John E. Bowers

Fred Kavli Chair of Nanotechnology
Distinguished Professor, Electrical and Computer Eng., Materials, and Technology Management
University of California, Santa Barbara
Santa Barbara, California 93106-9560
Phone: (805) 893-8447
Email: bowers@ece.ucsb.edu
Web: http://optoelectronics.ece.ucsb.edu/

FORMAL EDUCATION

Ph.D. (Applied Physics), Stanford University, 1981
M. S. (Applied Physics), Stanford University, 1978
B. S. (Physics), University of Minnesota, 1976

PROFESSIONAL EXPERIENCE

2011-present Distinguished Professor, Materials Department, UC, Santa Barbara.
2010-present Director, Silicon Photonics Center, UC, Santa Barbara.
2008-present Director, Institute for Energy Efficiency, UC, Santa Barbara.
2006-present Cofounder and Distinguished Professor, Technology Management Program.
2006-present Distinguished Professor, Department of Electrical and Computer Engineering
2015-2021 Deputy CEO, American Institute for Manufacturing (AIM) Integrated Photonics
2009-2014 Director, Center for Energy Efficient Materials, UC, Santa Barbara.
1999-2008 CTO and cofounder, Calient Networks.
1987-2006 Professor, Department of Electrical and Computer Engineering
1996-2004 Director, Multidisciplinary Optical Switching Technology Center (MOST).
1998-2001 Executive Director and Cofounder, Center for Entrepreneurship and Engineering Management
1996-1998 CEO and cofounder, Terabit Technology (acquired by Ciena).
1990-1993 Associate Director, Optoelectronics Technology Center, UC, Santa Barbara.
1982-1987 AT&T Bell Laboratories. Member of Technical Staff (MTS)
1981-1982 Ginzton Laboratory, Stanford University. Research Associate.
1978-1979 Honeywell Corporate Materials Science Center. Scientist.

AWARDS AND HONORS

- Top 1000 Scientists in the World (#609) (Research.com)
- American Association for the Advancement to Science (AAAS) Fellow (2022).
- Best Paper in Photonics Technology Letters for 2019 (awarded in 2021)
- IPRM Award (2021)
- Highly Cited Researcher list (2020 and 2021)
- IEEE Life Fellow (2020)
- Pioneer Award, South Coast Business and Technology (2018)
- IEEE Photonics Field Award (2017)
- Spirit of Innovation Award, Central Coast Innovation Awards (2017).
- University of Minnesota Outstanding Alumni Achievement Award (2017)
- Selection as Scientist in Residence, Universität Duisburg-Essen (2016).

- Election as a National Academy of Inventors (NAI) Fellow (2016).
- UCSB Faculty Research Lecturer (2013)
- OSA Tyndall Award (2012)
- Kavli Chair for Nanotechnology, (2009).
- OSA Nick Holonyak, Jr., Award (2009).
- 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 Technical Excellence Award with for Best Semiconductor Technology, (2006)
- National Academy of Engineering, (2005).
- Fellow of the Optical Society of America, (2003).
- Entrepreneur of the Year Award, South Coast Business and Technology Group,(2001).
- Fellow of the American Physical Society (1996).
- IEEE LEOS William Streifer Award (1996).
- Fellow of IEEE (1994).
- LEOS Distinguished Lecturer (1994).
- NSF Presidential Young Investigator (1988).
- NSF Fellowship (1976).
- Thomas F. Andrew Award for Undergraduate Research from Sigma Xi (1976).

Bowers has published two books, eighteen book chapters, 900 journal papers, and 1200 conference papers. He has received 72 patents and has 14 patents pending. He has published 180 invited journal and conference papers, and given 25 plenary talks at conferences. Google H-index: 122. 62,600 citations.

PROFESSIONAL ACTIVITIES

2020-2021	National Academy of Engineering Nominating Committee
2019	Co-editor, Semiconductors and Semimetals, vol 101, Elsevier
2016-present	Program Committee, IEEE International Photonics Conference
2015	Guest Editor, Special Issue on Silicon Photonics, Photonics Journal.
2013	General Co-Chair, Photonics in Switching Conference
2013	Program Committee of the Optical Fiber Communications (OFC) Conference.
2010	Program Chair, Photonics in Switching.
2008	Asia Optoelectronics Exhibition and Conference (AOE 2008) Program Chair.
2008-2010	OIDA Technology Advisory Board.
2003-2004	Assoc. Editor, IEEE LEOS Journal of Quantum Electronics.
1999	General Chair, Ultrafast Electronic and Optoelectronics Conference.
1998	General Co-Chair of the 25th International Symp. on Compound Semiconductors.
1997	Vice President for conferences, IEEE LEOS.
1997	Program Chair, Ultrafast Electronics and Optoelectronics Conference
1997	Chair, Steering Committee of the Conference on Lasers and Electro-optics (CLEO).
1995-1997	Elected member, Board of Governors IEEE Lasers and Electro-optics Society
1994-1996	Meetings Chairman, IEEE LEOS.
1994-1997	Member, Steering Committee of Conference on Lasers and Electro-optics (CLEO).
1996	Co-Chair (w. David Miller) of Conference on Lasers and Electro-optics (CLEO).
1994-1996	Chair, Steering Committee of the LEOS Summer Topical Meetings.

