

Book Chapters

2. Md Masud Rana, Asif Abdullah Khan, Dayan Ban, Nanogenerators based on organic-inorganic heterojunction materials, a book chapter in Optoelectronic Organic-Inorganic Semiconductor Heterojunctions, editor: Ye Zhou, publisher: CRC Press, Taylor & Francis (2020).

1. E. H. Sargent, D. Ban, S. Kuntze, St. J. Dixon-Warren, K. J. White, and K. Hinzer, Investigating the inner workings of optoelectronic devices using electrical scanning probe microscopy techniques, a book chapter in Scanning probe microscopy: electrical and electromechanical phenomena at the nanoscale, editors: Sergei V. Kalinin and Alexei Gruverman, publisher: Springer Verlag, ISBN-10: 0387286675 (2006).

Patents

14. Asif Abdullah Khan, Alam Mahmud, Yonghui Zhang, Dayan Ban, Sharif Islam, Peter Voss, "Triboelectric nanogenerator-powered transmission system," US patent, application number: 62853101, filed on May. 27, 2019.

13. Dayan Ban, Peter Voss, "Sensing system," Canadian patent, application number: CA2,985,238, filed on Nov. 08, 2018.

12. Dayan Ban, Peter Voss, "Sensing system," PCT patent, filed Nov. 9th, 2018.

11. Alam Mahmud, Asif Abdullah Khan, Dayan Ban, Peter Voss, "1D/2D hybrid piezoelectric nanogenerator and method for making same," US patent, application number: 62/917,121, filed Nov. 21st, 2018.

10. Dayan Ban, Guocheng Liu, "Cascade-type hybrid energy cells," US patent, Application 15/977,822, filed on Nov. 10th, 2017.

9. Dayan Ban, Mordehai Margalit, Heechul Lee, "Radiation dosimetry systems and methods," PCT patent, filed on July 21, 2017 (PCT/US2017/043387), published on Jan. 24, 2019.

8. Mordehai Margalit, Dayan Ban, "Laser dosage determination by temperature monitoring," PCT patent, filed on Oct. 25, 2017 (PCT/US2017/058331), published on May 02, 2019.

7. Dayan Ban; Mordehai Margalit, Taeho Ha, "Distributed acoustic detector system," PCT patent, filed Oct. 25th, 2017 (PCT/US2017/058338), published on May 02, 2019.

6. Dayan Ban, Rongping Dai, Cameron Cooke, Heechul Lee, "A low-cost, one-time use optical filter on the top surface of the contact lens," PCT patent, filed on Nov. 22, 2017 (PCT/CN2017/112311), published May 31, 2019.

5. D. Ban, Guocheng Liu "Cascade-type energy cells for driving wireless sensors," Canadian and US provisional patent applications, T8480251CA and T8480251US, filed on May 11, 2017.

4. D. Ban, Zhenghong Lu, J. Chen, "Organic/inorganic hybrid optical amplifier with wavelength conversion," PCT patent, filed on Aug. 18th, 2011. US patent 9,082,922, granted on July 14, 2015.
3. Hui Chun Liu, Dayan Ban, Hui Luo, "Wavelength conversion device with avalanche multiplier," US7079307, granted on July 18, 2006.
2. D. Ban, H. Luo, H. C. Liu, "Wavelength conversion device with avalanche multiplier," Canadian patent, CA2447828, published on April 15, 2005, granted on July 03, 2012.
1. E. H. Sargent, Dayan Ban, "Multiple quantum well optoelectronic devices," US6573530, granted on June 03, 2003.

Refereed Journals

100. Teppei Miyoshi and Dayan Ban, "Impacts of electron-electron scattering on terahertz quantum cascade laser simulation," to be submitted (2020).
99. Md Masud Rana, Asif Abdullah Khan, Guangguang Huang, Nanqin Mei, Resul Saritas, Boyu Wen, Steven Zhang, Peter Voss, Eihab-Abdel Rahman, Zoya Leonenko, Shariful Islam, Dayan Ban, "A High Performance Piezoelectric Nanogenerator Based on Organic/Inorganic Nanomaterial for Self-Powered Structural Health Monitoring," to be submitted (2020).
98. Siyi Wang, Member, IEEE, Chao Xu, Fei Duan, Boyu Wen, SM Shazzad Rassel, Man Chun Tam, Zbigniew Wasilewski, Lan Wei, and Dayan Ban, "Thermal Dynamic Imaging of Mid-infrared Quantum Cascade Lasers with High Temporal-Spatial Resolution," Journal of Applied Physics, submitted (2020).
97. Asif Abdullah Khana, Guangguang Huang, Masud Rana, Nanqin Mei, Resul Saritas, Boyu Wen, Steven Zhang, Sharif Islam, Peter Voss, Eihab-Abdel Rahman, Zoya Leonenko, Dayan Ban, "Self-Assembled Highly Ordered Porous Perovskite/PVDF Composite Films Enabling Piezoelectric Nanogenerators for Self-Powered Electronics," Journal of Materials Chemistry A (JMCA), accepted (2020).
96. Bin Sun, Andrew Johnston, Chao Xu, Mingyang Wei, Ziru Huang, Zhang Jiang, Hua Zhou, Yajun Gao, Yitong Dong, Olivier Ouellette, Xiaopeng Zheng, Jiakai Liu, Min-Jae Choi, Yuan Gao, Frederic Laquai, Osman M. Bakr, Dayan Ban, Oleksandr Voznyy, F. Pelayo Garcia de Arquer, and Edward H. Sargent, "Monolayer Perovskite Bridges Enable Strong Quantum Dot Coupling for Efficient Solar Cells," Joule, in press (2020).
95. Dongxin Ma, Petar Todorovic, Shadi Meshkat, Makhsud I. Saidaminov, Ya-Kun Wang, Bin Chen, Peicheng Li, Benjamin Scheffel, Rafael Quintero-Bermudez, James Z. Fan, Yitong Dong, Bin Sun, Chao Xu, Chun Zhou, Yi Hou, Xiyan Li, Yuetong Kang, Oleksandr Voznyy, Zheng-Hong Lu, Dayan Ban, and Edward H. Sargent, "Chloride Insertion-Immobilization Enables Bright, Narrowband, and Stable Blue Emitting Perovskite Diodes," Journal of The American Chemical Society (JACS), in press (2020)
94. F. Duan, K. Chen, S. Wang, L. Wei, Y. Yu, D. Ban, "Temperature profile and transient response of thermally tunable ridge waveguides with laterally supported suspension," Applied Physics Letter, 116, p. 011102 (2020).

93. X. Guan, S. Wang, W. Liu, D. Qin, D. Ban, "Determining the exciton diffusion length of copper phthalocyanine in operating planar-heterojunction organic solar cells," *The European Physical Journal Applied Physics*, 89 (3), 30201 (2020).
92. S. Rassel, C. Xu, S. Zhang, D. Ban, "Noninvasive blood glucose detection using a quantum cascade laser," *Analyst* 145 (7), pp. 2441-2456 (2020).
91. Junfeng Qu, Han Jiang, Shuhong Xu, Chunlei Wang, Dayan Ban, "Tuning Optical Properties and Optical Activity of 3-Mercaptopropionic Acid Capped Organic-inorganic Hybrid Perovskites," *Luminescence: The Journal of Biological and Chemical Luminescence*, 35, pp. 203-207 (2020). doi: 10.1002/bio.3714.
90. Mingyu Zhang, Dayan Ban, Chao Xu# and John T.W. Yeow, "Large-area, Broadband and Sensitive Photo-thermoelectric Infrared Detection Based on A Carbon Nanotube Black-body Absorber," *ACS Nano*, 13, pp. 13285-13292 (2019).
89. Asif Abdullah Khan, Alam Mahmud, Yonghui Zhang, Sharif Islam, Peter Voss and Dayan Ban, "A self-powered multi-broadcasting wireless sensing system realized with an all-in-one triboelectric nanogenerator," *Nano Energy*, 62, pp. 691-699 (2019). DOI 10.1016/j.nanoen.2019.05.073
88. Alam Mahmud, Asif Abdullah Khan, Sharif Islam, Peter Voss and Dayan Ban, "Integration of organic/inorganic nanostructured materials in a hybrid nanogenerator enables efficacious energy harvesting via mutual performance enhancement," *Nano Energy*, 58, pp. 112-120 (2019).
87. Asif Abdullah Khan, Alam Mahmud, Dayan Ban, "Evolution From Single to Hybrid Nanogenerator: A Contemporary Review on Multimode Energy Harvesting for Self-Powered Electronics," *IEEE Transaction on Nanotechnology*, 18, pp. 21-36, (2019). DOI 10.1109/TNANO.2018.2876824.
86. Alam Mahmud, Asif Abdullah Khan, Peter Voss, Taylan Das, Eihab Abdel-Rahman and Dayan Ban, "A High Performance and Consolidated Piezoelectric Energy Harvester Based on 1D/2D Hybrid Zinc Oxide Nanostructures," *Advanced Materials Interfaces*, DOI: 10.1002/admi.201801167, p.1801167 (2018).
85. A. Shi, H. Deng, W. Zhao, Q. Yang, J. Zhang, D. Ban, D. Qin, "An Alternative hole extraction layer for inverted organic solar cells," *Applied Physics A*, 124(10), p.676 (2018).
84. Boyu Wen, Chao Xu, Siyi Wang, Alan Tam, Zbig Wasilewski, Dayan Ban, "Dual channel broadband quantum cascade laser based on scattering assisted injection design," *Optics Express*, 26(7), pp.9194-9204 (2018).
83. Nai-Jen Ku, Guocheng Liu, Chao-Hung Wang, Kapil Gupta, Wei-Shun Liao, Dayan Ban, Chuan-Pu Liu, "Optimal geometrical design of inertial vibration DC piezoelectric nanogenerators based on obliquely aligned InN nanowire arrays," *Nanoscale*, vol. 9, no. 37, pp.14039-14046 (2017).
82. Alam Mahmud, Ahmed Ali, Rudra S Dhar, Seyed Ghasem Razavipour, Zbig Wasilewski, Moh'd Rezeq, Dayan Ban, "Scanning Voltage Microscopy for Emerging Electronic and Photonic Devices: Integrating nanotips with a single atom end for SVM," *IEEE Nanotechnology Magazine*, vol. 11, no. 1, pp. 4-11 (2017).

