



今天是2013年01月15日 星期二

## 学院概况

吉林大学仪器科学与电气工程学院成立于2005年，其前身是50年前成立的长春地质学院仪器系。学院下设仪器科学与技术系、电气工程系、电气电子实验教学中心，拥有地球信息探测仪器教育部重点实验室、国土资源部地球探测技术及仪器重点实验室、吉林省测控仪器智能...[详细]

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## > 师资队伍

### 师资队伍

#### 基本情况

姓名: 崔洪亮  
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 是否博导: 是  
 最高学历: 研究生  
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#### 详细情况

所在学科专业:	光电检测技术及仪器
所研究方向:	光纤传感器研制;THz科学技术及应用的研究;纳米光学和纳米电子学
讲授课程:	光电器件与技术、光纤传感、太赫兹技术及应用、太赫兹及光纤传感技术在能源领域的应用 课件地址: <a href="http://ciee.jlu.edu.cn/?mod=info&amp;act=list&amp;id=74">http://ciee.jlu.edu.cn/?mod=info&amp;act=list&amp;id=74</a>
教育经历:	1978年—1981年: 长春光机学院光学物理系激光专业, 获学士学位 1981年: 考取第一届李政道赴美物理博士生(CUSPEA) 1981年—1987年: 美国史蒂文斯理工学院, 物理与工程物理系, 获硕士(1984)、博士(1987)学位
工作经历:	2011年—目前: 吉林大学, 仪器科学与电气工程学院, 国家“千人计划”特聘教授 2009年—2011年: 美国纽约大学, 工学院, 应用物理系, 教授 2000年—2009年: 美国史蒂文斯理工学院, 物理与工程物理系, 教授 1995年—2000年: 美国史蒂文斯理工学院, 物理与工程物理系, 副教授 1996年: 获得终身教职(Granted Tenure) 1990年—1995年: 美国史蒂文斯理工学院, 物理与工程物理系, 助理教授 1987年—1990年: 美国史蒂文斯理工学院, 物理与工程物理系, 讲师
	在读硕士生: 刘磊、杨瑞娟、王玮琪、孙玉锋、胡伟、于淼、李婷婷、王敏 在读博士生: 张瑾、邢砾云 已毕业博士: Ph.D. Students Supervised (and known current positions): 1.Vassilios Fessatidis, “Commensurability oscillations in magnetoplasmons of a density modulated two dimensional electron gas”, 1990. (Professor, Fordham University) 2. Jian Cai, “Semiconductor device simulation with hydrodynamic balance equations”, 1994. (Member of Technical Staff, Lucent Bell Labs) 3. Chi-Chien Lee, “Transient device modeling using the Lei-Ting hydrodynamic balance equations”, 1996. (Manager, Taiwan Semiconductors) 4. Martin A. Sanzari, “The London moment for heavy-fermion superconductors”, 1997. (Professor, Fordham University)

5. Erik Lenzing, "Green's functions and method of moments for electromagnetic computations", 1999. (Program Manager, Penn State University Applied Physics Lab.)

6. Peiji Zhao, "Simulation of resonant tunneling structures: Origin of the I-V hysteresis and plateau-like structure", 2000. (Research Professor, NYU-Poly)

7. Ying Hu, "Efficient routing algorithm of network traffic based on physical consideration of devices and components of fiber optic networks", 2001. (Manager, Lucent-Alcatel)

8. Alexander Majewski, "Effects of ultraviolet radiation on the type-I collagen protein triple helical structure: A method for measuring structural changes through optical activity", 2002. (Principal Physicist, Goodrich Optical Science, Inc.)

