Curriculum Vitae

Feng Miao
Professor
School of Physics
Nanjing University
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Professional Preparation

B.A., Physics	(2004)	Nanjing University
Ph.D., Physics	(2009)	University of California, Riverside

Appointments

Professor, School of Physics, Nanjing University	July 2012 – present
Research Associate, Hewlett-Packard Laboratory (Palo Alto)	July 2009 – July 2012

Research Interest

Electronic transport properties of two-dimensional (2D) layered materials, and engineering of emerging nanoelectronic devices.

Honors and Awards

Nanjing Natural Science Academic Paper Award (2018)
NSFC (National Science Fund of China) Distinguished Young Scholar (2016)
Chief Scientist of National Key Basic Research Program (2015)
Jiangsu Young Investigator Award (2014)
China's "Thousand Youth Talents Plan" (2012)
Poe Memorial Scholarship Award (2009)
Chinese Government Award for Outstanding Student Abroad (2009)
Dean's Dissertation Fellowship Award (2008)
Dean's Fellowship Award (2004)

Professional Activities

- Refereed journal articles for *Nature Nanotechnology*, *Nature Electronics*, *Nature Communications, Advanced Materials, Nano Letters*, *Applied Physics Letters, Scientific Reports, Europhysics Letters, Journal of Applied Physics, Nanoscale, Journal of Physics D, Applied Physics A, IEEE Transactions on Electron Devices, Semiconductor Science and Technology, et al.*
- Reviewed proposals for NSFC (NSF of China), MOEC (The Ministry of Education of China), SNSF(Swiss National Science Foundation).

Postdoctoral Scholar Supervised

Hongguang Zhang, Xiaojuan Lian, Song Hao

Graduate Students Supervised

Erfu Liu, Yajun Fu, Kang Xu, Junwen Zeng, Mingsheng Long, Lili Zhang, Miao Wang, Yaojia Wang, Yu Wang, Chenyu Wang, Chen Pan, Anyuan Gao, Qiao Li, Zecheng Ma, Xiaowei Liu, Chenchen Wu, Tianjun Cao, Shengnan Yan, Cong Wang

Publications (*Total citations:* **11378** *by Feb. 2018*)

1. J. Zeng, E. Liu, Y. Fu, Z. Chen, C. Pan, C. Wang, M. Wang, Y. Wang, K. Xu, S. Cai, X. Yan, Y. Wang, X. Liu, P. Wang, S. Liang*, Y. Cui, H. Wang, H. Yuan*, **F. Miao***, "Gate-Induced Interfacial Superconductivity in 1T-SnSe2", *Nano Letters* **18**, 1410 (2018).
2. C. Pan, Y. Fu, J. Wang, J. Zeng, G. Su, M. Long, E. Liu, C. Wang, A. Gao, M. Wang, Y. Wang, Z. Wang, S. Liang*, R. Huang, **F. Miao***, "Analog Circuit Applications based on Ambipolar Graphene/MoTe2", *Advanced Electronic Materials*, DOI: 10.1002/aelm.201700662 (2018).

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3. M. Zhang, H. Wang, K. Mu, P. Wang, W. Niu, S. Zhang, G. Xiao, Y. Chen, T. Tong, D. Fu, X. Wang, H. Zhang, F. Song, **F. Miao**, Z. Sun, Z. Xia, X. Wang, Y. Xu, B. Wang, D. Xing, R. Zhang, "Topological Phase Transition-Induced Triaxial Vector Magnetoresistance in (Bi1–xInx)2Se3 Nanodevices", *ACS Nano* **12**, 1537 (2018).
4. M. Wang, S. Cai, C. Pan, C. Wang, X. Lian, Y. Zhuo, K. Xu, T. Cao, X. Pan, B. Wang, S. Liang, J. Yang*, P. Wang*, **F. Miao***, "Robust memristors based on layered two-dimensional materials", *Nature Electronics* **1**, 130 (2018).

