

JINGYU LIN

Professional Appointments

Paul Whitfield Horn Distinguished Professor and Linda F. Whitacre Endowed Chair, Electrical and Computer Engineering, Texas Tech University, 2014 – current

([Horn Professorships, the highest honor Texas Tech University may bestow on members of its faculty](#))

Linda F. Whitacre Endowed Chair and Professor, Electrical and Computer Engineering, Texas Tech University, 2008-201

Co-Director, Center for Nanophotonics, Texas Tech University (Center Founded 09/2010)

Professor of Physics, Kansas State University, 2002-2008

Associate Professor of Physics, Kansas State University, 1997-2002

Assistant Professor of Physics, Kansas State University, 1992-1997

Assistant Professor of Physics, University of Northern Iowa, 1991-1992

Research Associate, Kansas State University, 1989-1991

Education

- B. S. in Physics, State University of New York, College at Oneonta, 1980-1983
- M. S. in Physics, Syracuse University, 1983-1985
- Ph. D. in Physics, Syracuse University, 1985-1989

Awards, Honors, and Special Appointments

- Elected Fellow of the National Academy of Inventors (NAI), 2019
- Elected Fellow of the American Association for the Advancement of Science (AAAS), 2018
- Elected Fellow of the SPIE - the international society for optics and photonics, 2017
- Elected Fellow of the Optical Society (OSA), 2016
- Elected Fellow of the American Physical Society (APS), 2012
- Horn Distinguished Professor, Texas Tech University 2014 – present
- Barnie E. Rushing, Jr. Faculty Distinguished Research Award, TTU, 2014
- Linda F. Whitacre Endowed Chair, Texas Tech University, 2008 – current
- Member of Advisory Board of Science and Technology Council of Wenzhou, China, 2009-2013
- External Departmental Academic Advisor, Department of Applied Physics of The Hong Kong Polytechnic University (Hong Kong PolyU), 2016 – 2022
- Member of Selection Committee of the Adolph Lomb Medal, the Optical Society of America (OSA), 05/2019 - 02/2021.
- NSF Career Advancement Award, 1994 // Senate Research Award, Syracuse University, 1986
- B.S. degree with highest honor, SUNY at Oneonta, 1983

Professional and Scholarly Activities/Services

- [Co-invented in 2000 the first microLED and microdisplay](#) – The invention created the new industry of microLED display with a [market size to hit USD 24 billion by 2027](#). MicroLED large flat panel displays/TVs have been commercialized.
- [Co-invented in 2009 the first active driving full-scale high resolution and video-capable microLED microdisplay in VGA format \(640 x 480 pixels, 12 \$\mu\text{m}\$ pixel size and 15 \$\mu\text{m}\$ pitch distance\) via flip-chip bonding between microLED matrix array and Si CMOS IC.](#)
- [Co-invented in 2002 the single-chip high-voltage AC/DC-LED](#), which eliminated power converters and has been commercialized worldwide for general and automobile lighting applications.
- [Realization of the first III-nitride photonic crystal \(PC\) and PC-LED](#). PC-LED is recognized as one of the most effective technologies to boost the efficiency of III-nitride LEDs.