81. C. Xu, D. Ban "Design of chirped distributed Bragg reflector for octave-spanning frequency group velocity dispersion compensation in terahertz quantum cascade laser," *Optics Express*, vol. 24, 13500-13510 (2016).
80. G. Liu, S. Zhao, R. D. E. Henderson, Z. Leonenko, E. Abdel-Rahman, Z. Mi, D. Ban, "Nanogenerators based on vertically-aligned InN nanowires," *Nanoscale*, vol. 8, 2097-2106 (2016).
79. G. Liu, N. Mrad, E. Abdel-Rahman, D. Ban, "Cascade-type hybrid energy cells for driving wireless sensors," *Nano Energy*, vol. 26, 641-647 (2016).
78. Dayan Ban, Boyu Wen, Rudra Sankar Dhar, Seyed Ghasem Razavipour, Chao Xu, Xueren Wang, Zbig Wasilewski, St. J. Dixon-Warren, "Electrical scanning probe microscopy of electronic and photonic devices: connecting internal mechanisms with external measures," *Nanotechnology Reviews*, vol. 5, 279-300 (2016).
77. Guocheng Liu, Eihab Abdel-Rahman and Dayan Ban, "Performance optimization of pn homojunction nanowirebased piezoelectric nanogenerators through control of doping concentration," *Journal of Applied Physics*, vol. 118, 094307 (2015).
76. R. S. Dhar, L. Li, H. Ye, S. G. Razavipour, X. Wang, R. Q. Yang, D. Ban, "Nanoscopically resolved dynamic charge carrier distribution in operating interband cascade lasers," *Laser & Photonics Review*, vol. 8, pp. 224-230 (2015). DOI 10.1002/lpor.201400143.
75. S. G. Razavipour, E. Dupont, Z. R. Wasilewski, D. Ban, "Contribution of interface roughness scattering on performance of Indirectly pumped terahertz quantum cascade lasers," *Journal of Physics: Conference Series*, vol. 619, p. 012003 (2015).
74. Rudra Sankar Dhar, Seyed Ghasem Razavipour, Emmanuel Dupont, Chao Xu, Sylvain Laframboise, Zbig Wasilewski, Qing Hu, Dayan Ban, " Direct Nanoscale Imaging of Evolving Electric Field Domains in Quantum Structures," *Scientific Reports*, vol. 4, p. 7183 (2014).
73. G. Liang, E. Dupont, S. Fatholouloumi, Z. R. Wasilewski, D. Ban, S. F. Yu, L. H. Li, A. G. Davies, E. H. Linfield, H. C. Liu, Q. J. Wang, "Planar integrated metasurface for highly-collimated terahertz quantum cascade lasers," *Scientific Reports*, vol. 4, p. 7083 (2014).
72. J. P. Liu, S. Safavi-Naeini, D. Ban, "Fabrication and measurement of a two top gates graphene p-n junction," *IET Electronics Letters*, vol. 50, pp. 1724-1726 (2014).
71. G. Liu, M. C. Tam, L. Hu, K. El-Rayes, Q. Guo, J. Yang, N. Mrad, D. Ban, "Optical and piezoelectric properties of p-type ZnO nanowires on transparent flexible substrate for energy harvesting," *Proceedings of SPIE*, vol. 9202, Optics and Photonics in Aviation and Commercial Industries pp. 92020H-92020H-6 (2014).
70. S. G. Razavipour, E. Dupont, C. W. I. Chan, M. Lindskog, Z. R. Wasilewski, C. Xu, S. R. Laframboise, A. Wacker, Q. Hu, and D. Ban, "A wideband high carrier injection terahertz quantum cascade laser based on indirect pumped scheme," *Applied Physics Letters*, vol. 104, p. 041111 (2014).

69. Simon Ferre, Seyed Ghasem Razavipour and Dayan Ban, "Terahertz Quantum Well Photodetectors with Improved Designs by Exploiting Many-Body Effects," *Applied Physics Letters*, vol. 103, pp. 081105-1-4 (2013).
68. Chao Xu, Seyed Ghasem Razavipour and Dayan Ban, "Impacts of Side Strips and Ridge Width on Terahertz Quantum Cascade Lasers with Metal-Metal Waveguides," *Optics Express*, vol. 31, pp. 31951-31959 (2013).
67. Rudra S. Dhar, St. John Dixon-Warren, Mohamed A. Kawaliye, Jeff Campbell, Mike Green, and Dayan Ban, "SCM Measurements to Read Back Stored Data on NVM Devices," *Journal of Vacuum Science & Technology B*, vol. 31, p. 061801 (2013).
66. R. S. Dhar, D. Ban, "Determination of doping concentration in THz QCL device using calibrated scanning spreading resistance microscopy and scanning capacitance microscopy," *Journal of Microscopy*, vol. 251, no. 1, pp. 35-44 (2013).
65. S. Fatholouloumi, E. Dupont, Z. R. Wasilewski, C. W. I. Chan, S. G. Razavipour, S. R. Laframboise, Shengxi Huang, Q. Hu, D. Ban, and H. C. Liu, "Effect of Oscillator Strength and Intermediate Resonance on the Performance of Resonant Phonon-based Terahertz Quantum Cascade Lasers," *Journal of Applied Physics*, vol. 113, pp. 113109-1-17 (2013).
64. Lei Chen, Dashan Qin, Yuhuan Chen, Guifang Li, Mingxia Wang, and Dayan Ban, "Measuring the electron mobility of tris(8-quinolinolato) aluminum in organic light emitting diodes driven under square waves," *Phys. Status Solidi A*, vol. 210, no. 6, pp. 1157-1162 (2013).
63. S. G. Razavipour, E. Dupont, S. Fatholouloumi, C. W. I. Chan, M. Lindskog, Z. R. Wasilewski, G. Aers, S. R. Laframboise, A. Wacker, Q. Hu, D. Ban, and H. C. Liu, "An indirectly pumped Terahertz Quantum Cascade Laser with low injection coupling strength operating above 150 K," *Journal of Applied Physics*, vol. 113, pp. 203107-1-14 (2013).
62. Baolin Tian, Dayan Ban and Hany Aziz, "Enhanced bulk conductivity and bipolar transport in mixtures of MoOx and organic hole transport materials," *Thin Solid Films*, vol. 536, pp. 202-205 (2013).
61. Jun Chen, Jianchen Tao, Dayan Ban, M. G. Helander, Z. Wang, J. Qiu, Z. H. Lu, "Organic/Inorganic Hybrid Pixelless Imaging Device," *Advanced Materials*, vol. 24, pp. 3138-3142 (2012).
60. Emmanuel Dupont, Saeed Fatholouloumi, Z. R. Wasilewski, G. Aers, S. R. Laframboise, M. Lindskog, A. Wacker, Dayan Ban, H. C. Liu, "A phonon scattering assisted injection and extraction based terahertz quantum cascade laser," *Journal of Applied Physics*, vol. 111, p. 073111 (2012).
59. Saeed Fatholouloumi, Emmanuel Dupont, C. W. I. Chan, Z. R. Wasilewski, S. R. Laframboise, Dayan Ban, A. Matyas, C. Jirauschek, Q. Hu, H. C. Liu, "Terahertz quantum cascade lasers operating up to ~200K with optimized oscillator strength and improved injection tunneling," *Optics Express*, vol. 20, pp. 3866-3876 (2012).