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5. W. Luo, M. Zhu, G. Peng, X. Zheng, **F. Miao**, S. Bai, X. Zhang, S. Qin, "Carrier Modulation of Ambipolar Few-Layer MoTe2 Transistors by MgO Surface Charge Transfer Doping", *Advanced Functional Materials* (2018) (in press).
6. T. Yang, B. Zheng, Z. Wang, T. Xu, C. Pan, J. Zou, X. Zhang, Z. Qi, H. Liu, Y. Feng, W. Hu, **F. Miao**, L. Sun, X. Duan, A. Pan, "Van der Waals epitaxial growth and optoelectronics of large-scale WSe2/SnS2 vertical bilayer p-n junctions", *Nature Communications* **8**, 1906 (2017).
7. H. Wang, E. Liu, Y. Wang, B. Wan, C. Ho, X. Wan*, **F. Miao***, "Cleavage tendency of anisotropic two-dimensional materials: ReX2 (X = S,Se) and WTe2", *Physical Review B* **96**, 165418 (2017).
8. Y. Fu, E. Liu, H. Yuan*, P. Tang, B. Lian, G. Xu, J. Zeng, Z. Chen, Y. Wang, W. Zhou, K. Wu, A. Gao, C. Pan, M. Wang, B. Wang*, S. Zhang, Y. Cui, H. Wang, **F. Miao***, "Gated tuned superconductivity and phonon softening in monolayer and bilayer MoS2", *npj Quantum Materials* **2**, 52 (2017).
9. Y. Fu, M. Long, A. Gao, Y. Wang, Chen Pan, Xiaowei Liu, Junwen Zeng, Kang Xu, Lili Zhang, Erfu Liu, Weida Hu, Xiaomu Wang, **Feng Miao***, "Intrinsic p-type W-based transition metal dichalcogenide by substitutional Ta-doping", *Applied Physics Letters* **111**, 043502 (2017).
10. M. Long, A. Gao, P. Wang, H. Xia, Claudia Ott, C. Pan, Y. Fu, E. Liu, X. Chen, W. Lu, Tom Nilges, J. Xu, X. Wang*, W. Hu*, **F. Miao***, "Room-temperature high detectivity mid-infrared photodetectors based on black arsenic phosphorus", *Science Advances* **3**, e1700589 (2017).
11. X. Lian, M. Wang, M. Rao, P. Yan, J. J. Yang*, **F. Miao***, "Characteristics and Transport Mechanisms of Triple Switching Regimes of TaOx Memristor", *Applied Physics Letters* **110**, 173504 (2017).

12. D. Zhou, Y. Zhou, C. Pu, X. Chen, P. Lu, X. Wang, C. An, Y. Zhou, **F. Miao**, Ching-Hwa Ho, J. Sun, Z. Yang, D. Xing, “Pressure-induced metallization and superconducting phase in ReS2”, *njp Quantum Materials* **2**, 19 (2017).
13. Y. Yu, **F. Miao**, J. He, Z. Ni, “Photodetecting and light-emitting devices based on two-dimensional materials”, *Chinese Physics B* **26**, 036801 (2017).
14. Y. Wang, E. Liu, H. Liu, Y. Pan, L. Zhang, J. Zeng, Y. Fu, M. Wang, K. Xu, Z. Huang, Z. Wang, H. Lu, D. Xing, B. Wang*, X. Wan*, **F. Miao***, “Gate-Tunable Negative Longitudinal Magnetoresistance in the Predicted Type-II Weyl Semimetal WTe2”, *Nature Communications* **7**, 13142 (2016).
15. W. Luo, S. Qin, M. Long, E. Liu, Y. Fu, W. Zhou, **F. Miao**, S. Zhang, R. Zhang, X. Zhang, “Tunable photoresponse with small drain voltage in few-layer graphene–WSe2”, *Physics Letters A* **108**, 091902 (2016).
16. H. Liu, B. Xu, J-M Liu, J. Yin, **F. Miao**, C-G Duan, X. Wan, “Highly efficient and ultrastable visible-light photocatalytic water splitting over ReS2,” *Physical Chemistry Chemical Physics* **18**, 14222 (2016).
17. A. Gao, E. Liu, M. Long, W. Zhou, Y. Wang, T. Xia, W. Hu, B. Wang, **F. Miao***, “Gate-tunable rectification inversion and photovoltaic detection in graphene/WSe2 heterostructures,” *Applied Physics Letters* **108**, 223501 (2016).
18. H. Zhang, W. Zhou*, X. Li, J. Xu, Y. Shi, B. Wang, **F. Miao***, “High temperature Raman investigation of few-layer MoTe2,” *Applied Physics Letters* **108**, 091902 (2016).
19. W. Yi, S. E. Savel, G. Medeiros-Ribeiro, **F. Miao**, M.-X. Zhang, J. J. Yang, A. M. Bratkovsky, R. Stanley Williams, “Quantized Conductance coincides with State Instability and Excess Noise in Tantalum Oxide Memristors,” *Nature Communications* **7**, 11142 (2016).
20. H. Lu, K. Zhang, H. Pan, J. Zeng, T. Chen, F. Song, X. Wang, **F. Miao**, R. Zhang, “Experimental observation on a temperature-induced decoupling between the surface states in topological insulator nanoplates Bi2−0.15(TeSe)3+0.15,” *Applied Physics A* **122**, 294 (2016).
21. M. Long, E. Liu, P. Wang, A. Gao, W. Luo, B. Wang*, J. Zeng, Y. Fu, K. Xu, W. Zhou, Y. Lv, S. Yao, M. Lu, Y. Chen, Z. Ni, Y. You, X. Zhang, S. Qin, Y. Shi, W. Hu*, D. Xing, **F. Miao***, "Broadband Photovoltaic Detectors Based on an Atomically Thin Heterostructure," *Nano Letters* **16**, 2254 (2016).
22. C. Wang, X. Cui*, Y. Li*, H. Li, L. Huang, J. Bi, J. Luo, L. Ma, W. Zhou, Y. Cao, B. Wang, **F. Miao***, "A label-free and portable graphene FET aptasensor for children blood lead detection," *Scientific Reports* **6**, 21711 (2016).
23. W. Zhou, J. Zeng, X. Li, J. Xu, Y. Shi, W. Ren, **F. Miao***, B. Wang*, D. Xing, "Ultraviolet Raman spectra of double-resonant modes of graphene," *Carbon* **101**, 235 (2016).
24. Y. Ji, C. Pan, M. Zhang, S. Long, X. Lian, **F. Miao**, F. Hui, Y. Shi, L. Larcher, E. Wu, M. Lanza, "Boron nitride as two dimensional dielectric: Reliability and dielectric breakdown,” *Applied Physics Letters* **108**, 012905 (2016).
25. E. Liu, M. Long, J. Zeng, W. Luo, Y. Wang, Y. Pan, W. Zhou, B. Wang*, W. Hu, Z. Ni, Y. You, X. Zhang, S. Qin, Y. Shi, K. Watanabe, T. Taniguchi, H. Yuan*, Harold Y. Hwang, Y. Cui, **F. Miao***, D. Xing, “High responsivity phototransistors based on few-layer ReS2 for weak signal detection,” *Advanced Functional Materials* **26**, 1938 (2016).
26. K. Xu, K. Wang, W. Zhao, W. Bao, E. Liu, Y. Ren, M. Wang, Y. Fu, J. Zeng, Z. Li, W. Zhou, F. Song, X. Wang, Y. Shi, X. Wan, M. S. Fuhrer, B. Wang*, Z. Qiao*, **F. Miao***, D. Xing, “The positive piezoconductive effect in graphene,” *Nature Communications* **6**, 8119 (2015).

