

# **Xiankai Sun**

Professor of Electronic Engineering  
Associate Director, Center of Optical Sciences  
The Chinese University of Hong Kong  
Shatin, New Territories, Hong Kong SAR, China

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## **RESEARCH INTEREST AND EXPERTISE**

integrated optics, optoelectronics, nanophotonics, nanofabrication, optomechanics, optoacoustics, nanomechanics, micro- and nanoelectromechanics, photonic nanostructures, semiconductor lasers, photonic/phononic crystals, nonlinear photonics, topological photonics, optical communication, optical sensing and signal processing

## **APPOINTMENTS**

08/2021–present Associate Director, Center of Optical Sciences, The Chinese University of Hong Kong  
08/2024–present Professor, Electronic Engineering, The Chinese University of Hong Kong  
08/2020–07/2024 Associate Professor, Electronic Engineering, The Chinese University of Hong Kong  
08/2014–07/2020 Assistant Professor, Electronic Engineering, The Chinese University of Hong Kong  
06/2012–07/2014 Associate Research Scientist, Electrical Engineering, Yale University, USA  
07/2010–05/2012 Postdoctoral Associate, Electrical Engineering, Yale University, USA

## **EDUCATION**

2010 Ph.D., Applied Physics, California Institute of Technology (Caltech), USA GPA: 4.2/4.3  
Advisor: Prof. Amnon Yariv. Thesis: Supermode Si/III–V lasers and circular Bragg lasers  
2006 M.S., Applied Physics, California Institute of Technology (Caltech), USA GPA: 4.2/4.3  
2004 B.S., Physics, University of Science and Technology of China (USTC), China GPA: 3.9/4.0

## **HONORS AND AWARDS**

2025 Optica Fellow  
2023 RGC Research Fellow, Research Grants Council of Hong Kong  
Young Researcher Award, The Chinese University of Hong Kong  
2015 Early Career Award, Research Grants Council of Hong Kong  
2013 Finalist, Blavatnik Awards for Young Scientists, New York Academy of Sciences  
2010 Bor-Uei Chen Memorial Scholarship Award, Photonics Society of Chinese-Americans  
2009 IEEE Photonics Society Student Travel Grant Award  
SPIE Scholarship in Optical Science and Engineering  
2008 IEEE Photonics Society Graduate Student Fellowship Award  
Li Ming Scholarship Award, Caltech  
Chinese Government Award for Outstanding Self-Financed Students Abroad  
2007 Phi Tau Phi Scholarship, Phi Tau Phi Scholastic Honor Society of America  
2006 CESASC Scholarship, Chinese-American Engineers and Scientists Association of Southern California  
2004 Outstanding College Graduate of Anhui Province, China  
Outstanding College Graduate of USTC  
Outstanding Bachelor Thesis Award, USTC  
Outstanding College Student of Anhui Province, China  
2001–2003 First-Tier Outstanding Student Scholarship of USTC, every year  
2000 Zhang Zongzhi Sci-Tech Scholarship, USTC

## **PROFESSIONAL ACTIVITIES**

### ◆ **Journal editorship**

- Associate Editor of *Optica*, 09/2022–present
- Associate Editor of *Journal of Lightwave Technology*, 12/2021–present
- Editorial Board Member of *Advanced Photonics Nexus*, 01/2025–present
- Editorial Board Member of *Optical and Quantum Electronics*, 01/2022–12/2024
- Guest Editor of *Optical Materials Express* for Feature Issue on Optomechanical Photonics, 11/2024
- Lead Guest Editor of *Journal of the Optical Society of America B* for Feature Issue on Integrated Lithium Niobate Photonics, 05/2023
- Editorial Board Member of *Scientific Reports*, 06/2018–06/2022
- Associate Editor of *Optics Express*, 08/2016–08/2022