Highlighted by Nature Photonics on Mar.30th, 2012,

<http://www.nature.com/nphoton/journal/v6/n4/full/nphoton.2012.62.html>

58. Jianchen Tao, Jun Chen, Dayan Ban, Michael Helander and Z. H. Lu, "Optical up-conversion devices for infrared detection and imaging," *Science of Advanced Materials*, vol. 4, pp.266-281 (2012).
57. Guocheng Liu, Gaozhi Xiao, Nezhir Mrad, and Dayan Ban, "Metallic environmental effect on RF based energy transmission," *IEEE Antennas and wireless propagation letters*, vol. 11, pp. 925-928 (2012).
56. Dayan Ban, Jun Chen, Jianchen Tao, Michael G. Helander, Zhibin Wang, Jacky Qiu, and Zhenghong Lu, "Organic/inorganic hybrid optical upconversion devices for near-infrared imaging," *Physica Status Solidi C* vol. 9, No. 12, pp. 2594-2597 (2012).
55. Saeed Fatholouloumi, Emmanuel Dupont, Ghasem Razavipour, Sylvain R. Laframboise, Zbignew Wasilewski, H.C. Liu and Dayan Ban, "On metal contacts of terahertz quantum-cascade lasers with a metal-metal waveguide," *Semiconductor Science and Technology*, vol. 26, p. 105021, (2011).
54. Baolin Tian, Graeme Williams, Dayan Ban and Hany Aziz, "Transparent Organic Light-emitting Devices using a MoO₃/Ag/MoO₃ Cathode," *J. Appl. Phys.*, vol. 110, p. 104507, (2011).
53. D. Burghoff, T.-Y. Kao, Dayan Ban, A. W. M. Lee, J. Reno, and Q. Hu, "A terahertz pulse emitter monolithically-integrated with a quantum cascade laser," *Applied Physics Letter*, vol. 98, pp. 061112-1-3, (2011).
52. Dashan Qin, Peng Gu, Rudra Sankar Dhar, Seyed Ghasem Razavipour, Dayan Ban, "Measuring the exciton diffusion length of C60 in organic planar heterojunction solar cells", *Physica Status Solidi (a)*, vol. 208, no. 8, pp. 1967-1971, (2011).
51. Jun Chen, Dayan Ban, Michael G. Helander, Zhenghong Lu and P. Poole, "Near-infrared inorganic/organic optical upconverter with an external efficiency of > 100%", *Advanced Materials*, vol. 22, pp. 4900-4904, (2010).
50. Saeed Fatholouloumi, E. Dupont, G. Razavipour, S. R. Laframboise, Z. R. Wasilewski, A. Bezinger, G. Z. Rafi, S. Safavi-Naeini, Dayan Ban, H. C. Liu, "Electrically controlling transverse modes in high power THz quantum cascade lasers," *Optics Express*, vol. 18, no. 10, pp. 10036-10048, (2010).
49. Saeed Fatholouloumi, Emmanuel Dupont, Dayan Ban, Marcel Graf, Sylvain R. Laframboise, Z. R. Wasilewski, H. C. Liu, "Time resolved thermal quenching of THz quantum cascade lasers," *IEEE Journal of Quantum Electronics*, vol. 46, pp. 396-404, (2010).
48. Marcel Graf, Emmanuel Dupont, Hui Luo, Soufien Haffouz, Zbig R. Wasilewski, Anthony J. Spring Thorpe, Dayan Ban, H.C. Liu, "Terahertz quantum well infrared detectors", *Infrared Physics & Technology*, vol. 52, pp. 289-293, (2009). Conference proceedings of QSIP 2009.
47. Jun Chen, Dayan Ban, Michael G. Helander, Zhenghong Lu, Marcel Graf, Anthony J. Spring Thorpe and H. C. Liu, "Near infrared optical upconverter based on i-In_{0.53}Ga_{0.47}As/C60 photovoltaic heterojunction," *Electronic Letters*, vol. 45, no. 14, pp. 753-755 (2009).
46. Jun Chen, Dayan Ban, Michael G. Helander, Zhenghong Lu, Marcel Graf, P. Poole and H. C. Liu, "Near-infrared Optical Upconverter with Integrated Heterojunction Phototransistor and Organic Light-emitting Diode," *IEEE Photonics Technology Letters*, vol. 21, no. 19, pp. 1447-1449, (2009).

45. Jun Chen, Dayan Ban, Xiaodong Feng, Zhenghong Lu, Saeed Fatholouloumi, Anthony J. SpringThorpe and H. C. Liu, "Enhanced Efficiency in Near-Infrared Inorganic/Organic Hybrid Optical Upconverter with an Embedded Mirror," *Physica Status Solid -C*, vol. 6, pp. S23-26, (2009).
44. Somayyeh Rahimi, Dayan Ban, George Xiao, Frank Zhang, "Temperature and Strain Sensors Based on Integration of Tilted Fiber Bragg Gratings with a Free Spectral Range Matched Interrogation System," *IEEE Sensors Journal*, vol. 9, no. 7, pp. 858-861 (2009).
43. Saeed Fatholouloumi, Dayan Ban, Hui Luo, Emmanuel Dupont, Sylvain R. Laframboise, Abderraouf Boucherif, H. C. Liu, "Thermal behavior investigation of terahertz quantum cascade lasers," *IEEE Journal of Quantum Electronics*, vol. 44, pp. 1139-1144, (2008).
42. Jun Chen, Dayan Ban, Xiaodong Feng, Zhenghong Lu, Saeed Fatholouloumi, Anthony J. SpringThorpe and H. C. Liu, "Enhanced Efficiency in Near-Infrared Inorganic/ Organic Hybrid Optical Upconverter with an Embedded Mirror," *Journal of Applied Physics*, vol. 103, p. 103112, (2008).
41. Abderraouf Boucherif, Dayan Ban, Hui Luo, Emanuel Dupont, H.C.Liu, Z. R. Wasilewski, Y. Paltiel, "InAsSb based mid-infrared optical upconversion devices," *IEE Electron Letters*, vol. 44, no. 4, pp.312-313, (2008).
40. P. Tsai, F. G. Sun, D. Ban, Gaozhi Xiao, Zhiyi Zhang, "A New Fiber Bragg Grating Sensor Interrogation System deploying Free Spectral Range Matching Scheme with High Precision and Fast Detection Rate," *IEEE Photonic Technology Letters*, vol. 20, no. 4, pp. 300-302, (2008).
39. Dayan Ban, Sijin Han, Zhenghong Lu, Tania Oogarah, Anthony J. SpringThorpe and H. C. Liu, "Hybrid organic/inorganic optical upconverters with different organic layer configurations: interfacial effects," *IEEE Transaction on Electronic Devices*, vol. 54, no. 7, pp. 1645-1649, (2007)
38. Dayan Ban, Sijin Han, Zhenghong Lu, Tania Oogarah, Anthony J. SpringThorpe and H. C. Liu, "Near-infrared to visible light optical upconversion by direct tandem integration of organic light-emitting diode and inorganic photodetector," *Appl. Phys. Lett.*, vol. 90, (2007), 093108.
37. D. Ban, M. Wachter, H. C. Liu, Z. R. Wasilewski, M. Buchanan, G. C. Aers, "Terahertz quantum cascade lasers: fabrication, characterization and doping effect, *Journal of Vacuum Science and Technology A*," Vol. 24, (2006) 778-782.
36. H. C. Liu, H. Luo, D. Ban, M. Wchter, C. Y. Song, Z. R. Wasilewski, M. Buchanan, G. C. Aers, A. J. SpringThorpe, J. C. Cao, S. L.. Feng, B. S. Williams, and Q. Hu, "Terahertz Semiconductor Quantum Well Devices," *Chinese Journal of Semiconductors*, Vol. 27, (2006) 627-634.
35. H. Luo, D. Ban, H. C. Liu, Z. R. Wasilewski and M. Buchanan, "Optical upconverter with integrated heterojunction phototransistor and light-emitting diode," *Applied Physics Letters*, Vol. 88, (2006) 073501.
34. H. C. Liu, M. Wchter, D. Ban, Z. R. Wasilewski, M. Buchanan, G. C. Aers, J. C. Cao, S. L.. Feng, B. S. Williams, and Q. Hu, "Effect of doping concentration on the performance of terahertz quantum-cascade lasers," *Applied Physics Letters*, Vol. 87, (2005) 141102.