27. Y. Feng, W. Zhou, Y. Wang, J. Zhou, E. Liu, Y. Fu, Z. Ni, X. Wu, H. Yuan, **F. Miao***, B. Wang*, X. Wan*, D. Xing, "Raman vibrational spectra of bulk to monolayer ReS2 with lower symmetry," *Physical Review B* **92**, 054110 (2015).
28. E. Liu, Y. Fu, Y. Wang, Y. Feng, H. Liu, X. Wan, W. Zhou, B. Wang*, L. Shao, C. Ho, Y. Huang, Z. Cao, L. Wang, A. Li, J. Zeng, F. Song, X. Wang, Y. Shi, H. Yuan*, H. Y. Hwang, Y. Cui, **F. Miao***, D. Xing, "Integrated digital inverters based on two-dimensional anisotropic ReS_2 field-effect transistors," *Nature Communications* **6**, 6991 (2015).
29. M. Wang, X. Lian, Y. Pan, J. Zeng, C. Wang, E. Liu, B. Wang*, J. J. Yang*, **F. Miao***, D. Xing, "A selector device based on graphene-oxide heterostructures for memristor crossbar applications," *Applied Physics A* **120**, 403 (2015).
30. Y. Feng, J. Zhou, Y. Du, **F. Miao**, C. Duan, B. Wang, X. Wan, "Raman spectra of few-layer phosphorene studied from first-principles calculations," *J. Phys.: Condens. Matter* **27**, 185302 (2015).
31. D. He, Y. Zhang, Q. Wu, R. Xu, H. Nan, J. Liu, J. Yao, Z. Wang, S. Yuan, Y. Li, Y. Shi, J. Wang, Z. Ni, L. He, **F. Miao**, F. Song, H. Xu, K. Watanabe, T. Taniguchi, J. Xu, X. Wang, "Two-dimensional quasi-freestanding molecular crystals for high-performance organic field-effect transistors," *Nature Communications* **5**, 5162 (2014).
32. T. Chen, Q. Chen, K. Schouteden, W. Huang, X. Wang, Z. Li, **F. Miao**, X. Wang, Z. Li, B. Zhao, S. Li, F. Song, J. Wang, B. Wang, C. Van Haesendonck, G. Wang, "Topological transport and atomic tunneling-clustering dynamics for aged Cu-doped Bi_2Te_3 crystals," *Nature Communications* **5**, 5022 (2014).
33. H. Nan, Z. Wang, W. Wang, Z. Liang, Y. Lu, Q, Chen, D. He, P. Tan, **F. Miao**, X. Wang, J. Wang, Z. Ni, "Strong Photoluminescence Enhancement of MoS2 through Defect Engineering and Oxygen Bonding," *ACS Nano* **8**, 5738 (2014).
34. B. S. Archanjo, B. Fragneaud, L. G. Cancado, D. Winston, **F. Miao**, C. A. Achete, G. Medeiros-Ribeiro, " Graphene nanoribbon superlattices fabricated via He ion lithography," *Applied Physics Letters* **104**, 193114 (2014).
35. M. Qian, Y. Pan, F. Liu, M. Wang, H. Shen, D. He, B. Wang, Y. Shi*, **F. Miao***, X. Wang*, "Tunable, ultralow-power switching in Memristive devices enabled by a heterogeneous graphene-oxide interface," *Advanced Materials* **26**, 3275 (2014).
36. B. Choi, A. Torrezan, K. Norris, **F. Miao**, J. P. Strachan, M.-X. Zhang, D. A. Ohlberg, N. P. Kobayashi, J. J. Yang, R. S. Williams, "Electrical performance and scalability of Pt dispersed silicon nanometallic resistance switch," *Nano Letters* **13**, 3213 (2013).
37. H. Qiu, T. Xu, Z. Wang, W. Ren, H. Nan, Z. Ni, Q. Chen, S. Yuan, **F. Miao**, F. Song, G. Long, Y. Shi, L. Sun, J. Wang, X. Wang, "Hopping transport through defect-induced localized states in molybdenum disulphide," *Nature Communications* **4**, 2642 (2013).
38. J. P. Strachan, A. C. Torrezan, **F. Miao**, M. D. Pickett, J. J. Yang, W. Yi, G. Medeiros-Ribeiro, R. S. Williams, "State Dynamics and Modeling of Tantalum Oxide Memristors," *IEEE TRANSACTIONS ON ELECTRON DEVICES* **60**, 2194 (2013).
39. W. Bao, K. Myhro, Z. Zhao, Z. Chen, W. Jang, L. Jing, **F. Miao**, H. Zhang, C. Dames, C. N. Lau, "In Situ observation of electrostatic and thermal manipulation of suspended graphene membrane." *Nano Letters* **12**, 5470 (2012).
40. I. Goldfarb, **F. Miao**, J. J. Yang, W. Yi, J. P. Strachan, M.-X. Zhang, M. D. Pickett, G. Medeiros-Ribeiro, R. S. Williams, "Electronic structure and transport measurements of amorphous transition metal oxides: observation of Fermi glass behavior," *Applied Physics A* **107**, 1 (2012).
41. J. J. Yang, M.-X. Zhang, M. D. Pickett, **F. Miao**, J. P. Strachan, W.-D. Li, W. Yi, D. A. A. Ohlberg, B. J. Choi, W. Wu, J. H. Nickel, G. Medeiros-Ribeiro, R. S. Williams, "Engineering nonlinearity into memristors for passive crossbar applications, " *Applied Physics Letters* **100**, 113501 (2012)