### ◆ **Conference organization**

- member of technical program subcommittee *Optical Active Devices and Modules* at the *31st OptoElectronics and Communications Conference (OECC 2026)*, Busan, South Korea, 06/2026
- session co-chair of *Topic 6: Silicon Photonics for Large-Scale Integration* at the *16th International Conference on Information Optics and Photonics (CIOP 2025)*, Xi'an, China, 08/2025
- member of the technical program committee of the topical meeting of *Optoelectronic Devices and Integration* at the *16th International Photonics and OptoElectronics Meetings (POEM 2025)*, Wuhan, China, 05/2025
- technical committee member of *C11: Semiconductor and Integrated Photonic Devices* at the *16th Pacific Rim Conference on Lasers and Electro-Optics (CLEO-PR 2024)*, Incheon, Korea, 08/2024
- program committee member of the *Lithium Niobate Photonics Conference (LiNC 2023)*, Hong Kong, 12/2023
- technical committee member of the *2023 IEEE International Topical Meeting on Microwave Photonics (MWP 2023)*, Nanjing, China, 10/2023
- steering committee member of *Workshop on Optomechanics and Brillouin Scattering (WOMBAT)*, 2022–present
- symposium chair for *S6: Optoelectronic Devices and Applications* at *2022 IEEE the 7th Optoelectronics Global Conference (OGC 2022)*, Shenzhen, China, 09/2022
- organizer for session *SC3: Integrated Lithium Niobate Photonics* at the *2021 Photonics and Electromagnetics Research Symposium (PIERS 2021)*, Hangzhou, China, 11/2021
- technical committee member of *S&I 9: Photonic Integration* at the *2022 Conference on Lasers and Electro-Optics (CLEO 2022)*, San Jose, CA, USA, 05/2022
- technical committee member of *Topic 7: Optoelectronic Devices and Integration* at the *10th Applied Optics and Photonics China (AOPC 2021)*, Beijing, China, 06/2021
- technical committee member of *S&I 9: Photonic Integration* at the *2021 Conference on Lasers and Electro-Optics (CLEO 2021)*, San Jose, CA, USA, 05/2021
- technical committee member of *Track 6: Micro-, Nano-, and Quantum Photonics: Science and Applications* at the *2020 Asia Communications and Photonics Conference (ACP 2020)*, Beijing, China, 10/2020
- technical committee member of *S&I 9: Photonic Integration* at the *2020 Conference on Lasers and Electro-Optics (CLEO 2020)*, San Jose, CA, USA, 05/2020
- technical committee member of *Track 4: Optoelectronic Integration and Devices* at the *2019 International Conference on Optical Communications and Networks (ICOCN 2019)*, Huangshan, China, 08/2019
- co-chair for topical session *Optofluidics & Optical Devices* at the *2019 International Multidisciplinary Conference on Optofluidics (IMCO 2019)*, Hong Kong, 06/2019
- technical committee member of *Track 4: Optoelectronic Devices and Integration* at the *2018 Asia Communications and Photonics Conference (ACP 2018)*, Hangzhou, China, 10/2018