9. Jing Ju, "THz identification of DNA via lesion-induced vibrational modes" 2002. (Scientist, IBM)

10. Robert Pastore, "Loss in piezoelectric ceramic resonators", 2003. (Senior Electronic Engineer, US Army CECOM)

11. Neil Vallesterio, "RF and microwave generation using phase-locked fiber loops", 2004. (Chief Deputy of Engineering, US Army Laboratory, Sensors Directorate)

12. Petra Sauer, "Design Tools For the Fabrication of a Photonic Crystal Based on DNA Junctions", 2005. (Texas A&M University)

13. Alexander Raspopin, "High-field domain and induced transparency in a semiconductor superlattice", 2005. (Research Assistant Professor, NYU-Poly)

14. Burcin Unlu, "Multi-band Wigner function formulation of quantum transport", 2005. (Professor, Bogazici University, Turkey)

15. Gregory Recine, "Numerical simulation of two-dimensional electron transport in cylindrical nanostructures using Wigner function methods", 2005. (Research Assistant Professor, NYU-Poly)

16. Yan Zhang, "Fiber Bragg grating based seismic geophone for oil/gas prospecting", 2006. (Scientist, L. C. Pegasus)

17. Joseph Dorleus, "Wireless and fiber optic network modeling & simulation in support of training, testing and range instrumentation," 2006. (Senior Electronic Engineer, US Army STRICOM)

18. Xiaoyang Huang, "Radio propagation model based on the combined method of ray tracing and diffraction", 2006. (Postdoctoral Fellow, NYU-Poly)

19. Carlos Ramos, "Optimization methods of numerical computation of RF antenna designs", 2006. (Loral Space Communications, Senior Electronic Engineer)

20. Ke Wang, "Fiber Bragg Grating Based Weigh in Motion System Using Fiber Reinforced Composites as the Load Supporting Material", 2006. (Research Assistant Professor, Virginia Tech University)

21. Ivana Djuric, "Shot noise in resonant tunneling through an interacting quantum dot with intradot spin-flip scattering", 2007. (Visiting Assistant Professor, Stevens Institute of Technology)

22. Francis Karwacki, "Novel high-frequency QW optical modulator based on surface effects", 2007. (Chief Scientist, Navmar Applied Sciences)

23. Sanguo Li, "High sensitivity gas sensors based on DFB lasers", 2007. (Wall Street investment firm)

24. Peter Canales, "Metallodielectric Arrays for Plasmonic Localized Enhancement," 2008. (Senior Electronic Engineer, US Army ARDECOM)

25. Peter Lee, "FDTD computation modeling of through wall radar", 2008. (Senior Electronic Engineer, US Army CECOM)

26. Tianying Chang, "Fiber optic distributed temperature and strain sensing system based on Brillouin light scattering", 2009. (Postdoctoral Fellow, NYU-Poly)

27. Dongcao Song, "Pressure sensors based on FBG and carbon fiber composite material", 2010. (Scientist, L. C. Pegasus)

28. Sen Yang, "Portable methane gas sensor with a 1.65 $\mu$ m LED", 2010. (Manager, Nokia)

29. Hongtao Zhang, "Fiber optic weigh-in-motion sensors", 2010. (Postdoctoral Fellow, University of Massachusetts)

研究生教育:

[1] 2012-2015, 基于太赫兹透射成像的煤矿孔中径向裂隙探测技术研究, 十二五国家科技支撑计划课题, 729万元

[2] 2011-2016, 可控DNA纳米结构的射频至光频范围内近场和远场的频谱分析, 美国国防部多大学联合创新性研究计划项目, \$6,000,000

[3] 2009-2010, Steam Distribution System Water Level Monitoring by Fiber Optic Sensors, Consolidated Edison Company of New York, \$141,000

[4] 2009-2010, Laser Plasma Interaction Modeling, US Army Armament Development Engineering Center, \$124,000

[5] 2008-2011, Fast Scan Portable Infrared Spectrometer, US Army Edgewood Chemical Biological Center, \$800,000

[6] 2008-2012, Advanced Architecture of Biological Sensing and Computing, US Army Research Office, \$1,260,000

[7] 2008-2009, Fiber Optic Weigh in Motion Sensor for Detecting Vehicle-Borne Improvised Explosive Devices, US Army Communications-Electronics Command, \$255,000

[8] 2008-2010, Fiber Optical Acoustic Sensors for Perimeter Defense, US Army Armament Development Engineering Center, \$300,000

