RESUME

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Born – Oct. 1956, Hong Kong
Citizenship: U.S.

Education:

Ph.D. in Electrical Engineering, June 1981
California Institute of Technology, Pasadena, California,
Thesis title: Ultra-high Frequency Dynamics of Semiconductor Injection Lasers
Thesis advisor: Amnon Yariv

M.S. in Electrical Engineering, June 1978
California Institute of Technology, Pasadena, California,

B.S. in Engineering and Applied Sciences, June 1978
California Institute of Technology, Pasadena
G.P.A.: 4.1/4.0
Class ranking: first in class of 1978 (institute-wide)

Honors:

- Pioneer Award, 2013, IEEE Aerospace and Electronic Systems Society.
- Pioneer Award, 2021, IEEE Microwave Theory and Technologies Society.
- David Sarnoff Award, 2009, IEEE.
- J.J. Thomson Medal, 2009, IET (U.K.)
- Benjamin Oliver Gold Medal for Engineering, 2011, Armed Forces Communication and Electronics Association.
- Nicholas Holonyak Award, 2008, Optica (formerly Optical Society of America.)
- William Striefer Scientific Achievement Award, 1996, IEEE Photonics Society (Formerly Lasers and Electro-Society.)
- IEEE Photonics Society Distinguished Lecturer Award, 1996.
- NSF Presidential Young Investigator Award, 1989.
- Distinguished Alumni Award, 2022, California Institute of Technology, Pasadena, U.S.
- J.E. Froehlich Memorial Award, 1977, California Institute of Technology.
- Fellow, IEEE
- Fellow, Optical Society of America.

Professional Services:

- Associate Editor, IEEE/OSA Journal of Optical Communications and Networking, 2009 -2014.
- Associate Editor, IEEE Journal of Quantum Electronics, 1995-1997.
- Guest Editor, IEEE Journal on Selected Topics on Quantum electronics, April 1997
- Visiting Committee, Division of Engineering and Applied Sciences, California Institute of Technology, Pasadena, 2001-2005
- Consultant, IBM T.J. Watson Research Center, Hawthorne, New York. 1988-1990.
- Consultant, MIT Lincoln Laboratory, Lexington, Massachusetts. 1988-1990.
- Consultant, Ortel Corp., Alhambra, California. 1988-1998
- Consultant, United Technologies, Hartford, Connecticut. 1988-1990.
- Consultant, Boeing Aircraft High Technology Center, Seattle, Washington. 1988-1990.
- Consultant, Alliant Tech Systems, Arlington, Virginia. 1988-1990.
- Consultant, Chevron Technology Center, La Habra, California. 1982-1984.
- Consultant, General Instrument, Horsham, Pennsylvania. 1988-1990.

Conference Services:

- Program committee, CLEO ’98’ (Conference on Lasers and Electro Optics, San Francisco)
- Program committee, Device Research Conference ’97’, Ft. Collins, Colorado
- Program co-chair, Topical Meeting on Advanced Semiconductor Lasers and Applications, Montreal 1997
- Program committee, CLEO ‘97’, Baltimore
- Program committee, Device Research Conference ’96’, Santa Barbara
- Program committee, CLEO ’96’, Anaheim
- Co-chairman, Symposium on optics and micromachining, OSA Annual meeting 1995, Portland
- Program committee, CLEO ’95’, Baltimore
- Program committee, International Semiconductor Laser Conference, Maui 1994
- Program committee, CLEO ’94’, Anaheim
- Program committee, OFC/IOOC (Optical Fiber Communication Conference) ‘93, San Jose
- Chairman, Device subcommittee, Integrated Photonics Research, Palms Spring, 1993
- Program committee, OFC ’92, San Jose
- Program committee, International Semiconductor Laser Conference, 1992, Japan
- Program committee, Topical Meeting on Multi-access Lightwave Network, Santa Barbara, 1992
- Program committee, Integrated Photonics Research, 1992, New Orleans
- Program committee, OFC ’91’, San Diego
- Program committee, Integrated Photonics Research, 1991, Monterey
- Chairman, IEEE Semiconductor Laser Workshop, 1990, Anaheim
- Program committee, International Semiconductor Laser Conference, 1990, Davos, Switzerland
- Program committee, Integrated Photonics Research Meeting,1990, Hilton head
- Program committee, CLEO ’90, Anaheim
- Program committee, OFC ’90’, San Francisco
- Program committee, Topical Meeting on Multi-access Lightwave Network, Monterey 1990
- Chairman, International Workshop on Quantum Well Optical Device Physics, Kobe, Japan, 1989
- Program committee, IEDM ’89 (International Electron Device Meeting), San Francisco
- Program committee, OFC ’89’, Houston
- Program committee, CLEO ’89, Baltimore
- Program committee, Topical Meeting on Picosecond Electronics and Optoelectronics, Lake Tahoe, 1987
- Program committee, International Semiconductor Laser Conf., 1986 (Kanazawa, Japan)