- co-chair for topical session *Optical Microcavity: From Sensing to Lasing* at the 2018 International Multidisciplinary Conference on Optofluidics (IMCO 2018), Shanghai, China, 08/2018
  - organizer and chair for session SC3&2: *Optical Forces and Optomechanics* at the 2016 Progress In Electromagnetic Research Symposium (PIERS 2016), Shanghai, China, 08/2016
- ◆ **External reviewer/evaluator**
- PhD thesis for City University of Hong Kong, 2024
  - PhD thesis for The University of Hong Kong, 2023
  - Incubation Programs of the Hong Kong Science Technology Parks Corporation, 2022–2025
  - grant proposals for the Israel Science Foundation, 2021, 2023
  - grant proposals for the European Research Council, 2020
  - graduate courses for The Chinese University of Hong Kong, Shenzhen, 2021, 2022, 2024, 2025
  - MPhil and PhD theses for The Chinese University of Hong Kong, Shenzhen, 2019, 2020, 2022
  - PhD thesis for University of Science and Technology of China, 2017
  - grant proposals for the French National Research Agency, 2017
  - research and professional activities of the Institutes of the Czech Academy of Sciences, 2015, 2020
- ◆ **Manuscript reviewer for refereed journals (over 350 times to date)**
- | <b>[Physics, Applied Physics, and Materials]</b>          | <b>[Optics and Photonics]</b>                                   |
|---|---|
| • <i>Nature</i>   | • <i>Nature Photonics</i>                                       |
| • <i>Nature Nanotechnology</i>                            | • <i>Light: Science &amp; Applications</i>                      |
| • <i>Nature Physics</i>                                   | • <i>Advanced Photonics</i>                                     |
| • <i>Nature Communications</i>                            | • <i>Photonix</i>   |
| • <i>Science Advances</i>                                 | • <i>Laser &amp; Photonics Reviews</i>                          |
| • <i>Advanced Materials</i>                               | • <i>Advanced Optical Materials</i>                             |
| • <i>Advanced Science</i>                                 | • <i>Advanced Photonics Research</i>                            |
| • <i>Advanced Functional Materials</i>                    | • <i>npj Nanophotonics</i>                                      |
| • <i>Advanced Materials Interfaces</i>                    | • <i>Nanophotonics</i>  |
| • <i>Advanced Materials Technologies</i>                  | • <i>ACS Photonics</i>  |
| • <i>Advanced Quantum Technologies</i>                    | • <i>APL Photonics</i>  |
| • <i>Advanced Physics Research</i>                        | • <i>Photonic Sensors</i>                                       |
| • <i>Annalen der Physik</i>                               | • <i>Optics and Laser Technology</i>                            |
| • <i>ACS Nano</i>   | • <i>Optics Letters</i>   |
| • <i>Nano Letters</i>                                     | • <i>Optics Express</i>   |
| • <i>ACS Applied Nano Materials</i>                       | • <i>Journal of the Optical Society of America B</i>            |
| • <i>ACS Applied Electronic Materials</i>                 | • <i>Journal of Lightwave Technology</i>                        |
| • <i>PRX Quantum</i>                                      | • <i>IEEE Journal of Selected Topics in Quantum Electronics</i> |
| • <i>Physical Review Letters</i>                          | • <i>IEEE Journal of Quantum Electronics</i>                    |
| • <i>Physical Review Applied</i>                          | • <i>IEEE Photonics Journal</i>                                 |
| • <i>Physical Review A</i>                                | • <i>IEEE Photonics Technology Letters</i>                      |
| • <i>Physical Review B</i>                                | • <i>Optics Communications</i>                                  |
| • <i>Physical Review Materials</i>                        | • <i>Journal of Optics</i>                                      |
| • <i>Physical Review Research</i>                         | • <i>Optical Fiber Technology</i>                               |
| • <i>Applied Physics Reviews</i>                          | • <i>IET Optoelectronics</i>                                    |
| • <i>Applied Physics Letters</i>                          | • <i>Optical and Quantum Electronics</i>                        |
| • <i>Journal of Applied Physics</i>                       | • <i>Journal of Nanophotonics</i>                               |
| • <i>International Journal of Extreme Manufacturing</i>   | • <i>Optical Engineering</i>                                    |
| • <i>Advances in Physics: X</i>                           | • <i>Optical Review</i>   |
| • <i>Communications Physics</i>                           | • <i>Fiber and Integrated Optics</i>                            |
| • <i>Journal of Materials Chemistry C</i>                 |   |
| • <i>Science China Physics, Mechanics &amp; Astronomy</i> |   |

- *Science China Information Sciences*
- *Chinese Journal of Physics*
- *Journal of Sound and Vibration*
- *Microsystems & Nanoengineering*
- *Results in Physics*
- *Scientific Reports*
- *IEEE Access*
- *Nanomaterials*
- *Molecules*
- *Sensors*
- *Materials*
- *Entropy*
- *Applied Sciences*
- *Micromachines*
- *Applied Physics Express*
- *Journal of Physics B*
- *Applied Physics B*
- *AIP Advances*