1994-1996	Chair, Steering Committee, IEEE InP and Related Materials Conference (IPRM).
1994	Program Co-Chair (with David Miller), CLEO.
1994	Conference Chair of the IEEE InP and Related Materials Conference (IPRM).
1991-1992	Chair, IEEE LEOS Technical Subcommittee on Semiconductor Lasers.
1992	Program Co-Chair, SPIE Ultrafast Optoelectronics and Electronics Meeting, Somerset.
1989	Guest Editor of the Special Issue of the IEEE Journal of Quantum Electronics

IMPORTANT PAPERS

1. J. E. Bowers, "High Speed Semiconductor Laser Design and Performance," ***Invited Paper,*** *Solid State Electronics,* **30** (1), 1, January 1, 1987
2. A. W. Fang, H. Park, O. Cohen, R. Jones, M. J. Paniccia, and J. E. Bowers, "Electrically Pumped Hybrid AlGaInAs-Silicon Evanescent Laser," *Optics Express,* **14,** 9203, 2006
3. D. Liang and J. E. Bowers, "Recent progress in lasers on silicon," *Nature Photonics,* **Invited Paper, 4** (8), 511-517, August, 2010
4. J. C. Norman, D. Jung, Y. Wan, and John E. Bowers, "Perspective: The Future of Quantum Dot Photonic Integrated Circuits", **Invited Paper**, *APL Photonics,* (**3)**3, 030901, 2018.
5. D. T. Spencer, …J. E. Bowers , "An Integrated-Photonics Optical-Frequency Synthesizer," *Nature Photonics,* **557**, 81-85, April 25, 2018.
6. R. Jones, P. Doussiere, J. B. Driscoll, W. Lin, H. Yu, Y. Akulova, T. Komljenovic, and J. E. Bowers "Heterogeneously Integrated Photonics", *IEEE Nanotechnology Magazine* **17**, 2019.
7. F. Grillot, J. Norman, Jianan Duan, Z. Zhang Bozhang Dong, Heming Huang, Weng Chow, and J. E. Bowers, "Physics and applications of quantum dot lasers for silicon photonics", invited paper, *Nanophotonics,* **Invited paper, vol. 9(6)** p. 1271 (2020).
8. Boqiang Shen, …J. E. Bowers, "Integrated turnkey soliton microcombs operated at CMOS frequencies" *Nature* **582**, p. 365–369 (2020).
9. Theordore Morin, …John E. Bowers, "CMOS-foundry-based blue and violet photonics", *Optica* **8,** 755-756 (2021)
10. Lin Chang, …J. E. Bowers, "Ultra-efficient frequency comb generation in AlGaAs-on-insulator microresonators", *Nature Communications,* vol. **11**, Article number: 1331 (2020)
11. Chao Xiang, …John E. Bowers, "Laser soliton microcombs heterogeneously integrated on silicon" *Science* Vol. **373**, Issue 6550, pp. 99-103 DOI: 10.1126/science.abh2076 (2021).
12. Bohan Li, …J. E. Bowers, "Reaching fiber-laser coherence in integrated photonics", *Optics Letters* **46**, 5201-5204 (2021).
13. Chao Xiang, …J. E. Bowers, "High-performance lasers for fully integrated silicon nitride photonics" *Nature Communications* **12**, 6650 (2021).
14. Haowen Shu, … John. E. Bowers, "Microcomb-driven silicon photonic systems", *Nature* **605**, 457 (2022).
15. Chao Xiang, Warren Jin and John Bowers, "Silicon nitride passive and active photonic integrated circuits: trends and prospects", invited paper, *Photonics Research*, **10**, p 82,(2022).
16. Lin Chang, Songtao Liu, John E. Bowers, "Integrated Optical Frequency Comb Technologies", Invited review paper for *Nature Photonics*, **16**, 95-108 (2022).
17. Chao Xiang, … John E. Bowers, "High-performance silicon photonics using heterogeneous integration", Invited paper, *IEEE JSTQE*, vol. **28**, no. 3, pp. 1-15, May-June 2022
18. Lin Chang, Galan Moody, Garrett Cole, John Bowers, CSOI: Beyond Silicon on Insulator Photonics", Invited paper, *Optics and Photonics News* **33.1** 24-31. (2022).