33. S. B. Kuntze, D. Ban, E. H. Sargent, St. J. Dixon-Warren, K. J. White, K. Hinzer, "Electrical Scanning Probe Microscopy: Investigating the Inner Workings of Electronic Devices," Invited paper to Journal Critical Reviews in Solid State and Material Sciences, Vol. 30, (2005) 71-124.
32. D. Ban, H. Luo, H. C. Liu, Z. R. Wasilewski, and M. Buchanan, "Pixelless 1.5 um up-conversion imaging device fabricated by wafer fusion," IEEE Photonics Technology Letters, Vol. 17, No. 7 (2005) 1477.
31. D. Ban, H. Luo, H. C. Liu, Z. R. Wasilewski, Y. Paltiel, A. Raizman, and A. Sher, "Mid-infrared optical up-converter," Applied Physics Letters, Vol. 86, (2005), 201103. Also selected in Virtual Journal of Ultrafast Science, Vol. 4, No. 6, (2005).
30. S. B. Kuntze, E. H. Sargent, J. K. White, K. Hinzer, St. J. Dixon-Warren, D. Ban, "In Situ measurement of the p-type contact in InP-InGaAsP coolerless ridge waveguide lasers," Applied Physics Letters, Vol. 86, (2005) 081111-1.
29. D. Ban, H. Luo, H. C. Liu, Z. R. Wasilewski, A. J. SpringThorpe, R. Grew, and M. Buchanan, "Optimized GaAs/AlGaAs light-emitting diodes and high efficiency wafer-fused optical up-conversion devices," Journal of Applied Physics, Vol. 96, no. 9 (2004) 5243.
28. D. Ban, E. H. Sargent, St. J. Dixon-Warren, "Scanning Differential Spreading Resistance Microscopy on an Actively Driven Buried Heterostructure Multi-Quantum-Well Laser," IEEE Journal of Quantum Electronics, Vol. 40, (2004), 865-870.
27. D. Ban, E. H. Sargent, St. J. Dixon-Warren, K. Hinzer, I. Calder, A. J. SpringThorpe, and J. K. White, "Scanning Voltage Microscopy on Active Semiconductor Lasers: the Impact of doping profile near an epitaxial growth interface on Series Resistance," IEEE Journal of Quantum Electronics, Vol. 40, (2004), 651-655.
26. H. Luo, D. Ban, H. C. Liu, A. J. SpringThorpe, Z. R. Wasilewski, M. Buchanan, and R. Grew, "1.5 um to 0.87 um Optical up-conversion using Wafer Fusion Technology," Journal of Vacuum Science and Technology A, Vol. 22, (2004) 788-791.
25. D. Ban, E. H. Sargent, St. J. Dixon-Warren, G. Letal, K. Hinzer, A. J. SpringThorpe, G. Knight, and J. K. White, "Scanning Voltage Microscopy on Buried Heterostructure Multi-Quantum-Well Lasers: Identification of a Diode Current Leakage Path," IEEE Journal of Quantum Electronics, Vol. 40, (2004) 118-122.
24. S. B. Kuntze, E. H. Sargent, St. J. Dixon-Warren, J. K. White, K. Hinzer, and D. Ban, "Nanosopic Electric Potential Probing: Influence of Probe-Sample Equilibration Time on Spatial Resolution," Applied Physics Letters, Vol. 84, (2004) 601-603.
23. H. Luo, D. Ban, H. C. Liu, P. J. Poole, and M. Buchanan, "Pixelless Imaging Device using Optical Up-Converter," IEEE Electronics Devices Letters, Vol. 25, (2004) 129-131.
22. D. Ban, E. H. Sargent, K. Hinzer, St. J. Dixon-Warren, I. Calder, A. J. SpringThorpe, and J. K. White, "Direct Observation of Lateral Current Spreading in Ridge-Waveguide Lasers Using Scanning Voltage

Microscopy," *Applied Physics Letters*, Vol. 82, (2003) 4166-4168. Also selected in *Virtual Journal of Nanoscale Science & Technology*, Vol. 7, No. 24, June 16, 2003.

21. D. Ban, H. Luo, H. C. Liu, A. J. SpringThorpe, R. Glew, Z. R. Wasilewski, M. Buchanan, "1.5 to 0.87 μm up-conversion device fabricated by wafer fusion," *IEE Electronics Letters*, Vol. 39 (2003) 1145-1147.

20. D. Ban, E. H. Sargent, St. J. Dixon-Warren, I. Calder, A. J. SpringThorpe, R. Dworschak, G. Este, and J. K. White, "Direct Imaging of the Depletion Region of an InP pn Junction Under Bias Using Scanning Voltage Microscopy," *Applied Physics Letters*, Vol. 81, (2002) 5057-5059.

19. D. Ban, E. H. Sargent, St. J. Dixon-Warren, T. Grevatt, G. Knight, G. Pakulski, A. J. SpringThorpe, R. Streater, and J. K. White, "Two-Dimensional Profiling of Carriers in a Buried Heterostructure Multi-Quantum-Well Laser: Calibrated Scanning Spreading Resistance Microscopy and Scanning Capacitance Microscopy," *Journal of Vacuum Science and Technology, B*, Vol. 20, (2002) 2126-2132.

18. D. Ban, E. H. Sargent, St. J. Dixon-Warren, I. Calder, T. Grevatt, G. Knight, and J. K. White, "Two-Dimensional Transverse Cross-Section Nanopotentiometry of Actively-Driven Buried Heterostructure Multiple-Quantum-Well Lasers," *Journal of Vacuum Science and Technology, B*, Vol. 20, (2002) 2401-2407. Also selected in *Virtual Journal of Nanoscale Science & Technology*, Vol. 7, No. 5, Feb. 3, 2003.

17. Dayan Ban and Edward H. Sargent, "Influence of nonuniform carrier distribution on the polarization dependence of modal gain in multi-quantum well lasers and semiconductor optical amplifiers," *IEEE Journal of Quantum Electronics*, Vol. 36, (2000) 1081.

16. Dayan Ban, Jiangeng Xue, Rongchuan Fang, Shihong Xu, Erdong Lu, and Pengshou Xu, "Measurements and calculations of the valence band offsets of SiO_x/ZnS(111) and SiO_x/CdTe(111) heterojunctions," *Journal of Vacuum Science and Technology, B* Vol.16, (1998) 989.

15. Jiangeng Xue, Dayan Ban, Rongchuan Fang, Erdong Lu, Pengshou Xu, "Band lineup of SiO_x/ZnS(111) heterojunction, A synchrotron radiation photoemission study," *Thin Solid films*, Vol. 334, (1998) 20.

14. Ban Dayan, Fang Rongchuan, Xue Jiangeng, et al., "Effect of growth temperature on the band lineups of Ge/CdTe(111) polar interfaces," *Chinese Physics Letter*, Vol.14, (1997) 609.

13. Dayan Ban, Jiangeng Xue, Fang Rongchuan, et al., "Interface Formation of Several Heterojunctions Concerning IV and II-VI semiconductors," *Rare Metals*, Vol. 16, (1997) 161.

12. Ban Dayan, Fang Rongchuan, Zhang Haifeng, Li Yongping, "A Study of the Electronic Structure of Polar ZnSe(100) Surface," *Acta Physica Sinica*, Vol.46, no.4 (1997) 767. (in Chinese)

11. Ban Dayan, Yang Fengyuan, Fang Rongchuan, Xu Shihong, Xu Pengshou, "A Study of Band Offsets of Ge/ZnSe(100) Heterojunctions Using Synchrotron Photoemission Spectroscopy," *Acta Physica Sinica*, Vol.46, no.3 (1997) 587. (in Chinese)

10. Ban Dayan, Fang Rongchuan, Xue Jiangeng, et al., "Valence Band Offsets of Si/ZnS Polar Interfaces: A Synchrotron Radiation Photoemission Study," *Acta Physica Sinica*, Vol. 46, (1997) 1817. (in Chinese)