42. **F. Miao**, W. Yi, I. Goldfarb, J. J. Yang, M.-X. Zhang, M. D. Pickett, J. P. Strachan, G. Medeiros-Ribeiro, R. S. Williams, "Continuous electrical tuning of the chemical composition of TaO_x-based memristors," *ACS Nano* **6**, 2312 (2012).
43. J. P. Strachan, G. Medeiros-Ribeiro, J. J. Yang, M.-X. Zhang, **F. Miao**, I. Goldfarb, M. Holt, V. Rose, R. S. Williams, "Spectromicroscopy of tantalum oxide memristors," *Applied Physics Letters* **98**, 242114 (2011).
44. **F. Miao**, J. P. Strachan, J. J. Yang, M.-X. Zhang, I. Goldfarb, A. C. Torrezan, P. Eschbach, R. D. Kelly, G. Medeiros-Ribeiro, R. S. Williams, "Anatomy of a nanoscale conduction channel reveals the mechanism of a high-performance memristor," *Advanced Materials* **23**, 5633 (2011).
45. **F. Miao** , J. J. Yang, J. Borghetti, G. Medeiros-Ribeiro, R. S. Williams, “Observation of two resistance switching modes in TiO_2 memristive devices electroformed at low current,” *Nanotechnology* **22**, 254007 (2011).