[9] 2008-2010, Fiber Optical Sensors for Defense and Security, US National Security Agency, \$550,000

[10] 2007-2008, Intelligent Power Management for Unattended Ground Sensor Networks, US Army Armament

Development Engineering Center, \$150,000

科研项目: [11]2007-2010, DNA Crystal Based Sensors and Devices, US Defense Threat Reduction Agency, \$450,000

[12]2006-2009, Interaction of Laser Induced Filaments with RF Radiation, US Army Armament Development Engineering Center, \$380,000

[13]2006-2008, Scientific Support for Chemical and Biological Warfare Defense, US Army Edgewood Chemical Biological Center, \$415,000

[14]2006-2009, Higher Order Statistical Treatment of Spectroscopic Data for Noise Reduction, US Army Research Office, \$800,000

[15]2005-2008, Chemical and Biological Sensors Based on Photonic Crystal Fibers, National Science Foundation, \$1,200,000

[16]2005-2008, Live Anthrax Tests of THz Spectrometers, US Army Edgewood Chemical Biological Center, \$1,350,000

[17]2004-2007, Hybrid Optical and Wireless Network Optimization and Modeling, US Army Program Executive Office for Simulation and Training, \$800,000

[18]2004-2005, Defense University Research Initiatives in Nano Technology Equipment Grant, Department of Defense (ARO), \$450,000

[19]2004-2009, Defense University Research Initiatives in Nano Technology (DURINT): Nano and Molecular Electronic Devices, Department of Defense (ARO), \$6,500,000

[20]2003-2006, Fiber Optic Seismic Sensors for Remote Battlefield Monitoring, US Army Communications-Electronics Command, \$800,000

Refereed Journal Papers Published:

