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FORMAL EDUCATION

Postdoctoral	Ginzton Laboratory	Stanford University	Stanford, CA	1981-1982
Ph.D.	Applied Physics	Stanford University	Stanford, CA	1981
M.S.	Applied Physics	Stanford University	Stanford, CA	1978
B.S.	Physics	Univ. of Minnesota	Mpls., MN	1976

APPOINTMENTS

2015-present	Deputy Director, American Institute of Manufacturing (AIM) of Integrated Photonics
2012-present	Professor, Technology Management Program
2011-present	Professor, Materials Department
2008-present	Director, Institute for Energy Efficiency, UCSB
1987-present	Professor, Department of Electrical and Computer Engineering, UCSB
2009-2014	Director, Center Energy Efficient Materials, DOE EFRC
1999-2008	CTO and cofounder, Calient Networks.
1996-2003	Director, Multidisciplinary Optical Switching Technology Center (MOST)
1998-2001	Executive Director and Cofounder, Center for Entrepreneurship and Engineering Management, UCSB.
1996-1998	President and cofounder, Terabit Technology (acquired by Ciena).
1982-1987	AT&T Bell Laboratories. Member of Technical Staff
1978-1979	Honeywell Corporate Materials Science Center. Scientist.

Bowers has edited two books, published eighteen book chapters, 800 journal papers, and 1100 conference papers. He has received 68 patents and has 16 patents pending. He has published 200 invited journal and conference papers, and given 27 plenary talks at conferences. Google H-index: 108. Over 50,000 citations.

AWARDS

IEEE Photonics Award	2017
University of Minnesota Outstanding Alumni Achievement Award	2016
Selection as Scientist in Residence, Universität Duisburg-Essen	2016
Election as a National Academy of Inventors (NAI) Fellow	2016
UCSB Faculty Research Lecturer	2012
OSA/IEEE Tyndall Award	2012
Kavli Chair for Nanotechnology	2009
OSA Nick Holonyak, Jr., Award	2009
IEEE Transactions on Components and Packaging Technol. Best Paper	2006
EETimes ACE Award for "Most Promising New Technology"	2007
Micro-optics Conference Award	2007
Discover Magazine list of top 100 achievements in	2006
PC World Tech. Excellence Award for Best Semiconductor Technology	2006
National Academy of Engineering	2005
Fellow of the Optical Society of America	2002
Entrepreneur of the Year Award, South Coast Business and Technology	2001

RELEVANT IMPORTANT PAPERS

1. Lin Chang, Weiqiang Xie, Haowen Shu, Qi-Fan Yang, Boqiang Shen, Andreas Boes, Jon Peters, Warren Jin, Chao Xiang, Songtao Liu, Gregory Moille, Su-Peng Yu, Xingjun Wang, Kartik Srinivasan, Scott Papp, Kerry Vahala, and John E. Bowers, "Ultra-efficient frequency comb generation in AlGaAs-on-insulator microresonators", *Nature Communications* volume 11, Article number: 1331 (2020)
2. H. Snijders, J.A. Frey, J. Norman, M.P. Bakker, E.C. Langman, A. Gossard, J.E. Bowers, M.P. van Exter, D. Bouwmeester, and W. Löffler, "Purification of a single-photon nonlinearity", *Nature Communications*, 12578, August 30, 2016.
3. Boqiang Shen, Lin Chang, Junqiu Liu, Heming Wang, Qi-Fan Yang, Chao Xiang, Rui Ning Wang, Jijun He, Tianyi Liu, Weiqiang Xie, Joel Guo, David Kinghorn, Lue Wu, Qing-Xin Ji, Tobias J. Kippenberg, Kerry Vahala, and John E. Bowers, "Integrated turnkey soliton microcombs operated at CMOS frequencies" *Nature* (2020).
4. H. Snijders, J. A. Frey, J. Norman, V. P. Post, A. C. Gossard, J. E. Bowers, M. P. van Exter, W. Löffler, and D. Bouwmeester, "Fiber-coupled Cavity-QED Source of Identical Single Photons", *Physical Review Applied*, 9, 031002, March 28, 2018.
5. Minh A. Tran, Duanni Huang and John E. Bowers, "Tutorial: Si/III-V Heterogeneous Integration for Narrow Linewidth Semiconductor Lasers", Invited paper, *APL Photonics* 4, 111101 (2019)
6. D. T. Spencer, T. Drake, T. C. Briles, J. Stone, L. C. Sinclair, C. Fredrick, Q. Li, D. Westly, B. Robert Ilic, A. Bluestone, N. Volet, T. Komljenovic, L. Chang, S. H. Lee, D. Y. Oh, M.-G. Suh, K. Y. Yang, M. H. P. Pfeiffer, T. J. Kippenberg, E. Norberg, L. Theogarajan, K. Vahala, N. R. Newbury, K. Srinivasan, J. E. Bowers, S.A. Diddams, and S. B. Papp, "An Integrated-Photonics Optical-Frequency Synthesizer," *Nature*, 557, 81-85, April 25, 2018.
7. H. J. Snijders, J. A. Frey, J. Norman, A. C. Gossard, J. E. Bowers, M. P. van Exter, D. Bouwmeester, and W. Löffler "Observation of the Unconventional Photon Blockade", *Physical Review Letters*, 121 43601, 2018.
8. H.J. Snijders, J. A. Frey, J. Norman, H. Flayac, V. Savona, A. C. Gossard, J. E. Bowers, M.P. van Exter, D. Bouwmeester, and W. Löffler, "Polarized quantum dot cavity-QED and single photons", *Physical Review Applied* 9, 031002 March 28, (2018).
9. Qi-Fan Yang, Boqiang Shen, Heming Wang, Minh Tran, Zhewei Zhang, Ki Youl Yang, Lue Wu, Chengying Bao, John Bowers, Amnon Yariv, and Kerry Vahala, Vernier spectrometer using counter-propagating soliton microcombs, *Science* Vol. 363, Issue 6430, pp. 965-968 (2019).
10. Y. Wan, S. Zhang, J. Norman, MJ Kennedy, W. He, S. Liu, C. Xiang, C. Shang, J. He, A. C. Gossard, and J. E. Bowers, "Tunable quantum dot lasers directly grown on Si", *Optica*, 6(11), (2019).
11. Chao Xiang, Warren Jin, Joel Guo, Jonathan D. Peters, M. J. Kennedy, Jennifer Selvidge, Paul A. Morton, and John E. Bowers "Narrow-linewidth III-V/Si/Si₃N₄ laser using multilayer heterogeneous integration", *Optica*, 7, 20 (2020).