9. Zhang Haifeng, Wang Chongyu, Fang Rongchuan, Ban Dayan, Li Yongping, "Interface Electronic Structure of Ge/ZnSe(111)," Chinese Physics Letter, Vol. 14, (1997) 128.
8. Ban Dayan, Yang Fengyuan, Fang Rongchuan, Xu Shihong, Xu Pengshou, Meng Xianxing, "A Study of the Band Offset of Ge/ZnS(111) Heterojunction Using Synchrotron Radiation Photoemission," Science in China, Vol.39, (1996) 637.
7. D. Y. Ban, F. Y. Yang, R. C. Fang, S. H. Xu, P. S. Xu, "Synchrotron Radiation Photo-emission study of Ge/ZnS(111) heterojunction," the Journal of Electron Spectroscopy and Related Phenomena, Vol.80, (1996) 197.
6. Ban D. Y. Yang F. Y., Fang R. C., Xu S. H., Xu P. S., "Interface Formation of Ge/ZnSe (100) and Ge/ZnS(111) Hetero-junctions studied by Synchrotron Radiation Photoemission," Acta Physica Sinica (oversea edition), Vol.5, (1996) 590.
5. F. Y. Yang, D. Y. Ban, R. C. Fang, S. H. Xu, P. S. Xu, S. X. Yuan, "Valence band offset and interface formation of Ge/ZnSe(100) studied by synchrotron Radiation photo-emission," the Journal of Electron Spectroscopy and Related Phenomena, Vol.80, (1996) 193.
4. Ban Dayan, Zhang Haifeng, Li Yongping, Fang Rongchuan, "A Study of ZnS(111) Surface Electronic Structure," Acta Physica Sinica, Vol.45, (1996) 1526. (in Chinese)
3. Zhang Haifeng, Li Yongping, Fang Rongchuan, Ban Dayan, "Electronic Structure of Alkali-Metals adsorbed on CdTe(111) Surfaces," Acta Physica Sinica, Vol. 45, (1996) 2047. (in Chinese)
2. Cui Jinbiao, Chen Hong, Zhang Jifa, Ban Dayan, Fang Rongchuan, "Thermal conductivity study of diamond films," High Tech. Lett., Vol.1, (1995) 91.
1. Yang Fengyuan, Ban Dayan, Fang Rongchuan, et al., "Effect of Rb Adsorption on the surface structure of Cd_{0.96}Zn_{0.04}Te(111)," Journal of University of Science and Technology of China, 25, (1995) 107.

Refereed Conference Proceedings

84. Shuhong Xu, Chunlei Wang, Dayan Ban, "Tuning Optical Properties and Optical Activity of 3-Mercaptopropionic Acid Capped Organic-inorganic Hybrid Perovskites", 20th Photonics North, Montreal, QC, Canada, June 5-7, 2018.
83. Dayan Ban, "Nanogenerators on flexible substrates", International Flexible Electronics and Technology Conference (IFETC), Ottawa, Canada, Aug. 7-9, 2018.
82. A. Mahmud, A.A. Khan, P. Voss, T. Das, E. Abdel-Rahman and D. Ban, "Low-temperature hydrothermal synthesis of ZnO nanowire arrays on metal substrates for energy harvesting", 60th Electronic Materials Conference (EMC) in UCSB, Santa Barbara, California, USA, Jun. 27-29, 2018.
81. A. Mahmud, A.A. Khan, P. Voss, T. Das, E. Abdel-Rahman and D. Ban, "The enhanced performance of flexible piezoelectric nanogenerator using p-n junction type ZnO nanowires", 6th International

Conference & Exhibition on Advanced & Nano Materials (ICANM) in Quebec City, Canada, Aug. 6-9, 2018.

80. B. Wen, Chao Xu, S. Wang, D. Ban, Z. R. Wasilewski, "Scattering Assisted dual color THz quantum cascade laser operating up to 144 K with large dynamic range", 18th Canadian Semiconductor Science and Technology Conference (CSSTC), Aug. 20-24, 2017, Waterloo, Ontario, Canada. P.32-33.

79. C. Xu, S. Wang, B. Wen, X. He, Y. Zhuo, D. Gosselink, A. Tam, Z. Wasilewski, D. Ban, "Broad-band Terahertz Quantum Cascade Lasers", 18th Canadian Semiconductor Science and Technology Conference (CSSTC), Aug. 20-24, 2017, Waterloo, Ontario, Canada. P.188-189.

78. B. Tekcan, S. Gibson, D. Ban, M. Reimer, "InP based nanowire single photon avalanche photodetectors", 18th Canadian Semiconductor Science and Technology Conference (CSSTC), Aug. 20-24, 2017, Waterloo, Ontario, Canada. P.158-159.

77. Xiaoliang He, Siyi Wang, S. G. Razavipour, G. Liu, C. Xu, B. Wen, A. Mahmud, D. Gosselink, A. Tam, Z. R. Wasilewski, Dayan Ban, "Characterization for mid-infrared quantum cascade lasers operating up to 350 K on pulse mode", 18th Canadian Semiconductor Science and Technology Conference (CSSTC), Aug. 20-24, 2017, Waterloo, Ontario, Canada. P.164-165.

76. K. X. Wang, B. Wen, D. Ban, "Effect of dopant position on impurity scattering time and optical gain in terahertz quantum cascade lasers", 18th Canadian Semiconductor Science and Technology Conference (CSSTC), Aug. 20-24, 2017, Waterloo, Ontario, Canada. P.166-167.

75. Y. Zhuo, Chao Xu, Chao Wang, Zhibiao Hao, Yi Luo, Dayan Ban, "Grating coupler simulation of quantum well infrared photodetector", 18th Canadian Semiconductor Science and Technology Conference (CSSTC), Aug. 20-24, 2017, Waterloo, Ontario, Canada. P.176-177. 74. C. Xu, D. Ban, "Chirped Distributed Bragg Reflector for Broadband Group Velocity Dispersion Compensation in Terahertz Quantum Cascade Lasers," Photonics Asia, Oct. 12-14, 2016, Beijing, China.

73. B. Wen, J. Watchorn, D. Ban, "Improved resonant phonon-based THz QCL density Matrix model," International Quantum Cascade Laser School and Workshop, Sept. 5-9, 2016, Cambridge, UK.

72. D. Ban, "Indirect pumping scheme-based terahertz quantum cascade lasers," International Union of Materials Research Societies - International Conference on Electronic Materials, July 4-8, 2016, Singapore.

71. G. Liu, D. Ban, "Hybrid Cascade-Type Energy Cell for Harvesting Solar and Mechanical Energy," Conference on Laser and Electro-optics, June 6-10, 2016, San Jose, USA.

70. S. Fafard, F. Proulx, M. C. A. York, M. Wilkins, C. E. Valdivia, M. Bajcsy, D. Ban, etc., "Advanced vertical epitaxial heterostructure architecture (VEHSA) phototransducers for optical to electrical power conversion efficiencies exceeding 50 percent," IEEE Photovoltaic Specialists Conference, June, 5-10, 2016, Portland, USA.

69. D. Ban, R. S. Dhar, S. G. Razavipour, E. Dupont, Z. R. Wasilewski, "Competition of current-carrying channels in operating terahertz quantum cascade lasers," International Conference on Optical, Optoelectronic and Photonic Materials and Applications, June 13-17, 2016, Montreal Canada.