## **RESEARCH PROJECTS AND EXPERIENCE**

**The Chinese University of Hong Kong**

08/2014–present

**Role as Project Coordinator (PC) or Principal Investigator (PI):**

- ◆ Development of high-performance on-chip perovskite integrated lasers  
[PI, period: 1 Jan 2025 – 31 Dec 2027]
- ◆ Lithium niobate integrated acousto-optic devices  
[PI, period: 1 Jun 2024 – 31 May 2026]
- ◆ Three-dimensional photonic topological insulators operating at telecom wavelengths  
[PI, period: 1 Jan 2024 – 31 Dec 2027]
- ◆ Phononic integrated circuits for next-generation phononic–optoelectronic integrated chips  
[PI, period: 1 Jan 2024 – 31 Dec 2028]
- ◆ A sub-10-nm resolution electron-beam lithography system for cross-disciplinary nanomaterial and nanodevice research  
[PC, period: 30 Jun 2022 – 29 Jun 2025]
- ◆ Photonic integrated devices and circuits for telecommunication and quantum applications  
[PI, period: 1 Feb 2022 – 31 Jan 2023]
- ◆ Investigation of anti-PT symmetry on an integrated photonic platform  
[PI, period: 1 Oct 2021 – 31 Mar 2025]
- ◆ On-chip topological lasers with cavities of arbitrary shapes  
[PI, period: 1 Jan 2020 – 30 Jun 2023]
- ◆ Investigation of photonic bound states in the continuum in photonic integrated circuits  
[PI, period: 1 Jan 2019 – 30 Jun 2022]
- ◆ Experimental investigation of nanoscale *PT*-symmetric acoustics with cavity optomechanical systems  
[PI, period: 1 Jan 2018 – 30 Jun 2021]
- ◆ Visible-light optomechanical integrated circuits based on III-nitride semiconductors  
[PI, period: 1 Jan 2016 – 31 Dec 2019]
- ◆ Investigation of the force law of classical electrodynamics with nanoscale optomechanical systems  
[PI, period: 1 Jan 2016 – 30 Jun 2019]
- ◆ Developing optomechanical devices based on layered nanomaterials for single-biomolecule mass spectrometry

[PI, period: 1 Jul 2015 – 30 Jun 2017]

- ◆ Nano-optomechanical devices based on novel two-dimensional nanomaterials

[PI, period: 1 Jan 2015 – 30 Jun 2017]

#### **Role as Co-Principal Investigator (Co-PI) or Co-Investigator (Co-I):**

- ◆ Silicon Photonics and the Heterogeneous Epitaxy of III-V Semiconductors on Silicon for Advanced Photonic Systems-on-chip  
[Co-PI, period: 1 Jan 2025 – 31 Dec 2026]
- ◆ Hybrid Integration of Layered Group Ten Transition Metal Dichalcogenides on Planar Waveguides for Long Wavelength Optical Communications  
[Co-I, period: 1 Jan 2022 – 31 Dec 2025]
- ◆ An integrated measurement system for quantum information and quantum materials research under extreme conditions  
[Co-PI, period: 30 Jun 2021 – 29 Jun 2024]
- ◆ A high-accuracy wafer polisher and bonders for heterogeneous integration  
[Co-PI, period: 1 Jun 2021 – 31 May 2024]
- ◆ Ultra-high  $Q$  silicon micro-resonators for integrated quantum photonics  
[Co-I, period: 1 Oct 2017 – 31 Mar 2021]

#### **Yale University**

07/2010–07/2014

*Yale Nanodevices Laboratory, Electrical Engineering* (supervisor: *Prof. Hong Tang*)