12. J. A. Frey, H. J. Snijders, J. Norman, A. C. Gossard, J. E. Bowers, W. Löffler, and D. Bouwmeester, "Electro-optic polarization tuning of microcavities with a single quantum dot," *Opt. Lett.* **43**, 4280-4283 (2018)
13. D. Ding, D. van Driel, L. M. C. Pereira, J. F. Bauters, M. J. R. Heck, G. Welker, M. J. A. de Dood, A. Vantomme, J. E. Bowers, W. Loer, and D. Bouwmeester, "Probing interacting two-level systems with rare-earth ions," arXiv:1811.05248, November 13, 2018.
14. H.J. Snijders, D.N.L. Kok, M.F. van de Stolpe, J. A. Frey, J. Norman A. C. Gossard, J. E. Bowers, M.P. van Exter, D. Bouwmeester, and W. Löffler, "An extended semi-classical model for polarized quantum dot cavity-QED and application to single photon sources", *Physical Review Applied* (2020).
15. Songtao Liu, Xinru Wu, Daehwan Jung, Justin C. Norman, MJ Kennedy, Hon K. Tsang, Arthur C. Gossard and John E. Bowers, "High-channel-count low-noise 20 GHz passively mode locked quantum dot laser directly grown on Si with 4.1 Tbit/s transmission capacity", *Optica* (2019).
16. T. Komljenovic, D. Huang, P. Pintus, M. A. Tran, M. L. Davenport, and J. E. Bowers, "Photonic Integrated Circuits Using Heterogeneous Integration on Silicon", **Invited Paper**, *Proceedings of the IEEE*, **(106)**12, 2246-2257, August 30, 2018.
17. J. C. Norman, D. Jung, Y. Wan, and John E. Bowers, "Perspective: The Future of Quantum Dot Photonic Integrated Circuits", **Invited Paper**, *Applied Physics Letters Photonics*, **(3)**3, 030901, March 27, 2018.
18. A. Y. Liu and J. Bowers, "Photonic Integration with Epitaxial III-V on Silicon", **Invited Paper**, *IEEE Journal of Selected Topics in Quantum Electronics*, **(24)**6, 6000412, July 9, 2018.
19. D. Jung, Z. Zhang, J. Norman, R. Herrick, MJ Kennedy, P. Patel, K. Turnlund, C. Jan, Y. Wan, A. Gossard, and J. E. Bowers, "Highly reliable low threshold InAs quantum dot lasers on on-axis (001) Si with 87% injection efficiency," *ACS Photonics*, **(5)**3, 1094-1100, December 18, 2017.
20. A. Fang, H. Park, Y.-H. Kuo, R. Jones, O. Cohen, D. Liang, O. Raday, M. Paniccia & J. Bowers (2007). "Hybrid Silicon Evanescent Devices," **Invited Paper**, *Materials Today*, Volume:10, Pages: 28-35.
21. D. Huang, P. Pintus and J. E. Bowers, "Towards heterogeneous integration of optical isolators and circulators with lasers on silicon," **Invited Paper**, *Optical Materials Express*, **(8)**9, 2471-2483, August 1, 2018.
22. D. Liang and J. E. Bowers (2010). "Recent progress in lasers on silicon", **Invited Paper**, *Nature Photonics*, Volume:4 Issue: 8, Pages: 511-517.

SYNERGISTIC ACTIVITIES

- 1) Founded the Institute of Energy Efficiency to focus research at UCSB on reducing energy consumption, including quantum computation and sensing.
- 2) Developed hybrid silicon laser and related silicon photonic integrated circuit technology to reduce energy consumption in silicon servers and enable low power interconnects.
- 3) Developed lower power MEMS based optical switches for low power fiber optic switching.
- 4) Helped establish the American Institute for Manufacturing Integrated Photonics to drive low cost, high volume CMOS processing of PICs.
- 5) Demonstrated an integrated 2D scanner chip using a 32 channel integrated phased array.