1. Huiping Duan, Hongbin Li, Jing Xie, Nicolai Panikov, and Hong-Liang Cui, "Agent Identification Using a Sparse Bayesian Model", IEEE Sensors Journal, 11, 2556-2564 (2011).
2. Xiaoyang Huang Rosen, B. Hong-Liang Cui, "Photonic Bands in DNA Crystal-Based Frequency-Dependent Media", IEEE Sensors Journal, 10, 1820 - 1823 (2010).
3. Tianying Chang Koscica, T.E. Li, D.Y. Lei Jia Qingmei Sui Hong-Liang Cui, "A Novel Detection Method of Brillouin Backscattered Light in Optical Fiber", IEEE Sensors Journal, 9, 430 (2009).
4. Joseph Dorleus, Yan Zhang, Jing Ning, Thomas Koscica, Hongbin Li, and H.L. Cui, "A fiber optic seismic sensor for unattended ground sensing applications", ITEA Journal, 30, 455 - 460 (2009).
5. D. C. Song, Z.X. Wei, J.L. Zou, and H.L. Cui, "Low pressure sensor based on FBG and carbon fiber-wound composite cylinder shell", IEEE Sensors Journal, 9, 828 (2009).
6. D.C. Song, J.L. Zou, Z.X. Wei, S.M. Yang, and H.L. Cui, "High-sensitivity fiber Bragg grating pressure sensor using metal bellows", Optical Engineering, 48, 034403 (2009).
7. WANG Jing, JIANG Ming-shun, SUI Qing-mei, CUI Hong-liang, FENG De-jun, "Development of distributed temperature sensor based on single-mode fiber", Optical Techniques, 34, 5 (2008).
8. Tianying Chang, David Y. Li, Thomas E. Koscica, Hong-Liang Cui, Qingmei Sui, and Lei Jia "Fiber optic distributed temperature and strain sensing system based on Brillouin light scattering", Applied Optics, 47, 6202-6206 (2008).
9. B. Dong, X.L. Lei, and H.L. Cui, "Magnetic-Flux-Controlled Giant Fano Factor for Coherent Tunneling Through a Parallel Double-Quantum-Dot", Communications in Theoretical Physics, 49, 1045 (2008).
10. Z. X. Wei, D.C. Song, Q.M. Zhao, and H.L. Cui, "High pressure sensor based on fiber Bragg grating and carbon fiber laminated composite", IEEE Sensors Journal, 8, 1615 (2008).
11. M.Q. Weng, M.W. Wu, and H.L. Cui "Spin relaxation in n-type GaAs quantum wells with transient spin grating", Journal of Applied Physics, 103, 063714 (2008).
12. N.J. Horing, S.Y. Liu, V.V. Popov, and H.L. Cui, "TUNABLE GRID GATED DOUBLE-QUANTUM-WELL FET TERAHERTZ DETECTOR", International Journal of High-Speed Electronics and Systems, 18, 147 (2008).
13. W. Yuan, M.S. Jiang, L. Yang, Q.M. Sui, and H.L. Cui, "Application of Fiber Bragg Grating Sensor in Well Logging". Journal of Atmospheric and Environmental Optics, 3 234~240 (2008).
14. N.J. Horing and H.L. Cui, "SURFACE-PLASMON-RESONANCE BASED OPTICAL SENSING", International Journal of High-Speed Electronics and Systems, 18, 71 (2008).
15. LIU Han-ping WANG Jian-gang WANG Ke CUI Hong-liang CHEN Bing-quan, "Weigh-in-Motion System Design Based on FBG", CHINESE JOURNAL OF SENSORS AND ACTUATORS, 20, 3 (2007).
16. B. Dong, N.J. Horing, X.L. Lei, and H.L. Cui, "Quantum qubit measurement by a quantum point contact with a quantum Langevin approach", Physica Status Solidi C 4, 551-553 (2007).
17. Joseph Dorleus, Ralph Holweck, Zhi Ren, Hongbin Li, and Hong-Liang Cui, "Wireless network modeling & simulation in support of training, testing and range instrumentation," International Journal of Test and Evaluation, 28, 65-74 (2007).
18. K. Wang, Z.X. Wei, H.T. Zhang, X.Y. Huang, B.Q. Chen, and H.L. Cui, "Fiber Bragg Grating Based Weigh in Motion System Using Fiber Reinforced Composites as the Load Supporting Material", Optical Engineering, 45, 064401 (2006).
19. Ivana Djuric, Bing Dong, and H. L. Cui, "Theoretical investigations for shot noise in correlated resonant tunneling through a coupled quantum system", J. Appl. Phys. 99, 63710 (2006).