68. Jingping Liu, Dayan Ban, Safieddin Safavi-Naeini, Huichang Zhao, "Terahertz Source With Graphene P-n Junction," the 40th International Conference on Infrared, Millimeter, and Terahertz Waves 2015, Aug. 23-28, 2015, Hongkong.
67. Dayan Ban, "Scanning voltage microscopy of quantum semiconductor microstructures," (Invited talk) the 17th Canadian Semiconductor Science and Technology Conference (CSSTC) 2015, Aug. 17-20, 2015, Sherbrooke, QC, Canada.
66. G. Liu, Dayan Ban, "ZnO pn junction nanowire based nanogenerator," the 17th Canadian Semiconductor Science and Technology Conference (CSSTC) 2015, Aug. 17-20, 2015, Sherbrooke, QC, Canada.
65. Dayan Ban, "Scanning voltage microscopy measurement of lasing photonic devices," (Invited talk) CMOS-ET, 2015, May 20-22, 2015, Vancouver, BC, Canada.
64. R. S. Dhar, S. G. Razavipour, E. Dupont, Z. R. Wasilewski, Dayan Ban, "Scanning voltage microscopy study of lasing and non-lasing terahertz quantum cascade lasers," Conference on Laser and Electro-Optics (CLEO) 2015, May 10-15, 2015, San Jose, CA, USA.
63. Seyed Ghasem Razavipour, Emmanuel Dupont, Zbig Wasilewski, Dayan Ban, "Effect of Interface Roughness Scattering on performance of Indirectly-Pumped Terahertz Quantum Cascade Lasers," Conference on Laser and Electro-Optics (CLEO) 2014, June 9-13, 2014, San Jose, CA, USA.
62. R. S. Dhar, C. Xu, D. Ban, L. Li, H. Ye, R. Q. Yang, M. B. Johnson, T. D. Mishima and M. B. Santos, "Direct Observation of Non-uniform Electric Field in the Active Regions of an Interband Cascade Laser," Conference on Laser and Electro-Optics (CLEO) 2014, June 9-13, 2014, San Jose, CA, USA.
61. Rudra Sankar Dhar, Seyed Ghasem Razavipour, Emmanuel Dupont, Chao Xu, Sylvain Laframboise, Zbig Wasilewski, Qing Hu, Dayan Ban, "Direct Observation of Electric Field Domain in the Active Region of Terahertz Quantum Cascade Laser," (Invited talk) International Quantum Cascade Laser School and Workshop, Sept. 7-12, 2014, Pilicoro, Italy.
60. Dayan Ban, "Terahertz quantum cascade lasers: towards high performance operation." (Keynote talk) 4th International Conference on Nanotechnology: Fundamentals and Applications, Aug. 12-14, 2013, Toronto, Ontario, Canada.
59. Dayan Ban, "Towards High-Performance Terahertz Quantum Cascade Lasers," SPIE Photonics North 2013 (Invited talk), June 3-5, 2013, Ottawa, Ontario, Canada.
58. Seyed Ghasem Razavipour, Emmanuel Dupont, Saeed Fatholouloumi, Zbig Wasilewski, Sylvain Laframboise, H. C. Liu, Dayan Ban, "Rate Equation Analysis of Three Phonon-Photon-Phonon Terahertz Quantum Cascade Lasers," Conference on Laser and Electro-Optics (CLEO) 2013, June 9-14, 2013, San Jose, CA, USA.
57. Chao Xu, Simon Ferr, and Dayan Ban, "Impacts of Side Strips and Ridge Width on Terahertz Quantum Cascade Lasers with Metal-Metal Waveguides," Conference on Laser and Electro-Optics (CLEO) 2013, June 9-14, 2013, San Jose, CA, USA.

56. S Ferr, S. G Razavipour, C. Xu, D. Ban, "Many-Body Effects in Terahertz Quantum Well Infrared Photodetectors," Conference on Laser and Electro-Optics (CLEO) 2013, June 9-14, 2013, San Jose, CA, USA.
55. Hao Wang, Honglei Guo, Gaozhi Xiao, Nezhir Mrad, Alex Kazemi, Dayan Ban, "Phase-shifted fiber-Bragg-grating-based humidity sensor," SPIE Defense, Security, and Sensing, April 29, 2013, Baltimore, Maryland, USA, Proc. SPIE 8720, Photonic Applications for Aerospace, Commercial, and Harsh Environments IV, pp. 872019-1-7.
54. Jun Chen, Jianchen Tao, Dayan Ban, Michael G. Helander, Zhibin Wang, Jacky Qiu, Zhenghong Lu, "Organic/Inorganic Hybrid Pixelless Near Infrared Imaging Device", Conference on Laser and Electro-Optics (CLEO) 2012, May 6-11, 2012, San Jose, CA, USA.
53. S. Fatholouloumi, C.W.I. Chan, E. Dupont, Z. R. Wasilewski, S. R. Laframboise, D. Ban, A. Matyas, C. Jirauschek, Q. Hu, H. C. Liu, "199.5 K Operation of THz Quantum Cascade Lasers", Conference on Laser and Electro-Optics (CLEO) 2012, May 6-11, 2012, San Jose, CA, USA.
52. S. Fatholouloumi, E. Dupont, Z. R. Wasilewski, G. Aers, S. R. Laframboise, M. Lindskog, A. Wacker, D. Ban, H. C. Liu, "Terahertz Quantum Cascade Lasers Based on Phonon Scattering Assisted Injection and Extraction", Conference on Laser and Electro-Optics (CLEO) 2012, May 6-11, 2012, San Jose, CA, USA.
51. Dayan Ban, "THz Quantum Cascade Lasers A Canadian Approach Towards High-Performance Operation," CMOS-emerging technologies 2012 conference, Invited talk, July 18-20, 2012, Vancouver, British Columbia, Canada.
50. Rudra S. Dhar, St.J. Dixon-Warre, Mohamed A. Kawaliye, Jeff Campbell, Mike Green, and Dayan Ban, "Readback Stored Charges on Non Volatile Memory Devices," 2012 MRS fall meeting, Nov. 25-30, 2012, Boston, USA.
49. S. G. Razavipour, E. Dupont, S. Fatholouloumi, Z. R. Wasilewski, M. Lindskog, A. Wacker, S. R. Laframboise, and D. Ban, "Five-Well Terahertz Quantum Cascade Laser based on Phonon-Photon-Phonon Structure," International Quantum Cascade Lasers School & Workshop 2012, 26, September 2012, Grandhotel Sauerhof, Baden, Austria.
48. R. S. Dhar, D. Ban, "SSRM and SCM study for doping concentration of THz QCL", Photonics North 2012, June 6-8, 2012, Ottawa, Canada.
47. Dayan Ban, Jun Chen*, Michael G. Helander, Zhenghong Lu, P. Poole, H. C. Liu, "Infrared organic/inorganic optical amplifier with wavelength conversion," International Symposium on Photoelectronic Detection and Imaging 2011 (Invited talk), May 24-26, Beijing, China (2011).
46. C. W. I. Chan, S. Fatholouloumi, E. Dupont, Z. R. Wasilewski, S. R. Laframboise, D. Ban, Q. Hu, H. C. Liu, "A terahertz quantum cascade laser operating up to 195 K", Intersubband Transition in Quantum Well (ITQW 2011), Sept. 11-17, 2011, Italy.

45. S. Fatholouloumi, E. Dupont, Z. R. Wasilewski, S. R. Laframboise, D. Ban, H. C. Liu, "Effect of intermediate resonance on the performance of resonant phonon based terahertz quantum cascade lasers", Intersubband Transition in Quantum Well (ITQW 2011), Sept. 11-17, 2011, Italy.
44. Jun Chen, Dayan Ban, Michael G. Helander, Zhenghong Lu, Philip Poole, "Organic/Inorganic Hybrid Optical Amplifier with Wavelength Conversion", Conference of Laser and Electro-Optics (CLEO) 2011, May 1-6, 2011, Baltimore, Maryland, USA.
43. S. Fatholouloumi, E. Dupont, S. R. Laframboise, Z. R. Wasilewski, D. Ban, H. C. Liu, "Design of Laser Transition Oscillator Strength for THz Quantum Cascade Lasers", CLEO 2011, May 1-6, 2011, Baltimore, Maryland, USA.
42. D. Burghoff, T.-Y. Kao, D. Ban, A. W. M. Lee, J. L. Reno, Q. Hu, "Gain measurements of a metal-metal terahertz quantum cascade laser using an integrated terahertz pulse emitter," CLEO 2011, May 1-6, 2011, Baltimore, Maryland, USA.
41. G. Liu, N. Mrad, G. Xiao, Z. Li, and D. Ban, "RF-based power transmission," Proceedings of the Fly-by-Wireless (FBW) 2011 Workshop, Montreal, QC, Canada, June 14-17, 2011, pp. 1-1.
40. G. Liu, N. Mrad, G. Xiao, Z. Li, and D. Ban, "RF-based power transmission for wireless sensors nodes," Proceeding of International Workshop on Smart Material & Structures and NDT in Aerospace, Montreal, QC, Canada, Nov. 2-4, 2011, pp. 1-9.
39. Zhenzhong Li, Nezhil Mrad, Gaozhi Xiao, Guocheng Liu, Dayan Ban, "Effects of Orientation and Obstacles on the RFID Performance," Proceedings of the Fly-by-Wireless (FBW) 2011 Workshop, Montreal, QC, Canada - June 14-17, 2011, the CANEUS Fly-by-Wireless Consortium.
38. Zhenzhong Li, Nezhil Mrad, Gaozhi Xiao, Guocheng Liu, Dayan Ban, "Effects Of Temperature And Humidity On UHF RFID Performance," Proceeding of International workshop on SMART MATERIALS, STRUCTURES & NDT in AEROSPACE, Montreal, QC, Canada, Nov. 2-4, 2011.
37. D. Burghoff, D. Ban, S. Kumar, Q. Hu, J. L. Reno, "Gain measurements of terahertz quantum-cascade lasers with metal-metal waveguides," International quantum cascade laser school & workshop, Aug. 30 Sept. 3, 2010, Villa Finaly, Florence, Italy.
36. Dayan Ban, A. Lee, S. Kumar, Q. Hu, C. Hoffmann, "Intra-cavity-generated terahertz emission and its transmission through an actively-biased terahertz quantum cascade laser with a metal-metal waveguide", the Fourth International Conference on Optical, Optoelectronic Photonic Materials and Applications (ICOOPMA), Aug. 16-20, 2010, Budapest, Hungary.
35. Dayan Ban, "Terahertz quantum cascade lasers and their applications," The fourth multi-disciplinary symposium of Ontario Chinese Professors, July 1-3, 2010, Parry Sound, Ontario, Canada.
34. Jun Chen, Dayan Ban, Michael Helander, Zhenghong Lu, Philip Poole, H. C. Liu, "Hybrid infrared optical upconverting devices with a built-in electrical gain," Infrared Technology and Applications XXXVI, April 05-09, 2010, Orlando, FL, USA.