Work Experience:

7/05 – present	Professor Emeritus University of California, Berkeley Dept. of Electrical Engineering and Computer Sciences
8/97– 9/03	Founding Chairman, LGC Wireless, Inc., San Jose, California (acquired by ADC Telecom in 2007)
3/97 – 12/02	Technology Partner, Advanced Technology Ventures, Palo Alto, California.
7/90 – 7/05	Professor, University of California, Berkeley Dept. of Electrical Engineering and Computer Sciences; 95-96, Vice Chairman, administration
7/88 – 7/90	Associate Professor Columbia University Electrical Engineering Dept. Director, Lightwave Communication Laboratory of the NSF Center for Telecommunications Research.
10/81 – 10/88	Founding Chief Scientist Ortel Corporation (acquired by Lucent Technologies in 2000)
6/79 – 10/81	Engineer Microwave Fiber-optics development, NASA Deep Space Network Jet Propulsion Laboratory Pasadena, California

U.S. Patents :

1. ***6,819,822*** Two-dimensional gimbaled scanning actuator with vertical electrostatic comb-drive for actuation and/or sensing (issued Nov 16, 2004.)
2. ***6,788,520*** Capacitive sensing scheme for digital control state detection in optical switches (issued September 7, 2004.)
3. ***6,758,983*** Staggered torsional electrostatic combdrive and method of forming same (issued July 6, 2004.)
4. ***6,690,657*** Multichannel distributed wireless repeater network (issued February 10, 2004.)
5. ***6,449,407*** Optical switch having equalized beam spreading in all connections (issued September 10, 2002.)
6. ***6,353,600*** Dynamic sectorization in a CDMA cellular system employing centralized base-station architecture (issued March 5, 2002.)
7. ***6,026,108*** Vertical-cavity surface-emitting laser with an intracavity quantum-well optical absorber (issued February 15, 2000.)
8. ***6,014,546*** Method and system providing RF distribution for fixed wireless local loop service (issued January 11, 2000.)
9. ***5,983,070*** Method and system providing increased antenna functionality in a RF distribution system (issued April 8, 1997.)
10. ***5,867,297*** Apparatus and method for optical scanning with an oscillatory microelectromechanical system (issued February 2, 1999.)
11. ***5,765,099*** Distribution of radio-frequency signals through low bandwidth infrastructures (issued June 9, 1998.)
12. ***5,760,419*** Monolithic wavelength meter and photodetector using a wavelength dependent reflector (issued June 2, 1998.)
13. ***5,668,562*** Measurement-based method of optimizing the placement of antennas in a RF distribution system (issued September 29, 1992.)
14. ***5,631,916*** Apparatus and method for optically transmitting electrical signals in the 20-300 gigahertz

frequency range (issued May 20, 1997.)

15. ***5,541,756*** Apparatus and method for routing optical signals through wavelength-coding in a self-routed wavelength addressable network (issued July 30, 1996.)
16. ***5,335,107*** Method and apparatus for modulation of self-pulsating diode laser's self-pulsating frequency (issued August 2, 1994.)
17. ***4,843,611*** Superluminescent diode and single mode laser (issued June 27, 1989.)
18. ***4,764,934*** Superluminescent diode and single mode laser (issued August 16, 1988.)
19. ***4,562,569*** Tandem coupled cavity lasers with separate current control and high parasitic resistance between them for bistability and negative resistance characteristics and use thereof for optical disc readout (issued December 31, 1985.)
20. ***4,287,606*** Fiber optic transmission line stabilization apparatus and method (issued September 1, 1981.)
21. ***4,239,337*** Magneto-optic modulator using dielectric mirrors (issued December 16, 1980.)

PUBLICATIONS :

Books and book chapters:

1. "*Ultra-High Frequency Linear Fiber Optic Systems*," Kam.Y. Lau, *1st.* edition, Springer, 2009; 978-3-540-25350-1 *2nd.* edition; 978-3-642-16457-6 Springer 2011.
2. "Ultra-low Threshold Quantum well Lasers," K.Y. Lau, Chapter 4 in *Quantum Well Lasers,* Peter S. Zory, Ed., Academic Press 1993.
3. "Dynamics of Quantum Well Lasers," Kam Y. Lau, Chapter 5 in *Quantum Well Lasers,* Peter S. Zory, Ed., Academic Press 1993.
4. "High Frequency Current Modulation of Semiconductor Injection Lasers," Kam Y. Lau and Amnon Yariv, Chapter 2 in *Semiconductors and Semimetals Volume 22: Lightwave Communications Technology Part B: Semiconductor Injection Lasers*, Ed. Won T. Tsang, Academic Press, 1985.
5. "Novel intracavity modulator integrated with a vertical-cavity surface-emitting laser," S.F. Lim, J.A. Hudgings, L.P. Chen, G.S. Li, W. Yuen, K.Y. Lau, and C.J. Chang-Hasnain, p.48-52, *Trends in Optics and Photonics Series (TOPS),* Ed. C.J. Chang-Hasnain, Optical Society of America, Volume 15, 1997.