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46. **F. Miao***, D. Ohlberg, R. S. Williams, C. N. Lau*, "Characterization of quantum conducting channels in metal/molecule/metal devices using pressure-modulated conductance microscopy," *Applied Physics A* **102**, 943 (2011).
47. J. J. Yang, J. P. Strachan, **F. Miao**, M.-X. Zhang, M. D. Pickett, W. Yi, D. Ohlberg, G. Medeiros-Ribeiro, R. S. Williams, "Metal/TiO_2 interfaces for memristive switches," *Applied Physics A* **102**, 785 (2011).
48. J. P. Strachan, G. Medeiros-Ribeiro, J. J. Yang, M.-X. Zhang, **F. Miao**, I. Goldfarb, M. Holt, V. Rose, R. S. Williams, "Spectromicroscopy of tantalum oxide memristors," *Applied Physics Letters* **98**, 242114 (2011).
49. J. J. Yang, M.-X. Zhang, J. P. Strachan, **F. Miao**, M. D. Pickett, R. D. Kelly, G. Medeiros-Ribeiro, R. S. Williams, "High switching endurance in TaO_x memristive devices," *Applied Physics Letters* **97**, 232102 (2010).
50. **F. Miao**, J. J. Yang, , D. R. Stewart, R. S. Williams, C. N. Lau, "AFM force modulation of tunnel gaps in metal oxide memristive nano-switches," *Applied Physics Letters* **95**, 113503 (2009).
51. **F. Miao**, W. Bao, H. Zhang, and C. N. Lau, "Premature switching in graphene Josephson transistors." *Solid State Communications* **149**, 1046 (2009).
52. W. Bao, **F. Miao**, Z. Chen, H. Zhang, W. Jang, C. Dames and C. N. Lau, "Controlled ripple texturing of suspended graphene and ultrathin graphite membranes." *Nature Nanotechnology* **4**, 562 (2009).

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53. J. J. Yang, **F. Miao**, M. D. Pickett, D. Ohlberg, D. R. Stewart, R. S. Williams, "Electroforming mechanism of metal oxide memristive switches," *Nanotechnology* **20**, 215201 (2009)

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54. A. Deshpande, W. Bao, **F. Miao**, C. N. Lau, and R. J. LeRoy, "Spatially resolved spectroscopy of monolayer graphene on SiO_2," *Physical Review B* **79**, 205411 (2009).
55. I. Calizo, S. Ghosh, W. Bao, **F. Miao**, C.N. Lau and A.A. Balandin, "Raman nanometrology of graphene: temperature and substrate effects." *Solid State Communications* **149**, 1132 (2009).
56. W. Han, W. H. Wang, K. Pi, K. M. McCreary, W. Bao, Y. Li, **F. Miao**, C. N. Lau, and R. K. Kawakami, "Electron-hole asymmetry of spin injection and transport in single-layer graphene," *Physical Review Letters* **102**, 137205 (2009).
57. **F. Miao**, D. Ohlberg, D. R. Stewart, R. S. Williams, C. N. Lau, "Quantum conductance oscillations in metal/molecule/metal switches at room temperature," *Physical Review Letters* **101**, 016802 (2008).

58. W. H. Wang, W. Han, K. Pi, K. M. McCreary, **F. Miao**, W. Bao, C. N. Lau, and R. K. Kawakami, "Growth of atomically smooth MgO films on graphene by molecular beam," *Applied Physics Letters* **93**, 183107 (2008).
59. I. Calizo, S. Ghosh, D. Teweldebrhan, W. Bao, **F. Miao**, C.N. Lau and A.A. Balandin, "Raman nanometrology of graphene on arbitrary substrates and at variable temperature," *Carbon Nanotubes and Associated Devices* **7037**, B371 (2008).
60. A.A. Balandin, S. Ghosh, W. Bao, I. Calizo, D. Teweldebrhan, **F. Miao** and C. N. Lau, "Superior thermal conductivity of single-layer graphene," *Nano Letters* **8**, 902 (2008).
61. S. Ghosh, I. Calizo, D. Teweldebrhan, E. P. Pokatilov, D. L. Nika, A. A. Balandin, W. Bao, **F. Miao** and C. N. Lau, "Extremely high thermal conductivity of graphene: Prospects for thermal management applications in nanoelectronic circuits," *Applied Physics Letters* **92**, 151911 (2008).
62. I. Calizo, D. Teweldebrhan, W. Bao, **F. Miao**, C. N. Lau, and A. A. Balandin, "Spectroscopic raman nanometrology of graphene and graphene multilayers on arbitrary substrates," *Journal of Physics: Conference Series* **109**, 012008 (2008).
63. A. A. Balandin, S. Ghosh, D. Teweldebrhan, I. Calizo, W. Bao, **F. Miao** and C. N. Lau, "Extremely high thermal conductivity of graphene: Prospects for thermal management applications in silicon nanoelectronics," *2008 IEEE Silicon Nanoelectronics Workshop,*161 (2008).
64. **F. Miao**, S.Wijeratne, Y. Zhang, U. C. Coskun, W. Bao, and C. N. Lau, "Phase-coherent transport in graphene quantum billiards," *Science* **317**, 1530 (2007).
65. I. Calizo, **F. Miao**, W. Bao, C. N. Lau, and A. A. Balandin, "Variable temperature Raman microscopy as a nanometrology tool for graphene layers and graphene-based devices," *Applied Physics Letters* **91**, 071913 (2007).
66. I. Calizo, W. Bao, **F. Miao**, C.N. Lau and A.A. Balandin "The effect of substrates on the Raman spectrum of graphene: Graphene-on-sapphire and graphene-on-glass," *Applied Physics Letters* **91**, 201904 (2007).
67. I. Calizo, A.A. Balandin, W. Bao, **F. Miao** and C.N. Lau, "Temperature dependence of the Raman spectra of graphene and graphene multi-layers," *Nano Letters* **7**, 2645 (2007).