33. S. Fatholouloumi, E. Dupont, S. G. Razavipour, S. R. Laframboise, Z. R. Wasilewski, D. Ban, H. C. Liu, "Electrically Controlling Beam Pattern of THz Quantum Cascade Lasers, Conference on Laser and Electro-Optics (CLEO) 2010, May 16-21, 2010, San Jose, CA, USA.
32. S. G. Razavipour, S. Fatholouloumi, G. R. Rafi, D. Ban, S. Safavi-Naeini, S. R. Laframboise, Z. R. Wasilewski, H.C. Liu, "Waveguide Design for Bi-Modal Operation of THz Quantum Cascade Lasers," International Microwave Symposium (IMS) 2010, May 23-28, 2010, Anaheim, CA, USA.
31. S. G. Razavipour S. Fatholouloumi, D. Ban, "Transverse mode control by engineering top metal configuration in metal-metal terahertz quantum cascade lasers", SPIE Photonics North, June 1-3, 2010, Niagara Falls, Canada.
30. S. Musikhin, Jason Chow, D. Ban, "Electrochemically deposited ZnO nanostructured films for optoelectronic applications", SPIE Photonics North, June 1-3, 2010, Niagara Falls, Canada.
29. S. Fatholouloumi, D. Ban, E. Dupont, M. Graf#, S. R. Laframboise, Z.R. Wasilewski, H.C Liu, "Thermal Quenching Analysis of THz Quantum Cascade Laser by Time-Resolved THz Pulse Measurement," Intersubband transition in quantum well (ITQW) 2009, Sept. 7-11, 2009, Montreal, Canada.
28. Dayan Ban, Zhenghong Lu, H. C. Liu, "Infrared Organic/inorganic optical upconverting devices", (invited talk), International Symposium on Photoelectronic Detection and Imaging 2009, Jun. 17-19, 2009, Beijing, China.
27. Jun Chen, Dayan Ban, Michael Helander, Zhenghong Lu, Marcel Graf, Anthony J. SpringThorpe, H. C. Liu, "Near Infrared optical upconverter based on i-In_{0.53}Ga_{0.47}As/C60 Photovoltaic junction," Conference on Laser and Electro-Optics (CLEO) 2009, May 31-Jun 05, 2009, Baltimore, USA.
26. Saeed Fatholouloumi, Dayan Ban, Hui Luo, Peter Grant, Sylvain R. Laframboise, Zbig Wasilewski, Margaret Buchanan, H. C. Liu, "In Situ Active Region Temperature Measurement for THz Quantum Cascade Lasers", Conference on Laser and Electro-Optics (CLEO) 2008, San Jose, USA, May 5-9, 2008.
25. Jun Chen, Dayan Ban, Xiaodong Feng, Zhenghong Lu, Saeed Fatholouloumi, A. J. SpringThorpe, H.C. Liu, "Near-Infrared Inorganic/Organic Hybrid Optical Upconversion Device with an Embedded Mirror", Third International Conference on Optical, Optoelectronic Photonic Materials and Applications 2008 (ICOOPMA2008), July 20-25, 2008, Edmonton, Canada.
24. Somayyeh Rahimi, Gaozhi Xiao, Zhiyi Zhang, Dayan Ban, "A new demodulation technique for Fiber Bragg Grating sensors deploying a free spectral range matching scheme," Photonics North, June 2-4, 2008, Montreal, Canada.
23. Saeed Fatholouloumi, Dayan Ban, Hui Luo, Peter Grant, Sylvain R. Laframboise, Zbig Wasilewski, Margaret Buchanan, H. C. Liu, "Beam pattern investigation of Terahertz Quantum Cascade Lasers", Progress In Electromagnetics Research Symposium, Hangzhou, China, Mar. 2008.
22. D. Ban, S. Han, Z. H. Lu, A. J. SpringThorpe, H. C. Liu, Infrared to visible organic/inorganic hybrid optical upconverter, SPIE Photonics North 2007, June 4-7, 2007, Ottawa, Canada.

21. Fengguo Sun, Patrick Tsai, Gaozhi Xiao, Zhiyi Zhang, Dayan Ban, Free Spectral Range Matched Scanning Interrogator, (Accepted) to be presented to IEEE Conference of Lasers and Electro-optics (CLEO), May 7-11, 2007, Baltimore, US.
20. Abderraouf Boucherif, Dayan Ban, Hui Luo, Emmanuel Dupont, H.C.Liu, Z. R. Wasilewski, Yossi. Paltiel, Mid-infrared optical upconversion by integrating an InAsSb photodetector with a GaAs light emitting diode, (Accepted) to be presented to IEEE Conference of Lasers and Electro-optics (CLEO), May 7-11, 2007, Baltimore, US.
19. Dayan Ban, Sijin Han, Zhenghong Lu, Anthony J. SpringThorpe, H. C. Liu, Inorganic/Organic Hybrid Optical Upconversion Devices, (Accepted) to be presented to IEEE Conference of Lasers and Electro-optics (CLEO), May 7-11, 2007, Baltimore, US.
18. H. C. Liu, H. Luo, D. Ban, M. Wachter, C. Y. Song, Z. R. Wasilewski, M. Buchanan, G. C. Aers, A. J. SpringThorpe, J. C. Cao, S. L. Feng, B. S. Williams, and Q. Hu, THz Quantum Semiconductor Devices, 20th Congress of the International Commission for Optics (invited talk), Changchun, China, Aug. 21-26, 2005.
17. A. Bezinger, A. Bogdanov, J. Lapointe, and D. Ban, Fabrication of microlens arrays for increased light extraction efficiency in 1.5 μ m up-conversion devices, Twelfth Canadian Semiconductor Technology Conference, Ottawa, Ontario, Canada, Aug. 16-19, 2005.
16. D. Ban, H. Luo, H. C. Liu, Z. R. Wasilewski, M. Buchanan, Y. Paltiel, A. Raizman, and A. Sher, Wafer-fused mid-infrared optical up-converter based on MOCVD-grown InSb, SPIE Photonic North, Toronto, Ontario, Canada, Sept. 12-14, 2005.
15. D. Ban, E. H. Sargent, St. J. Dixon-Warren, Direct observation of electron overbarrier leakage in actively driven buried heterostructure multi-quantum-well lasers, SPIE Photonics North 2004 (invited talk), Ottawa, Ontario, Canada, Sept. 27, 2004, Proceedings of SPIE, Vol. 5577, p. 66.
14. D. Ban, H. Luo, H. C. Liu, A. J. SpringThorpe, Z. R. Wasilewski, and M. Buchanan, 1.5 μ m optical up-conversion: wafer fusion and related issues, SPIE Annual Meeting 2004, Denver, Colorado, US, Aug. 02, 2004, Proceedings of SPIE, Vol. 5543, p. 47.
13. H. Luo, D. Ban, H. C. Liu, A. J. SpringThorpe, Z. R. Wasilewski, and M. Buchanan, 1.5 μ m to 0.87 μ m optical upconversion by wafer fusion, Sept. 27, 2004, SPIE Photonics North 2004 (invited talk), Ottawa, Ontario, Canada, Proceedings of SPIE, Vol. 5577, p. 16.
12. H. C. Liu, H. Luo, D. Ban, Z. R. Wasilewski, M. Buchanan, A. J. SpringThorpe, and P. J. Poole, Photo Upconversion Devices, The 2004 Conference on Optoelectronic and Microelectronic Material and Devices (COMMAD 2004) (invited talk), Brisbane, Australia, Dec. 8-10, 2004, Proceedings of IEEE.
11. D. Ban, S. Kuntze, E. H. Sargent, St. J. Dixon-Warren, K. Hinzer, A. J. SpringThorpe, and J. K. White, Direct Observation of Lateral Current Spreading in Actively-Driven Ridge-waveguide Lasers, IEEE Conference on Lasers and Electro-Optics (CLEO 2003), Baltimore, Maryland, USA, June 02-06, 2003.
10. D. Ban, E. H. Sargent, St. J. Dixon-Warren, T. Grevatt, G. Knight, G. Pakulski, A. J. SpringThorpe, R. Streater, J. K. White, Calibrated Scanning Spreading Resistance Microscope (SSRM) on Buried-Heterostructure Multiple-Quantum-Well Lasers: Probing Individual Quantum Wells and Free Carrier

Concentrations, IEEE Conference of Lasers and Electro-optics (CLEO 2002), Technical digest, pp. 631-632, Long Beach, CA, May 24, 2002.

