hu, X.L. Ruan, Z. Jiang, and Y.P. Chen, AIP Conf. Proc. **1173** 135 (2009).

Book Chapter

“*Epitaxial graphene on SiC: 2D sheets, selective growth and nanoribbons*,” Claire Berger, Dogukan Deniz, Jamey Gigliotti, James Palmer, John Hankinson, Yiran Hu, Jean-Philippe Turmaud, Renaud Puybaret, Abdallah Ougazzaden, Anton Sidorov, Zhigang Jiang, and Walt A. de Heer, book chapter in *Graphene Growth on Semiconductors*, (Eds: N. Motta, F. Iacopi, and C. Coletti), PanStanford Publishing, arXiv:1611.08937.

Patent

2. “*Electrical resistance devices for radiation detection*,” P.N. First, Z. Jiang, T.M. Orlando, and E. Frey, Invention Disclosure filed (2019).

1. “*Nanoenhanced hemostatic device and methods for making a layer having hemostatic properties*,” W.A. Lam, A.N. Sidorov, and Z. Jiang, International Patent, WO/2013/134107 (2013) and U.S. Patent, 9993575 (2018).