20. Y. Zhang, S. Li, Z. Yin, B. Cui, "Fiber Bragg grating based seismic geophone for oil/gas prospecting", *Optical Engineering*, 45, 084404 (2006).
21. N. J. M. Horing, L. Y. Chen, and H. L. Cui, "Dielectric response of a planar periodic array of polarizable wires parallel to an interface with a nonlocal dynamic plasma-like medium", *Physics Letters A*, doi:10.1016/j.physleta.2006.09.037, (2006).
22. B. Dong, H. L. Cui, and X. L. Lei, "Pumped spin-current and shot noise spectra in a single quantum dot", *Physical Review B* 74, 033303 (2006).
23. X. Y. Huang, B. Q. Chen, H. L. Cui, J. J. Stammes, R. Pastore, M. Farwell, W. Chin, and J. Ross, "Radio propagation model based on the combined method of ray tracing and diffraction", *IEEE Transactions on Antenna and Propagations*, 54, 1284-1291 (2006).
24. B. Dong, H. L. Cui, X. L. Lei, and N. J. Horing, "Shot noise of inelastic tunneling through quantum dot systems", *Physical Review B* 72, 165326 (2005).
25. G. Recine, B. Rosen, and H. L. Cui, "Numerical simulation of two-dimensional electron transport in cylindrical nanostructures using Wigner function methods", *Journal of Computational Physics*, 209, 421 (2005).
26. I. Djuric, B. Dong, and H. L. Cui, "Shot noise in resonant tunneling through an interacting quantum dot with intradot spin-flip scattering", *IEEE Transactions on Nanotechnology*, 4, 71-76 (2005).
27. B. Dong, H. L. Cui, and X. L. Lei, "Pumped spin-current and shot noise spectra in a single quantum dot", *Physical Review Letters*, 94, 066601 (2005).
28. I. Djuric, B. Dong, and H. L. Cui, "Super-Poissonian shot noise in the resonant tunneling due to coupling with a localized level", *Applied Physics Letters*, 87, 032105 (2005).
29. B. Dong, H. L. Cui, and X. L. Lei, "Photon-Phonon-assisted tunneling through a single-molecular quantum dot", *Physical Review B* 69, 205315 (2004).
30. J. Ning, G. H. Lu, X. B. Wu, J. C. Wang, G. K. Yao, and H. L. Cui, "Recent developments of fiber Bragg grating geophone in petroleum exploration", *Progress in Exploration Geophysics*, 27, (2004).
31. B. Dong, H. L. Cui, S. Y. Liu, and X. L. Lei, "Kondo-type transport through an interacting quantum dot coupled to ferromagnetic leads", *J. Phys.: Cond. Matter* 15, 8435-8444 (2004).
32. B. Dong, I. Djuric, H. L. Cui, and X. L. Lei, "Time-dependent resonant tunneling for parallel-coupled double quantum dots", *Journal of Physics C: Condensed Matter* 16, 4303-4314 (2004).
33. M. B. Unlu, B. Rosen, H. L. Cui, and P. Zhao, "Multi-band Wigner function formulation of quantum transport", *Physics Letters A* 327, 230-240 (2004).