9. D. Ban, E. H. Sargent, St. J. Dixon-Warren, T. Grevatt, G. Knight, G. Pakulski, J. K. White, Two-Dimensional Transverse Cross-Section Quantum-Well Resolving Nanopotentiometry of Buried-Heterostructure Multiple-Quantum-Well Lasers under Forward Operation, IEEE Conference of Lasers and Electro-optics (CLEO 2002), Technical digest, pp. 295-296, Long Beach, CA, May 21, 2002.

8. Dayan Ban, Edward H. Sargent, St. J. Dixon-Warren, T. Grevatt, G. Knight, A. J. SpringThorpe, R. Streater, J. K. White, and G. Pakulski, Profiling of Carriers in Buried Heterostructure Multi-Quantum-Well Lasers: Calibrated Scanning Spreading Resistance Microscopy and Scanning Capacitance Microscopy Study, 10th Canadian Semiconductor Technology Conference, Ottawa, Ontario, Canada, August 13-17, 2001.

7. St. J. Dixon-Warren, R. Dworschak, G. Este, A. J. SpringThorpe, J. K. White, D. Ban, and E. H. Sargent, Active-Device Scanning Voltage Microscopy Studies on a Forward and Reverse Biased InP p-n Junction Sample, American Vacuum Society (AVS) 49th International Symposium, Denver, CO, USA, Nov. 4-8, 2002. Also St. J. Dixon-Warren, R. Dworschak, G. Este, A. J. SpringThorpe, J. K. White, D. Ban, and E. H. Sargent, Active-device scanning voltage microscopy studies on a forward and reverse biased InP pn junction sample, Surface Canada 2002, Ottawa, May 12-15, 2002, Univ. of Ottawa.

6. Dayan Ban and Edward H. Sargent, Buried Heterostructure Lasers for Metropolitan Area Networks: Anomalous Low-Temperature Behaviour, IEEE 2001 Pacific Rim Conference on Communications, Computers and Signal Processing (PACRIM01), Technical Digest, MP5.5, Victoria, British Columbia, Canada, August 26-28, 2001.

5. Dayan Ban and Edward H. Sargent, External Electronic and Optical Evidence for Internal Quantum Transport Effects in BH-MQW lasers, IEEE 27th International Symposium on Compound Semiconductor, Oct. 2-5, 2000, Monterey, California, US. Proceedings of, pp. 55-60.

4. Dayan Ban, Eddie C. F. Wong, and Edward H. Sargent, Polarization-dependence in Multi-Quantum Well Lasers and Semiconductor Optical Amplifiers: Probing Interwell Transport Effects, IEEE Conference on Lasers and Electro-Optics (CLEO 2000), Technical Digest, p. 179, San Francisco, CA, USA, May 7-12, 2000.

3. R. Fang, D. Ban, Environmental problems in China and some possible countermeasures in material science aspect, Proceedings of the Third International Conference on Ecomaterials, Sept. 10-12, 1997, Tsukuba, Japan, A6-4, 313.

2. Fengyuan Yang, Dayan Ban, Rongchuan Fang, et al., Valence band offset and interface formation of Ge/ZnSe(100) studied by synchrotron Radiation Photoemission, the 11th International Conference on Vacuum Ultraviolet Radiation Physics, Rikkyo University, Tokyo 171, Japan, August 27- September 1, 1995.

1. Dayan Ban, Fengyuan Yang, Rongchuan Fang, et al., Synchrotron radiation photoemission study of Ge/ZnS(111) heterojunction, the 11th International Conference on Vacuum Ultraviolet Radiation Physics, Rikkyo University, Tokyo 171, Japan, August 27- September 1, 1995.

Invited Talks and Other scholarly Addresses

Dayan Ban, "Scanning Probe Microscopy Measurements of Lasing Photonic Devices," Shanghai Jiaotong University, Shanghai, China, July 21st, 2015.

Dayan Ban, "Scanning Probe Microscopy Measurements of Lasing Photonic Devices," Huazhong University of Science and Technology, Wuhan, China, July 9th, 2015.

Dayan Ban, "Terahertz Quantum Cascade Laser," Huazhong University of Science and Technology, Wuhan, China, July 7th, 2015.

Dayan Ban, "Quantum and Nano Photonic Devices," Tsinghua University, Beijing, China, April 21th, 2015.

Dayan Ban, "Latest research progress in terahertz quantum cascade laser at the University of Waterloo," Khalifa University, Abu Dhabi, UAE, April 7th, 2015.

Dayan Ban, "Terahertz quantum photonic devices", Soochow University, Suzhou, Jiangsu province, China, July 22nd, 2014.

Dayan Ban, "High-Performance Terahertz Quantum Cascade Lasers for Communication Applications," IEEE Antenna and Photonics Chapter, Ottawa, May 6th, 2013, Ottawa, Canada.

Dayan Ban, "Organic/inorganic hybrid optical upconversion devices: towards near-infrared imaging", Soochow University, Suzhou, Jiangsu province, China, Feb. 21, 2012.

Dayan Ban, "Terahertz Quantum Cascade Laser," Chengkung University, Tainan, Taiwan, June 11th, 2012.

Dayan Ban, "Terahertz Quantum Cascade Laser," University of Toronto, Toronto, Canada, July 12th, 2012.

Dayan Ban, "THz quantum cascade lasers - towards high-performance operation," University of Ottawa, Oct. 18th, 2012.

Dayan Ban, "Terahertz Quantum Cascade Lasers: Fabrication and Characterization," Peking University, Beijing, China, Aug. 26th, 2010.

Dayan Ban, "Terahertz Technologies and Terahertz Quantum Cascade Lasers," University of Science and Technology of China, Hefei, China, Aug. 30th, 2010.

Dayan Ban, "Terahertz Quantum Cascade Lasers," University of Florida, Jacksonville, Florida, USA, April 7, 2010.

Dayan Ban, "Terahertz time-domain spectroscopy studies on terahertz quantum cascade lasers," MIT, Boston, US, Aug. 20th, 2009.

Dayan Ban, "Organic/inorganic optical up-conversion devices for infrared imaging application", Boston Applied Technology Inc., Boston, MA, USA, Aug. 12, 2009.

Dayan Ban, "Terahertz quantum cascade lasers", Yale University, New Haven, CT, USA, April 03, 2009.

Dayan Ban, "Terahertz quantum cascade lasers", Nortel Network Institution distinguished seminar series, University of Waterloo, Waterloo, Canada, Mar. 05, 2009.

Dayan Ban, "Organic/inorganic hybrid optical upconverter", University of Toronto, Feb. 21, 2007.

Dayan Ban, "Nanotechnology at UW and its applications", at ComDev, Cambridge, Ontario, Feb. 27th, 2007.

Dayan Ban, "Quantum cascade lasers for terahertz emission," at the Department of Electronics, Peking University, China, Dec. 28th, 2006.

Dayan Ban, "Quantum cascade lasers for terahertz emission," at the School of Physics, Qingdao University, Qingdao, Shandong province, China, Dec. 26th, 2006, at the School of Physics and Electronics, Nudong University, Yantai, Shandong Province, China, Dec. 25th, 2006.

Dayan Ban, "Quantum heterostructure devices," at the Department of Engineering Physics, McMaster University, Oct. 13th, 2006.

Dayan Ban, "On imaging technologies," Dalsa, Waterloo, Ontario, Jan. 31st, 2006.

Dayan Ban, Terahertz Quantum Cascade Lasers, at the Department of Physics, Queens University, Kingston, Ontario, Jan. 27, 2005;

Dayan Ban, Terahertz Quantum Cascade Lasers, Bookham Technologies Inc., Ottawa, Ontario, Jan. 11, 2005.

Dayan Ban, Scanning Probe Microscopy for Probing of the Internal Information in Unbiased and Biased Optoelectronics Devices, Institute for Microstructural Science, National Research Council of Canada, Ottawa, Feb. 08, 2002.

Dayan Ban, Nanopotentiometry measurements on BH lasers, Material and Device Analysis group, Nortel Networks, Ottawa, Canada, Oct. 18, 2001.

Dayan Ban, Photonics: Using Light to Do Everything, Computing Insights program, the Department of Electrical and Computer Engineering, the University of Toronto, July 09, 2001.