***Journal Publications*:**

1. Kam Y. Lau, George F. Lutes and Robert L. Tjoelker, "Ultra-stable RF-over-Fiber Transport in NASA Antennas, Phased Arrays and Radars [*Invited*]," *IEEE J. Lightwave Technology*, Volume 32, Issue 20, Page(s): 3440 - 3451, Oct., 2014.

2. Kam Y. Lau, "RF Transport Over Optical Fiber in Urban Wireless Infrastructures [Invited]," *IEEE/OSA J. Opt. Commun. Netw*. Volume 4, Issue 4, Page(s): 326-335, Apr., 2012.

3. Wang, J., Kahn, J.M., Lau, K.Y., "Minimization of acquisition time in short-range free-space optical communication," *Applied Optics.* Volume 41, Issue 36 Page(s): 7592-7602, Dec. 2002.

4. Janice A. Hudgings, Robert J. Stone, Sui F. Lim, Kam Y. Lau and Connie J. Chang-Hasnain, "Comparative study of the analog performance of a vertical-cavity surface-emitting laser under gain and cavity loss modulation," Appl. Phys. Lett., Volume: 77, Issue 14, Page(s): 2092-2094, 2000.

5. R.A. Conant, P.M. Hagelin, U. Krishnamoorthy, M. Hart, O. Solgaard, K.Y. Lau, R.S. Muller, "A raster-scanning full-motion video display using polysilicon micromachined mirrors," Sensors & Actuators A, Volume: 83, no. 1-3, Page(s) 291-296. May, 2000.

6. Hart, M.R., Conant, R.A. Lau, K.Y., Muller, R.S., "Stroboscopic interferometric system for dynamic MEMS characterization," *Journal of Microelectro-mechanical Systems*, Volume 9, Issue: 4, Page(s): 409-418, Dec. 2000.

7. Lau, K.Y., "MEMS Microscanner raster-scanning display: a spyglass for the future," *Optics & Photonics News*, May 1999, Volume 10, (no. 5), Page(s): 47-50.

8. Stone, R.J., Hundgings, J.A., Lim, S.F.; Chang-Hasnain, C.J.; Lau, K.Y., "Independent phase and magnitude control of an optically carried microwave signal with a three-terminal vertical-cavity surface-emitting laser," *IEEE Photonics Technology Letters*, Volume:11, Issue: 4, Apr. 1999, Page(s): 463-465.

9. Hudgings, J.A.; Stone, R.J.; Chih-Hao Chang; Lim, S.F.; Lau, K.Y., Chang-Hasnain, C.J., "Dynamic behavior and applications of a three-contact vertical-cavity surface-emitting laser," *Selected Topics in Quantum Electronics, IEEE Journal on*, Volume: 5 Issue: 3, May/June 1999, Page(s): 512-519.

10. Hudgings, J.A.; Lim, S.F.; Li, G.S.; Wupen, Yuen; Lau, K.Y.; Chang-Hasnain, C.J., "Compact, integrated optical disk readout head using a novel bistable vertical-cavity surface-emitting laser," *IEEE Photonics Technology Letters*, Volume: 11 Issue: 2, Feb. 1999, Page(s): 245-247.

11. R.S. Muller and K. Y. Lau, "Surface Micromachined Micro-optical Elements and Systems," *Proceedings of the IEEE*, (invited), 86, 1705-1720, August, 1998.

12. Gabriel S. Li; Wupen Yuen; Lau, Kam Y.; Chang-Hasnain, Connie J., "The physics of negative differential resistance of an intracavity voltage-controlled absorber in a vertical- cavity surface-emitting laser," *Applied Physics Letters*, Page(s): 73, Issue 13, September 28, 1998, Page(s): 1796-1798.

13. S. F. Lim, J. A. Hudgings, L.P. Chen, G. S. Li, W. Yuen, K. Y. Lau and C. J. Chang-Hasnain, "Modulation of a Vertical-Cavity Surface-Emitting Laser Using a Intracavity Quantum-Well Absorber," *Photonics Technology Letters*, 10, 3, Page(s): 319-321, March 1998.