34. B. Dong and H. L. Cui, "Nonequilibrium Kondo effect in a quantum dot", *Semiconductor Science and Technology*, 19, S16 (2004).
35. B. Dong, H. L. Cui, and X. L. Lei, "Quantum rate equations for electron transport through an interacting system in the sequential tunneling regime", *Physical Review B* 69, 035324 (2004).
36. B. Dong and H. L. Cui, "Finite-U slave-boson mean field approach for nonequilibrium Kondo Effect in a Quantum Dot", *Semiconductor Science and Technology* 19, S14 (2004).
37. A. S. Raspopin and H. L. Cui, "Domain theory of self-induced transparency in a semiconductor superlattice", *Physical Review B* 68, 045305 (2003).
38. P. Zhao, D. Woolard, and H. L. Cui, "Creation and disappearance mechanism of the emitter quantum well of a resonant tunneling structure", *Journal of Applied Physics*, 94, 1833 (2003).
39. H. L. Cui, "Fiber Sensing of Micro -Crack", *ACTA OPTICA SINICA*, 23 z1 (2003).
40. P. Zhao, D. Woolard, and H. L. Cui, "A Multi-Subband Theory for the Origination of Intrinsic Oscillations within Double-Barrier Quantum-Well Systems", *Physical Review B* 67, 085312 (2003).
41. P. Zhao, N. Horing, D. Woolard, and H. L. Cui, "Nonequilibrium Green's function formulation of quantum transport theory for multi-band semiconductors", *Physics Letters A* 310, 258 (2003).
42. P. Zhao, D. Woolard, H. L. Cui, and N. Horing, "Origin of intrinsic oscillations in double-barrier quantum-well systems", *Physics Letters A* 311, 432 (2003).
43. D. Woolard, P. Zhao, and H. L. Cui, "THz-Frequency Intrinsic Oscillations in Double-Barrier Quantum Well Systems", *Physica B*, 314, 108 (2002).
44. A. Majewski, M. Sanzari, H. L. Cui, and P. Torzilli, "Effects of ultraviolet radiation on the type-I collagen protein triple helical structure: A method for measuring structural changes through optical activity", *Physical Review E* 65, 1920 (2002).
45. P. Zhao, H. L. Cui, D. L. Woolard, K. L. Jensen and F. A. Buot, "Equivalent Circuit Parameters of Resonant Tunneling Diodes Extracted From Self-Consistent Wigner-Poisson Simulation", *IEEE Transaction of Electron Devices* 48, 614-627, (2001).
46. P. Zhao, H. L. Cui, and D. L. Woolard, "Dynamical instability and I-V characteristics in resonant tunneling through double-barrier quantum well systems", *Physical Review B* 63, 5302 (2001).
47. P. Zhao, H. L. Cui, D. L. Woolard, and F. A. Buot, "Operation Principle of Resonant Tunneling THz Oscillator at Fixed Bias Voltages", *VLSI Design*, 13, 413-417 (2001).
48. P. Zhao, H. L. Cui, and N. J. Horing, "Exact Many-Body Quantum Transport Equations for Multi-band Semiconductors", *Philosophical Magazine*, 80, 1359 (2000)