- ◆ Cavity nano-optomechanics
- ◆ Nonlinear photonics
- ◆ Applications of photonic crystals in cavity optomechanics
- ◆ Micro/nanoelectromechanical systems (MEMS/NEMS)
- ◆ Cryogenic nanophotonics and nano-optomechanics

#### **California Institute of Technology**

09/2004–06/2010

*Optical and Quantum Electronics Laboratory, Applied Physics* (advisor: *Prof. Amnon Yariv*)

- ◆ Hybrid Si/III–V integrated optoelectronic devices and circuits
- ◆ Electrically pumped, large-area, single-mode, two-dimensional photonic crystal Bragg lasers
- ◆ Theoretical analysis and calculation of surface-emitting chirped circular grating lasers
- ◆ Ultralow-loss integrated photonic delay

#### **University of Science and Technology of China**

09/2002–07/2004

*ZnO Lab Group, Department of Physics* (advisor: *Prof. Zhuxi Fu*)

- ◆ Growth, characterization, and device fabrication of heteroepitaxial ZnO films on Si substrates

### **TEACHING EXPERIENCE**

**The Chinese University of Hong Kong**, *as an instructor*

08/2014–present

- ENGG1100 (*Introduction to Engineering Design*)
- ENGG1310, ESTR1003, ESTR2006 (*Engineering Physics*)
- ENGG2720 (*Complex Variables for Engineers*)
- BMEG4410 (*BioMEMS*)
- ELEG5550 (*Micro- and Nano-Fabrication Laboratory*)

**California Institute of Technology**, *as a teaching assistant*

09/2004–06/2010

- APh17c (*Thermodynamics*)
- APh/EE131 (*Optical Wave Propagation*)
- APh/EE132 (*Optoelectronic Materials and Devices*)
- EE151 (*Electromagnetic Engineering*)

## **INVITED CONFERENCE TALKS**

- (1) “Physics and applications of etchless photonic integrated circuits enabled by bound states in the continuum,” The 16th International Photonics and Optoelectronics Meetings (POEM 2025), Wuhan, China, May 2025.
- (2) “Etchless photonic integrated circuits enabled by bound states in the continuum,” The 6th Asia-Europe Silicon Photonics Symposium and Course, Hong Kong, Nov. 2024.
- (3) “Lithium niobate photonic integrated circuits with bound states in the continuum,” The 14th International Conference on Information Optics and Photonics (CIOP 2023), Xi’an, China, Aug. 2023.
- (4) “Mechanical bound states in the continuum in an optomechanical microresonator,” The 14th International Conference on Information Optics and Photonics (CIOP 2023), Xi’an, China, Aug. 2023.
- (5) “Etchless lithium niobate integrated photonic circuits and devices,” Asia Communications and Photonics Conference 2022 workshop “Active Devices on Thin-film Lithium Niobate Platform,” Shenzhen, China, Nov. 2022.
- (6) “Integrated lithium niobate photonics on an etchless platform,” 2022 IEEE Region 10 Conference (TENCON 2022), Hong Kong, Nov. 2022.
- (7) “Room-temperature continuous-wave topological lasers on silicon,” The 13th International Conference on Information Optics and Photonics (CIOP 2022), Xi’an, China, Aug. 2022.
- (8) “Experimental realization of topological parametric phonon lasers,” CLEO 2022, San Jose, CA, USA, May 2022.
- (9) “Etchless lithium niobate integrated photonics,” The First International Symposium on Lithium Niobate Optoelectronics (ISLNO 2021), Shanghai, China, Oct. 2021.
- (10) “Inverse-designed optical devices and modules for advanced photonic integration,” The 26th Optoelectronics and Communications Conference (OECC 2021), Hong Kong, Jul. 2021.
- (11) “Rotation sensing with PT-symmetric circular Bragg lasers,” SPIE Photonics West 2021, San Francisco, CA, USA, Mar. 2021.
- (12) “Inverse design of photonic components for large-scale and high-density integration,” SPIE Photonics West 2021, San Francisco, CA, USA, Mar. 2021.
- (13) “Photonic integrated circuits with bound states in the continuum: principle and applications,” Asia Communications and Photonics Conference 2020, Beijing, China, Oct. 2020.
- (14) “Experimental investigation of the topological charge of optical force in a solid dielectric,” SPIE Optics + Photonics 2020, San Diego, CA, USA, Aug. 2020.
- (15) “Graphene metallization of integrated electro-optomechanical resonators,” The 42nd Photonics & Electromagnetics Research Symposium (PIERS 2019 in Xiamen), Xiamen, China, Dec. 2019.
- (16) “Broadband and narrowband optical absorbers for photonic and optoelectronic applications,” The 9th International Multidisciplinary Conference on Optofluidics (IMCO 2019), Hong Kong, Jun. 2019.
- (17) “Inverse design in integrated photonic structures, devices, and circuits,” The 17th International Conference on Optical Communications and Networks (ICOCN 2018), Zhuhai, China, Nov. 2018.
- (18) “Optomechanical devices at the nanoscale: an overview and recent developments,” The 8th International Multidisciplinary Conference on Optofluidics (IMCO 2018), Shanghai, China, Aug. 2018.
- (19) “Recent progress in nano-optomechanical devices at microwave frequencies,” SPIE Photonics West 2018, San Francisco, CA, USA, Jan. 2018.