- [Pioneered the development in 1997 of the first deep UV picosecond time-resolved optical spectroscopy system for probing the static and dynamic recombination processes in semiconductors with ultrahigh bandgaps \(up to 6.2 eV\)](#). The design has been adopted by the photonic industries to benefit the research communities at large.
- [Made substantial contributions to the understanding of fundamental band structure and doping issues of III-nitride deep UV materials](#), including the first to predict and confirm Al-rich AlGaN deep UV emitters producing light in the transverse-magnetic (TM) mode and among a few groups in the world capable to achieve conductivity control in Al-rich AlGaN alloys in the early 2000s.
- [Pioneered the development of epitaxial growth of hexagonal boron nitride \(h-BN\)](#) with large wafer size (up to 4-inches in diameter to date) and thickness (up to 200 μm to date).
- [Realized in 2020 high sensitivity BN thermal neutron detectors with a record high efficiency of 59%](#).
- [Panelist](#) for NSF and German Research Foundation (DFG)
- [External advisor](#) for ARO MURI programs.
- [Proposal reviewer](#) for NSF, DOE, DOD, NRC, DFG, Dutch Technology Foundation, Polish Research Foundation, Swiss National Science Foundation, and National Natural Science Foundation of China.
- [Journal reviewer](#) for Appl. Phys. Lett.; J. Appl. Phys.; Optics Express; Optical Materials Express; IEEE Trans. Electron Devices; IEEE J. Quantum. Electronics; IEEE Trans. Nuclear Science; J. Mat. Res.; IEEE Photonics Technology Letters; Thin Solid Films; ACS Nano; Applied Optics, J. Crystal Growth, Materials Letters, Physica Status Solidi, etc.

Patents: 22 issued and 3 pending

Publications: 430 total; Citations: > 25,000; H-Index: 87 ([Google Scholar](#)) (as of 12/2022)

Representative Publications:

- A. Maity, S. J. Grenadier, J. Li, J. Y. Lin, and H. X. Jiang, "Hexagonal boron nitride: Epitaxial growth and device applications," Prog. Quantum. Electron. **76**, 100302 (2021); invited review.
- J. Y. Lin and H. X. Jiang, "Development of microLED," Appl. Phys. Lett. **116**, 100502 (2020).
- S. J. Grenadier, A. Maity, J. Li, J. Y. Lin, and H. X. Jiang, "Lateral charge carrier transport properties of B-10 enriched hexagonal BN thick epilayers," Appl. Phys. Lett. **115**, 072108 (2019).
- S. J. Grenadier, A. Maity, J. Li, J. Y. Lin, and H. X. Jiang, "Origin and roles of oxygen impurities in hexagonal boron nitride epilayers," Appl. Phys. Lett. **112**, 162103 (2018).
- A. Maity, S. J. Grenadier, J. Li, J. Y. Lin, and H. X. Jiang, "Toward achieving flexible and high sensitivity hexagonal boron nitride neutron detectors," Appl. Phys. Lett. **111**, 033507 (2017).
- T. C. Doan, J. Li, J. Y. Lin, and H. X. Jiang, "Bandgap and exciton binding energies of hexagonal boron nitride probed by photocurrent excitation spectroscopy," Appl. Phys. Lett. **109**, 122101 (2016).
- M. R. Uddin, S. Majety, J. Li, J. Y. Lin, and H. X. Jiang, "Layer-structured hexagonal (BN)C semiconductor alloys with tunable optical and electrical properties," J. Appl. Phys. **115**, 093509 (2014).
- X. K. Cao, B. Clubine, J. H. Edgar, J. Y. Lin, and H. X. Jiang, "Two-dimensional excitons in three-dimensional hexagonal boron nitride," Appl. Phys. Lett. **103**, 191106 (2013).
- H. X. Jiang and J. Y. Lin, "Nitride micro-LEDs and beyond - a decade progress review," Optics Express **21**, A475 (2013); invited review.
- K. B. Nam, J. Li, M. L. Nakarmi, J. Y. Lin, and H. X. Jiang, "Unique optical properties of AlGaIn alloys and related ultraviolet emitters," Appl. Phys. Lett. **84**, 5264 (2004).
- K. B. Nam, M. L. Nakarmi, J. Li, J. Y. Lin, and H. X. Jiang, "Mg acceptor level in AlN probed by deep ultraviolet photoluminescence," Appl. Phys. Lett. **83**, 878 (2003).

Professional development

- Involved in the organization of 15 conferences/workshops, including organized and served as the chair for the 1st APS March Meeting Focused Session on Nanophotonics: Optical properties of nanostructures and nanophotonics, 2004; Research featured by popular magazines and major news media.
- Delivered over 100 invited presentations in international conferences and universities.