49. H. J. Quan, X. M. Weng, and H. L. Cui, "Effects of Anisotropy on the Electron Transport in 4H-SiC", *Physica Status Solidi (b)* 219, 339-346 (2000).
50. P. Zhao, H. L. Cui, D. L. Woolard, K. L. Jensen, and F. A. Buot, "Origin of hysteresis and plateau-like behavior of the I-V characteristics of resonant tunneling diodes", *International Journal of Modern Physics B*, 14, 411-426 (2000).
51. P. Zhao, H. L. Cui, D. Woolard, K. L. Jensen, and F. A. Buot, "Simulation of resonant tunneling structures: Origin of the I-V hysteresis and plateau-like structure", *Journal of Applied Physics*, 87, 1337-1349 (2000).
52. P. Zhao, H. L. Cui, D. Woolard, K. L. Jensen, F. A. Buot, and C. M. Krowne, "Emitter quantization and double hysteresis in resonant-tunneling structures: A nonlinear model of charge oscillation and current bistability", *Physical Review B* 61, 5644-5665 (2000).
53. P. Zhao and H. L. Cui, "Quantum transport equation for a two-band system", *Physics Letters*, 252, 243-247 (1999).
54. X. M. Weng, H. J. Quan, and H. L. Cui, "Simplification of scattering rates calculation in nonparabolic hydrodynamic equations", *Journal of Applied Physics*, 85, 2658-2662 (1999).
55. X. L. Lei and H. L. Cui, "Balance equations for electron transport in an arbitrary energy band driven by an intense terahertz field: application to superlattice miniband transport", *Europ. Phys. Jour. B* 4, 513 (1998).
56. J. Cai, H. L. Cui, E. Lenzing, R. Pastore, D. Rhodes, and B. Perlman, "Hydrodynamic device modeling with band nonparabolicity", *VLSI Design*, 6, 181-184 (1998).
57. X. L. Lei, H. L. Cui, and N. J. Horing, "Microscopic three-dimensional theory of space-charge-wave modes in GaAs-based planar superlattices", *Communications of Theoretical Physics*, 29, 515-522 (1998).
58. X. M. Weng and H. L. Cui, "Simulation of a submicron 3C-SiC ballistic diode based on the Lei-Ting hydrodynamic balance equations", *Journal of Applied Physics*, 83, 3129-3133 (1998).
59. V. Fessatidis, H. L. Cui, and P. Vasilopoulos, "Raman scattering from a two-dimensional electron gas in a weakly and periodically modulated magnetic field", *Superlattices and Microstructures*, 23 47-54 (1998).
60. D. L. Woolard, H. L. Cui, T. Koscica, D. L. Rhodes, R. A. Pastore, J. O. Jensen, J. L. Jensen, W. R. Loerop, R. H. Jacobsen, D. Mittleman, and M. C. Nuss. "Millimeter wave-induced vibrational modes in DNA as a possible alternative to animal tests to probe for carcinogenic mutations", *Journal of Applied Toxicology*, 17, 243-346 (1997).
61. X. L. Lei and H. L. Cui, "Suppression of absolute instability by elastic scattering in semiconductor superlattices", *Journal of Physics: Condensed Matters*, 9, 4853-4861 (1997).
62. X. M. Weng and H. L. Cui, "Temperature dependence of Hall mobility of SiC", *Journal of Physics: Condensed Matter*, 9, 7089-7094 (1997).
63. X. M. Weng and H. L. Cui, "High temperature hot electron transport in 6H- and 3C-SiC, *Physica Status Solidi (b)*, 201, 161-166 (1997).
64. P. Zhao and H. L. Cui, "Effects of a deep-level impurity on optical transitions of quantum-well heterostructures, *Physica Status Solidi (b)*, 199, 579-586 (1997).
65. X. L. Lei, H. L. Cui, N. J. Horing, and K. K. Thornber, "Superlattice space-charge-wave analyses in a modified drift-diffusion model and in a simplified balance-equation formulation", *Z. Phys. B* 104, 221-225 (1997).
66. M. W. Wu, H. L. Cui, W. Sun, and S. Y. Wu, "Onsager relations and hydrodynamic balance equations in 2D quantum wells", *Physics Letters A*, 223, 204-210 (1996).
67. M. W. Wu and H. L. Cui, "Phonon-drag effects on thermoelectric power under linear and nonlinear transport conditions", *Physica Status Solidi (b)* 196, 411 (1996).
68. M. A. Sanzari, H. L. Cui, and F. Karwacki, "The London moment for heavy-fermion superconductors", *Applied Physics Letters*, 68, 3802-3804 (1996).
69. C. C. Lee, J. Cai, H. L. Cui, E. Lenzing, R. Pastore, D. Rhodes, and B. Perlman, "Transient device modeling using the Lei-Ting hydrodynamic balance equations", *Journal of Applied Physics*, 80, 1891-1900 (1996).
70. N. J. Horing, H. L. Cui, T. Jena, and J. Mancini, "Dynamic dielectric properties of a bounded solid state plasma and a two-dimensional electron sheet: Inverse dielectric function and coupled collective modes", *Physical Review B* 54, 2785-2790 (1996).
71. M. W. Wu and H. L. Cui, "Onsager relations and hydrodynamic balance equations", *Physical Review B* 54, 2351-2359 (1996).
72. X. L. Lei, H. L. Cui, N. J. Horing, and K. K. Thornber, "Anomalous frequency dependence of differential mobility in superlattice miniband transport", *Modern Physics Letters B* 10, 51 (1996).
73. M. W. Wu and H. L. Cui, "Phonon-drag effects on thermoelectric power, *Physical Review B* 54, 5438-5441 (1996).
74. M. W. Wu and H. L. Cui, "Coulomb drag in double quantum wells with a perpendicular magnetic field", *Modern Physics Letters B* 10, 279-285 (1996).
75. M. Seidl, H. L. Cui, J. D. Isenberg, H. J. Kwon, B. S. Lee, and S. T. Melnychuk, "Negative surface