Patents

1. **Feng Miao**, Joshua Yang, Wei Wu, Shih-Yuan Wang, R. Stanley Williams, “Graphene memristor having modulated graphene interlayer conduction,” US 8294132, issued on Oct. 23, 2012.
2. **Feng Miao**, Joshua Yang, Gilberto Medeiros Ribeiro, R. Stanley Williams, “Changing a memristor state,” US 8331131, issued on Dec. 11, 2012.
3. **Feng Miao**, Joshua Yang, John Paul Strachan, Wei Yi, Gilberto Medeiros Ribeiro, R. Stanley Williams, “High-reliability high-speed memristor,” US 9165645, issued on Oct. 20, 2015.
4. **Feng Miao**, Joshua Yang, John Paul Strachan, Wei Yi, Gilberto Medeiros Ribeiro, R. Stanley Williams, “Memristor with channel region in thermal equilibrium with containing region,” US 9276204, issued on Mar. 1, 2016.
5. Joshua Yang, **Feng Miao**, Wei Wu, Shih-Yuan Wang, R. Stanley Williams, “Defective graphene-based memristor,” US 8203171, issued on Jun. 19, 2012.
6. Joshua Yang, **Feng Miao**, Wei Wu, Shih-Yuan Wang, R. Stanley Williams, “Memristive device,” US 8546785, issued on Oct. 1, 2013.
7. Wei Yi, **Feng Miao**, Joshua Yang, “Multi-level memory cell with continuously tunable switching,” US 8923034, issued on Dec. 30, 2014.

8. Joshua Yang, Minxian Max Zhang, **Feng Miao**, “Memristors having mixed oxide phases,” US 9257645, issued on Feb. 9, 2016.
9. (Chinese Patent) 缪峰，龙明生，“基于二维层状薄膜材料 p-g-n 异质结光电子器件，” ZL 201511028062.4，授权公告日：2017 年 9 月 29 日。
10. (Chinese Patent) 缪峰，龙明生，“基于二维层状材料 p-i-n 异质结光电子器件，” ZL 201511029416.7，授权发文日：2017 年 9 月 5 日。

Invited Talks and Seminars

1. “Electron transport and device applications of 2D materials”, National Graphene Institute, Manchester, UK, Jan. 2018.
2. “Electron transport and device applications of 2D materials”, Beijing Institute of Technology, Beijing, Jan. 2018.
3. “Electron transport and device applications of 2D materials”, the 3rd International Conference on 2D Materials and Technology (ICON-2DMAT), Singapore, Dec. 2017.
4. “Electron transport and device applications of 2D materials”, Tianjin University, Tianjin, Dec. 2017.
5. “Electron transport and device applications of 2D materials”, ISBONE conference, Nanjing, Dec. 2017.
6. “Electron transport and device applications of 2D materials”, 4th International Symposium for Frontiers of Nanostructured Functional Materials and Applications, Suzhou, Nov. 2017.
7. “Electron transport and device applications of 2D materials”, Beijing Normal University, Beijing, Nov. 2017.
8. “Electron transport and device applications of 2D materials”, Shanghai East Forum, Shanghai, Oct. 2017.
9. “Electron transport and device applications of 2D materials”, International Symposium on Memory Devices for Abundant Data Computing, Hong Kong, Sept. 2017.
10. “Electron transport and device applications of 2D materials”, National Semiconductor Physics Conference, Nanjing, July. 2017.
11. “Electron transport and device applications of 2D materials”, 3rd Conference on Condensed Matter Physics, Shanghai, June 2017.
12. “Electron transport and device applications of 2D materials”, Shangdong University, Jinan, May 2017.
13. “Electron transport and device applications of 2D materials”, **MRS** Spring meeting, Phoenix, US, April 2017.
14. “Electron transport and device applications of 2D materials”, East China Normal University, Shanghai, April 2017.
15. “Electron transport and device applications of 2D materials”, Central South University, Changsha, Jan. 2017.
16. “Electron transport and device applications of 2D materials”, National University of Defense Technology, Changsha, Jan. 2017.
17. “Electron transport and device applications of 2D materials”, 9th Singapore International Chemical Conference, Singapore, Dec. 2016.