- (20) “Integrated optical isolators with hybrid graphene/silicon photonics technology,” Asia Communications and Photonics Conference Workshop 6: 2D Material on Waveguide Devices and Applications, Wuhan, China, Nov. 2016.
- (21) “Photonics meets mechanics in the nanoworld,” Asia Communications and Photonics Conference Workshop 9: On-chip Light-matter Interaction: Physics and Devices, Wuhan, China, Nov. 2016.
- (22) “High-frequency nano-optomechanics: an exploration at the boundary between photonics, mechanics, and microwaves,” SPIE Optics + Photonics 2013, San Diego, CA, USA, Aug. 2013.

### **INVITED SEMINARS**

- (1) “Non-Hermitian integrated photonic structures and devices”
  - University of Science and Technology of China, Hefei, China, May 2023
- (2) “Novel Nanophotonic Structures, Devices, and Circuits for Enhanced Light–Matter Interaction”
  - University of Science and Technology of China, Hefei, China, Dec. 2018
- (3) “Optomechanics: From LIGO to Nano”
  - Tsinghua University, Beijing, China, Dec. 2018
  - Huazhong University of Science and Technology, Wuhan, China, Mar. 2018
- (4) “Novel Nanophotonic and Nano-Optomechanical Devices”
  - University of Science and Technology of China, Hefei, China, Dec. 2017
- (5) “Novel Nanophotonic Devices: Harnessing Light–Matter Interaction at the Nanoscale”
  - Huazhong University of Science and Technology, Wuhan, China, Apr. 2017
  - University of Science and Technology of China, Hefei, China, Apr. 2017
  - Zhejiang University, Hangzhou, China, Apr. 2017
- (6) “Photonics Meets Mechanics in the Nanoworld”
  - Xi’an Jiaotong University, Xi’an, China, Mar. 2017
  - Hong Kong University of Science and Technology, Hong Kong, Nov. 2016
  - Huazhong University of Science and Technology, Wuhan, China, Apr. 2016
  - Tianjin University, Tianjin, China, Apr. 2016
  - Nankai University, Tianjin, China, Apr. 2016
  - Tsinghua University, Beijing, China, Apr. 2016
  - Beihang University, Beijing, China, Apr. 2016
  - Peking University, Beijing, China, Apr. 2016
  - Beijing University of Posts and Telecommunications, Beijing, China, Apr. 2016
- (7) “Nano-Optomechanics in the High Frequency Regime: Exploration at the Boundary Between Photonics, Mechanics, and Microwaves”
  - University of New Mexico, NM, USA, Mar. 2014
  - University of Arizona, AZ, USA, Mar. 2014
  - The Chinese University of Hong Kong, Hong Kong, Mar. 2014
  - Shanghai Jiao Tong University, Shanghai, China, Feb. 2014
  - Zhejiang University, Hangzhou, China, Feb. 2014
  - Harbin Institute of Technology Shenzhen Graduate School, Shenzhen, China, Feb. 2014
  - University of Science and Technology of China, Hefei, China, Feb. 2014
  - Nanjing University, Nanjing, China, Feb. 2014
  - Tsinghua University, Beijing, China, Feb. 2014
  - Peking University, Beijing, China, Feb. 2014
  - University of California, Los Angeles, CA, USA, Sep. 2013
  - University of Southern California, CA, USA, Sep. 2013
  - University of California, San Diego, CA, USA, Aug. 2013
- (8) “Circular Bragg Lasers and Supermode Si/III–V Lasers: From Theory to Devices”
  - University of California, Santa Barbara, CA, USA, Apr. 2010