- ionization of Hydrogen atoms and molecules", *Journal of Applied Physics*, 79, 2896-2901 (1996).
76. H.L. Cui, V. Fessatidis, and P. Vassilopoulos, "Inelastic light scattering from a modulated two-dimensional electron gas in weak magnetic fields", *Physical Review B*, 52, 13765-13768 (1995).
77. J. Cai and H.L. Cui, "Semiconductor device simulation with the Lei-Ting balance equations", *Journal of Applied Physics*, 78, 6802-6813 (1995).
78. X.L. Lei, N.J. Horing, and H.L. Cui, "Convective instability of a biased semiconductor superlattice", *Journal of Physics: Condensed Matter*, 7, 9811-9817 (1995).
79. X.L. Lei, H.L. Cui, N.J.M. Horing, and K.K. Thornber, "Anomalous frequency dependence of differential mobility in superlattice miniband transport", *Physica Status Solidi (b)*, 1995.
80. V. Fessatidis, H.L. Cui, and O. Kuhn, "Magnetoplasma spectra of two-dimensional heterostructures", *Superlattices and Microstructures*, 17, 173 (1995).
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获奖情况:	<p>1. Finalist of CUSPEA (China-U.S. Physics Examination and Application), 1981</p> <p>2. Outstanding Graduate Research Award, Stevens Institute of Technology, 1987</p> <p>3. Harvey N. Davis Distinguished Teaching Assistant Professor Award, Stevens Institute of Technology, 1994</p>
专利情况:	<p>1. US Patent 5,801,476, “Thickness mode acoustic wave resonator” .</p> <p>2. US Patent 5,811,830, “Quantum well optical waveguide phase shifter” .</p> <p>3. US Patent 6,492,884, “Programmable transversal filter” .</p> <p>4. US Patent 6,500,618, “Methods and apparatus for detecting lesion-induced resonances in deoxyribonucleic acid via millimeter or submillimeter wave spectroscopy” .</p> <p>5. US Patent 7,010,228, “Optical add-drop multiplexer” .</p> <p>6. US Patent 7,122,783, “Seismic activity monitor based on optical fiber Bragg gratings” .</p> <p>7. US Patent 7,132,908, “Selectable Performance Filter” .</p> <p>8. US Patent 7,170,085, “Frequency selective terahertz radiation detector” .</p> <p>9. US Patent 7,301,493, “Meta-materials based upon surface coupling phenomena to achieve one-way mirror for various electromagnetic signals” .</p> <p>10. Chinese Patent 02247889, 光分插复用器。</p> <p>11. Chinese Patent 200320108043, 差分吸收式光纤甲烷气体传感器。</p> <p>12. Chinese Patent 200310108619, 差分吸收式光纤甲烷气体传感器。</p> <p>13. Chinese Patent 200710108590, 气体浓度检测方法及其装置。</p> <p>14. Chinese Patent 200810138350, 使用多芯光缆实现的多道FBG检波器。</p> <p>15. Chinese Patent 200810138351, 波分多通道光纤光栅地震检波器。</p> <p>16. Chinese Patent 200820097900, 激光瓦斯检测仪。</p> <p>17. Chinese Patent 200820026051, 一种光纤光栅地震检波器。</p>
个人荣誉:	<p>1、首次使用光纤布拉格光栅传感器对航天器结构进行无损飞行中在线检测,建立了微裂纹-超声波发射及光纤光栅动态响应的物理模型,实现对破裂或微破裂故障进行早期预警和防治,改变了飞行器传统的NDI (Non-destructive Inspection) /NDE (Non-destructive Evaluation) 离线定期检测方式。其研究团队对该成果在系统动态范围、检测灵敏度、频率响应范围等方面进行了改进,并在下列领域得到应用:(1)在石油等资源勘探方面,所设计的地震检波器带宽扩展到200Hz以上,动态范围达到110dB(现有的动圈式电磁检波器的动态范围为60dB),灵敏度与传统检波器相比提高约一个数量级;(2)在煤矿安全方面,利用光纤传感器研制出监测精度高,不受环境条件影响的远程分布式监测的瓦斯监测系统,并已推广应用;(3)在国防和安全方面,已开发出地震及声学,机械震动,磁场,动态称重等传感器,应用于防区及边界保护、战区远程监控、搜索地下坑道及爆炸品、预警及查找车载炸弹等。</p> <p>2、崔教授所领导的一个在纳米-分子器件和体系结构方面的研究项目,重点解决用纳米和分子块联合的方法构筑新器件和传感器的问题,比如量子点和有机组织分子,也倡导分子器件和传统硅基器件结构结合的研究。</p> <p>3、崔教授是应用太赫兹(THz)光谱检测和识别化学和生物战剂的先期倡导者之一,其团队第一次用THz吸收光谱来揭示生物聚合体的核素细节特性,基于探测局部声子激发机制对于局部扰动(比如被削弱的或被破坏的氢键,及与基对连接的原子团或二价体等)的响应进行检测。</p>
社会兼职:	<p>1. Program Committees of International Computational Electronics Conferences, Member</p> <p>2. IEEE-Nano Conferences, Chair</p> <p>3. International Conference of Nano Electronic Devices for Defense and Security, Chair</p> <p>4. SPIE Conference on Defense and Security, Chair</p>