14. Hudgings, J.A.; Lau, K.Y., "Step-tunable all-optical wavelength conversion using cavity-enhanced four-wave mixing," *IEEE Journal of Quantum Electronics*, Volume: 34 Issue: 8, Aug. 1998.

15. Lim, S.F.; Hudgings, J.A.; Chen, L.P.; Li, G.S.; Wupen, Yuen; Lau, K.Y. Chang-Hasnain, C.J.,"Modulation of a vertical-cavity surface-emitting laser using an intracavity quantum-well absorber," *IEEE Photonics Technology Letters*, Volume: 10 Issue: 3, Mar. 1998, Page(s): 319-321.

16. Meng -Hsiung Kiang; Solgaard, O.; Lau, K.Y.; Muller, R.S., "Electrostatic combdrive-actuated micromirrors for laser-beam scanning and positioning," *Microelectromechanical Systems, Journal of*, Volume: 7 Issue: 1, Mar. 1998, Page(s): 27-37.

17. D.A. Francis, M.-H. Kiang, O. Solgaard, K.Y. Lau, R.S. Muller, C.J. Chang-Hasnain, "Compact 2D laser beam scanner with fan laser array and Si micromachined microscanner," Electronics Letters (UK), Volume:33, (no.13), IEE, Page(s): 1143-5, 19 June 1997.

18. S. F. Lim, J. A. Hudgings, G. S. Li, W. Yuen, K. Y. Lau and C. J. Chang-Hasnain, "Self-Pulsating VCSEL with Controllable Quantum Well Saturable Absorber," Electronics Letters, Volume 33, no. 20, Page(s): 1708-9, September, 1997.

19. D. A. Francis, M. Kiang, O. Solgaard, K. Y. Lau, R. S. Muller, and C. J. Chang-Hasnain, "Compact 2D Laser Beam Scanner with Fan Laser Array and Si Micromachined Microscanner,"Electronics Letters, 33, 13, 1143-5, June 1997.

20. Lau, Kam Y., "Ultra-low-threshold quantum-confined lasers are indeed superb, but how "quantum" are they?" *Optics & Photonics News*, Page(s): 8, Issue 4, Page(s): 26-30, April 1997.

21. Lim, S.F.; Hudgings, J.A.; Li, G.S.; Yuen, W.; Lau, K.Y.; Chang-Hasnain, C.J., "Self-pulsating and bistable VCSEL with controllable intracavity quantum-well saturable absorber," *Electronics Letters*, Volume: 33 Issue: 20, 25 Sept. 1997, Page(s): 1708-1710.

22. Park, J.; Sorin, W.V.; Lau, K.Y., "Elimination of the fiber chromatic dispersion penalty on 1550 nm millimetre-wave optical transmission," *Electronics Letters*, Volume: 33 Issue: 6, 13 Mar. 1997, Page(s): 512-513.

23. Kam Y. Lau, David M. Cutrer, John B. Georges, Simon Yueng, "Fiber Optic Infrastructure for Wireless Communication Networks," *International Journal of High Speed Electronics and Systems*, Volume: 8, Issue: 2, Page(s): 233 - 246, 1997.

24. Buckman, L.A., Chen, L.P.; Lau, K.Y., "Crosstalk penalty in all-optical distributed switching networks," *IEEE Photonics Technology Letters*, Volume: 9 Issue: 2, Feb. 1997, Page(s): 250-252.

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27. Park, J.; Elrefaie, A.F.; Lau, K.Y., "1550-nm transmission of digitally modulated 28-GHz subcarriers over 77 km of non-dispersion shifted fiber", *IEEE Photonics Technology Letters,* Volume: 9 Issue: 2, Feb. 1997, Page(s): 256-258.

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33. Georges, J.B.; Lux, R.A.; Yeung, S.P.; Lau, K.Y.; Chang, W., "Simultaneous fiber-optic transport and RF phase control of narrow-band millimeter-wave signals using multicontact monolithic semiconductor lasers," *IEEE Photonics Technology Letters*, Page(s): 8 Issue: 7, July 1996, Page(s): 953-955.

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43. Wu, Ta-Chung; Vassilovski, Dan; Cutrer, David M.; Kan, Sidney C.; Lau, Kam Y., "Spontaneous emission measurements for resolving damping mechanisms in direct modulation of quantum well lasers," *Applied Physics Letters* , Volume: 69 , Issue: 8, Page(s): 1050 – 1052, 1996.

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47. L. A. Buckman, M. S. Wu, G. Giaretta, G. S. Li, P. K. Pepeljugoski, J. W. Goodman, A. Varma, K. Y. Lau and C. J. Chang-Hasnain, "A Novel All-Optical Self-Routed Wavelength-Addressable Network (SWANET)," IEEE Photonics Technology Letters, Volume 7, No. 9, September 1995, Page(s): 1066-1068.

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