18. “Electron transport and device applications of 2D materials”, Hunan University, Changsha, Nov. 2016.
19. “Electron transport and device applications of 2D materials”, Asia-Pacific Symposium on Solid Surfaces, Taipei, Nov. 2016.
20. “Electron transport and device applications of 2D materials”, Southern University of Science and Technology of China, Shenzhen, Nov. 2016.
21. “Electron transport and device applications of 2D materials”, Asia Communications and Photonics Conference, Wuhan, Nov. 2016.
22. “Electron transport and device applications of 2D materials”, University of Science and Technology, Hefei, Nov. 2016.
23. “Electron transport and device applications of 2D materials”, Guilin University of Science and Technology, Guilin, Oct. 2016.
24. “Electron transport and device applications of 2D materials”, Suzhou Institute of National University of Singapore, Suzhou, Oct. 2016.
25. “Electron transport and device applications of 2D materials”, Nanchang University, Nanchang, Oct. 2016.
26. “Electron transport and device applications of 2D materials”, Shanghai Institute of microsystems, Shanghai, Sept. 2016.
27. “Electron transport and device applications of 2D materials”, Fudan University, Shanghai, Sept. 2016.
28. “Electron transport and device applications of 2D materials”, Graphene Innovation Conference, Qingdao, Sept. 2016.
29. “Electron transport and device applications of 2D materials”, Chinese Vacuum Society conference, Kunming, Aug. 2016.
30. “Electronic transport in 2D materials: ReS2 and strained graphene”, 33rd Internaional Conference on the Physics of Semiconductors, Beijing, Aug. 2016.
31. “Electron transport and device applications of 2D materials”, Light Conference- Young Scientists Forum, Changchun, July 2016.
32. “Electron transport and device applications of 2D materials”, 2nd Conference on Condensed Matter Physics, Nanjing, July 2016.
33. “Electron transport and device applications of 2D materials”, EEMD 2016 workshop, Heifei, July 2016.
34. “Electron transport and device applications of 2D materials”, International Symposium on 2D materials, Shanghai, June 2016.
35. “Electron transport and device applications of 2D materials”, Shanghai East Forum, Shanghai, May 2016.
36. “Electron transport and device applications of 2D materials”, EMN conference, San Sebastian, Spain, May 2016.
37. “Electron transport and device applications of 2D materials”, Southern University of Science and Technology of China, Shenzhen, April 2016.
38. “Electron transport and device applications of 2D materials”, Peking University, Beijing, March 2016.

39. “Electron transport and device applications of 2D materials”, National University of Defense Technology, Changsha, Jan. 2016.
40. “Electron transport and device applications of 2D materials”, Hunan University, Changsha, Jan. 2016.
41. “Electron transport and device applications of 2D materials”, National Center for Nanoscience and Technology, Beijing, Dec. 2015.
42. “Electron transport and device applications of 2D materials”, Nanchang University, Nanchang, Dec. 2015.
43. “Electron transport and device applications of 2D materials”, National University of Defense Technology, Changsha, Dec. 2015.
44. “Electron transport and device applications of 2D materials”, University of Massachusetts, Amherst, US, Nov. 2015.
45. “Electron transport and device applications of 2D materials”, HP Labs, Palo Alto, US, Nov. 2015.
46. “Electron transport and device applications of 2D materials”, UC-Riverside, Riverside, US, Nov. 2015.
47. “Electron transport and device applications of 2D materials”, USC, Los Angeles, US, Nov. 2015.
48. “Electron transport and device applications of 2D materials”, USLA, Los Angeles, US, Nov. 2015.
49. “Electron transport and device applications of 2D materials”, Anhui University, Hefei, Oct. 2015.
50. “Electron transport and device applications of 2D materials”, 5th International Workshop on Quantum Energy, Hanzhou, Oct. 2015.
51. “Electron transport and device applications of 2D materials”, 1st Conference on Condensed Matter Physics, Tsinghua University, Beijing, July 2015.
52. “Electron transport and device applications of 2D materials”, Institute of Microelectronics of Chinese Academy of Sciences, Beijing, July 2015.
53. “Electron transport and device applications of 2D materials”, Light conference- Young Scientists Forum, Changchun, July 2015.
54. “Electron transport and device applications of 2D materials”, University of Science and Technology of China, Hefei, June 2015.
55. “Electron transport and device applications of 2D materials”, NJU-NJTU Joint Young Scientists Forum, Nanjing, May 2015.
56. “Digital inverters based on 2D anisotropic anisotropic ReS_2 FETs”, Nanchang University, Nanchang, April 2015.
57. “Electron transport and device applications of 2D materials”, Hefei National Laboratory for Physical Sciences at the Microscale, Hefei, March 2015.
58. “Digital inverters based on 2D anisotropic anisotropic ReS_2 FETs”, U.S.-China Nanomodular Materials and Systems by Design (NMSD) Workshop, Fudan University, Shanghai, March 2015.
59. “Morphology Control and Electro-mechanical Properties of Suspended Graphene”, National University of Defense Technology, Changsha, January 2015.