- (9) “Circular Bragg Lasers and Supermode Si/III–V Lasers: The Ideal On-Chip Integrable Light Sources for Next-Generation Optical Communication”
  - Yale University, New Haven, CT, USA, Feb. 2010
- (10) “Circular Bragg Microresonators and Microlasers: From Theory to Devices”
  - Shanghai Jiao Tong University, Shanghai, China, Sep. 2009
- (11) “Circular Bragg Resonator Lasers: Theoretical Analysis and Optimal Design”
  - University of Science and Technology of China, Hefei, China, Sep. 2006



## **PUBLICATIONS**

- ◆ Overall profile: 117 refereed journal papers, 82 refereed conference papers, 22 invited conference talks, 1 book, 3 book chapters
- ◆ Google Scholar homepage: <http://scholar.google.com.hk/citations?user=Z8CHWjsAAAAJ&hl=en>
- ◆ Total citations: 4399, *h*-index: 39 (as of May 2025)

### **Journal Papers (under review)**

- (1) Tianhe Wu, Weida Chen, Ya Hu, Zheng Huang, Hongliang Ren, Chang-Ling Zou, **Xiankai Sun**, Xianzeng Zhang, and Qijing Lu, “Cavity photothermal oscillation spectroscopy for complex solution detection,” 2025. (submitted)
- (2) Long Jin, Ruixin Yu, Li Zeng, and **Xiankai Sun**, “Dual high- $Q$  resonance grating metasurfaces for robust and efficient second-harmonic generation,” 2025. (submitted)
- (3) Hechong Chen, Mengzhe Shen, Li Zeng, Yuanzhe Sun, Zeyu Su, Jia Chen, Zihan Liu, Xuyang Feng, Dongmei Deng, Feng Li, Jiao Lin, Peng Shi, **Xiankai Sun**, and Dapeng Wang, “Anomalous chirality enabled by Rashba effective magnetic field in planar  $C_2$ -asymmetric metasurfaces,” 2025. (submitted)
- (4) Fan Ye, **Xiankai Sun**, and Hon Ki Tsang, “Sum-frequency generation in bound-state-in-continuum microring resonators,” 2025. (submitted)
- (5) Yuan Li, Jingwen Ma, and **Xiankai Sun**, “Type-III Dirac cones arising from flat band in an acoustic metamaterial,” 2024. (submitted)
- (6) Ziyao Feng, Long Jin, and **Xiankai Sun**, “Anti- $PT$  symmetry with bound states in the continuum,” 2024. (submitted)

