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Education:

PhD, University of Toronto, 2003

MSc, University of Science and Technology of China, China, 1995

BSc, University of Science and Technology of China, China, 1993

Professional Experience:

2006-present Professor, Department of Electrical and Computer Engineering
Waterloo Institute for Nanotechnology , University of Waterloo, Canada

2004-2005 Researcher, National Research Council, Canada.

Research Interests:

Terahertz Quantum Cascade Lasers

Biophotonics

Scanning Probe Microscopy

Nanofabrication and Nanotechnology

Recently Selected publications:

1. 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).
2. 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).

3. 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).
4. 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).
5. 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).
6. 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.
7. 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).
8. 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).
9. 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).
10. 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).
11. 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).
12. 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).
13. 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).
14. 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).
15. 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).
16. 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).
17. S. Fathololoumi, 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).
18. 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).
19. S. G. Razavipour, E. Dupont, S. Fathololoumi, 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).
20. 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).
21. 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).