60. “Morphology Control and Electro-mechanical Properties of Suspended Graphene”, Shanghai University, Shanghai, January 2015.
61. “Electron transport and device applications of novel mesoscopic systems”, NSFC Condensed Matter Physics forum, Shanghai, December 2014.
62. “Electron transport in novel nanoscale systems: graphene and memristor”, Institute of Physics of Chinese Academy of Sciences, Beijing, May 2014.
63. “Strain engineering of suspended graphene memberanes”, National University of Defense Technology, Changsha, January 2014.
64. “Electron transport in novel nanoscale systems: graphene and memristor”, University of Science and Technology of China, Heifei, January 2014.
65. “Electrical modulation of oxygen content in a nanoscale conduction channel of a high-performance memristor”, 1st China-Japan-Korea RRAM and Functional Oxide Workshop, Beijing, January 2014.
66. “Device physics of metal oxide based memristor”, Tsinghua University, Beijing, January 2014.
67. “Device physics of metal oxide based memristor”, 3rd National Nanoscale Devices and Structures Workshop, Nanjing, November 2013.
68. “Quantum transport in graphene and memristor”, CPS (Chinese Physical Society) fall meeting, Xiamen, September 2013.
69. “Device physics of metal oxide based memristor”, Institute of Microelectronics of Chinese Academy of Sciences, Beijing, September 2013.
70. “Quantum transport in graphene and memristor”, Colloquium, International Center for Quantum Materials, Peking University, Beijing, September 2013.
71. “Anatomy of a nanoscale channel reveals the mechanism of a high-performance memristor”, EMN (Energy Materials Nanotechnology) East Meeting, Beijing, September 2013.
72. “Morphology control of suspended graphene”,16th International Conference on Narrow Gap Systems, Hangzhou, August 2013.
73. “Electrical modulation of oxygen content in a nanoscale conduction channel”, Asian Non-Volatile Memory Workshop, Shanghai, July 2013.
74. “Electron transport in novel nanoscale systems: graphene and memristor”, Institute of Semiconductors of Chinese Academy of Sciences, Beijing, May 2013.
75. “Strain engineering of suspended graphene membranes”, 2nd FUN (Fudan-USTC-NJU) Workshop on Frontiers of Condensed Matter Physics, Hefei, April 2013.
76. “Electron transport in novel nanoscale systems: graphene”, Graphene workshop, Southeast University, Nanjing, December 2012.
77. “Electron transport in novel nanoscale systems: graphene and memristor”, CPS (Chinese Physical Society) fall meeting, Guangzhou, September 2012.
78. “Anatomy of a nanoscale conduction channel reveals the mechanism of a high-performance memristor”, APS March Meeting, Boston, MA, March 2012.
79. “Multiple switching modes and multiple level states in memristive devices”, MRS Spring Meeting, San Francisco, CA, April 2011.
80. “Multiple switching modes and multiple level states in memristive devices”, APS March Meeting, Dallas, TX, March 2011.

81. “Thermally activated processes in low current TiOx memristive devices”, APS March Meeting, Portland, OR, March 2010.
82. “Characterization of switching and thermally activated processes in low current TiOx memristive devices”, Resistive Switching and Memristor Workshop, Davis, CA, January 2010.
83. “Electronic Transport in Novel Nanoscale Systems: Graphene and Metal Oxide Switches”, Stanford University, Stanford, CA, April 2009.
84. “Graphene Quantum Electronics & Metal Oxide Based Nanoswitches”, University of California, Los Angeles, Los Angeles, CA, February 2009.
85. “Electrical transport in graphene hybrid structures”, APS March Meeting, Pittsburgh, PA, March 2009.
86. “Quantum channels and conductance oscillations in TiOx nano-switches”, APS March Meeting, New Orleans, LA, March 2008.
87. “Phase coherent charge transport in graphene billiards”, APS March Meeting, Denver, CO, March 2007.
88. “Quantum conductance oscillations in metal/molecule/metal switches at room temperature”, APS March Meeting, Denver, CO, March 2007.
89. “Quantum transport in single and bi-layer graphene”, CNID (The Center for Nanoscience Innovation for Defense) Review Meeting, Riverside, CA, December 2006.
90. “Metallic point contacts and conductance oscillations in metal/molecule/metal switches”, 2006 SCCAVS Leading Edge Student Symposium, Anaheim, CA, October 2006.
91. “Transport and switching characteristics of molecular devices with different top electrodes”, APS March Meeting, Baltimore, MD, March 2006.
92. “Metallic point contact in metal/molecular monolayer/metal heterostructures”, APS March Meeting, Baltimore, MD, March 2006.