### **Journal Papers (published/accepted, \* denotes co-corresponding author)**

- (1) Yuan Li, Zhen Zhang, Juncheng Gong, Xuwen Shu\*, and **Xiankai Sun**\*, “Photonic Floquet–Bloch oscillations dominated by Floquet gauge,” *Laser & Photonics Reviews* **19**: 2402223, May 2025.
- (2) Jianfeng He and **Xiankai Sun**, “Highly efficient intramodal and intermodal acousto-optic modulation on an etchless lithium niobate integrated platform,” *Laser & Photonics Reviews* **19**: 2401525, May 2025.
- (3) Jianfeng He, Xinyi Zhao, Jian-Bin Xu, and **Xiankai Sun**, “Lithium tantalate microring cavities with  $Q$  factor exceeding 10 million,” *Photonics Research* **13** (5): 1385–1389, May 2025.
- (4) Xuetong Zhou, Ying Xue, Fan Ye, Ziyao Feng, Jianfeng He, **Xiankai Sun**, Kei May Lau, and Hon Ki Tsang, “Fully etched low-back-reflection and high-efficiency silicon waveguide grating couplers with a minimum feature size of 260 nm,” *Journal of Lightwave Technology* **43** (8): 3854–3859, Apr. 2025.
- (5) Xuetong Zhou, Ying Xue, Hanke Feng, Jianfeng He, **Xiankai Sun**, Cheng Wang, Kei May Lau, and Hon Ki Tsang, “Waveguide grating couplers with bandwidth beyond 200 nm,” *Nanophotonics* **14** (5): 571–579, Mar. 2025.
- (6) Zhenlin Zhao, Ruiji Dong, Ya Hu, Tianhe Wu, Ziyao Feng, Zheng Huang, Ming Li, Chang-Ling Zou, **Xiankai Sun**, and Qijing Lu, “Broadband near-visible frequency comb generation via high-order mode dispersion engineering in a microbubble resonator,” *Journal of Lightwave Technology* **43** (5): 2226–2231, Mar. 2025.
- (7) Zhenlin Zhao, Ruiji Dong, Ya Hu, Ming Li, Juanjuan Lu, Ziyao Feng, **Xiankai Sun**, Chang-Ling Zou, and Qijing Lu, “Dispersion engineering for broadband visible microcombs via mode hybridization and inverse design,” *Optics Letters* **50** (5): 1751–1754, Mar. 2025.
- (8) Yihao Luo and **Xiankai Sun**, “Topological bound states in the continuum in a non-Hermitian photonic system,” *Nanophotonics* **14** (1): 43–50, Jan. 2025. [featured as cover article]

- (9) Long Jin, Xuezhou Wang, Li Zeng, Ziyao Feng, Ni Zhao, and **Xiankai Sun**, “Etchless Dion–Jacobson-phase perovskite surface-emitting circular Bragg lasers with an ultrahigh  $Q$  factor,” *ACS Photonics* **12** (1): 53–61, Jan. 2025. [featured as cover article]
- (10) V. A. Saroka, F. Kong, L. Bogani, C. A. Downing, R. B. Payod, F. R. Fischer, and **Xiankai Sun**, “Flat band, tunable chiral anomaly, and pitchfork bifurcation in a honeycomb lattice,” *Physical Review B* **110** (19): 195134, Nov. 2024.
- (11) Keyi Zhong, Yaojing Zhang, Shuangyou Zhang, Yuanfei Zhang, Yuan Li, Yue Qin, Yi Wang, Jose M. Chavez Boggio, **Xiankai Sun**, Chester Shu, Pascal Del’Haye, and Hon Ki Tsang, “Near-infrared dual-band frequency comb generation from a silicon resonator,” *Laser & Photonics Reviews* **19** (4): 2301366, Feb. 2025.
- (12) Kejie Fang, **Xiankai Sun**, Avi Zadok, and Mohammad Mirhosseini, “Optomechanical Photonics: feature issue introduction,” *Optical Materials Express* **14** (11): 2755–2756, Nov. 2024.
- (13) Xiang Xi, Jingwen Ma, and **Xiankai Sun**, “A topological parametric phonon oscillator,” *Advanced Materials* **37** (2): 2309015, Jan. 2025.  
[included in Special Issue: *60th Anniversary of The Chinese University of Hong Kong*]
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