Zheng Gong (龚政)

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EDUCATION

2022-present: PhD. student (five-year direct PhD program), Zhejiang University, China

Ph.D. Advisors:
Prof. Xiao Lin (Excellent Young Scientists (Overseas) of China) &
Prof. Hongsheng Chen (IEEE Fellow, distinguished "Chang Jiang Scholar" professor, Distinguished Young Scientists of China)

2018-2022: Undergraduate, Beijing University of Posts and Telecommunications (BUPT) (GPA: 3.81/4.00, rank: 2/138, Outstanding graduates, Top 1%, Beijing, 2022)

2015-2018: High School Student, Jiangxi Linchuan No.1 Senior High School

RESEARCH AREA

- ✧ Free-electron nanophotonics: Cherenkov radiation, transition radiation
- ✧ Electromagnetic wave theory: light-matter interactions in photonic (time) crystals, metamaterials, and random media
- ✧ Deep learning in electromagnetics: inverse design of metamaterials
- ✧ Integrated photonic devices: compact light sources, particle detectors, frequency combs

PUBLICATION LIST (Updated Jan. 20th, 2025)

(#contributing equally; *corresponding authors)

First-authored publications

1. **Z. Gong**, R. Chen, Z. Wang, X. Xi, Y. Yang, B. Zhang*, H. Chen*, I. Kaminer, X. Lin*, Free-electron resonance transition radiation via Brewster randomness. ***Proceedings of the National Academy of Sciences of the USA*** **122**, e2413336122 (2025).
2. **Z. Gong**, J. Chen, R. Chen, X. Zhu, C. Wang, X. Zhang, H. Hu, Y. Yang, B. Zhang*, H. Chen*, I. Kaminer, X. Lin*, Interfacial Cherenkov radiation from ultralow-energy electrons. ***Proceedings of the National Academy of Sciences of the USA*** **120**, e2306601120 (2023).
3. **Z. Gong**, Ruoxi Chen, H. Chen*, X. Lin*, Anomalous Maxwell-Garnett theory for photonic time crystals. *Under review* (2025).
4. Z. Wang#, **Z. Gong#**, R. Chen, X. Xi, J. Chen, Y. Yang, H. Chen*, E. Li, I. Kaminer*, and X. Lin*, Ultra-directional transition radiation from deep-subwavelength epsilon-near-zero metamaterials. *Under review* (2025).
5. X. Xi#, **Z. Gong#**, H. Chen*, X. Lin*, Achromatic interfacial Cherenkov

radiation. *Under preparation* (2024).

6. **Z. Gong**, H. Chen*, X. Lin*, Brewster anomaly for free-electron radiation. *Under preparation* (2025).
7. **Z. Gong**#, D. Huang#, H. Chen*, X. Lin*, Learning-based achromatic directional free-electron radiation. *Under preparation* (2025).

Co-authored publications

8. R. Chen#, J. Chen#, **Z. Gong**, X. Zhang, X. Zhu, Y. Yang, I. Kaminer*, H. Chen*, B. Zhang, X. Lin*, Free-electron Brewster-transition radiation. ***Sci. Adv.*** **9**, eadh8098 (2023).
9. J. Chen, R. Chen, F. Tay, **Z. Gong**, H. Hu, Y. Yang, X. Zhang, C. Wang, I. Kaminer*, H. Chen*, B. Zhang, X. Lin*, Low-velocity-favored transition radiation. ***Phys. Rev. Lett.*** **131**, 113002 (2023).
10. X. Zhang, C. Bian, **Z. Gong**, R. Chen, T. Low*, H. Chen*, X. Lin*, Hybrid surface waves in twisted anisotropic heterometasurfaces. *Phys. Rev. Appl.* **21**, 064034 (2024).
11. R. Chen, **Z. Gong**, J. Chen, X. Zhang, X. Zhu, H. Chen*, X. Lin*, Recent advances of transition radiation: fundamentals and applications. *Materials Today Electronics* **3**, 100025 (2023).
12. C. Wang, X. Chen, **Z. Gong**, R. Chen, H. Hu, H. Wang*, Y. Yang, T. Low, B. Zhang, H. Chen, and X. Lin* Superscattering of light: fundamentals and applications. *Reports on Progress in Physics* **87**, 126401 (2024).

International Conference (only first-author oral presentation listed)

1. **Zheng Gong**; Xiao Lin; Free-electron resonance transition radiation from periodic and aperiodic mutilayers, *IEEE MTT-S International Microwave Workshop Series on Advanced Materials and Processes for RF and THz Applications (IMWS-AMP 2024)*, 2024-11-08 to 2024-11-11. [**Invited**]
2. **Zheng Gong**; Jialin Chen; Ruoxi Chen; Xingjian Zhu; Chan Wang; Xinyan Zhang; Hao Hu; Yi Yang; Baile Zhang; Hongsheng Chen; Ido Kaminer; Xiao Lin; Interfacial Cherenkov radiation from ultralow-energy electrons, *Photonics and Electromagnetics Research Symposium*, 2024-04-21 to 2024-04-25.

HONORS & AWARDS

PhD stage

✧ Five-Good Graduate Students of Zhejiang University，2023
✧ Excellent Graduate Students of Zhejiang University，2023

Undergraduate stage

✧ Excellent Bechalor's Thesis of Beijing, China (Photonic and plasmonic transition radiation from optically pumped bilayer graphene with gain); 2022.06.
✧ Excellent Graduate of Beijing, China; 2022.06.
✧ First-class Scholarship (<3%); BUPT; 2021.09/ 2020.09/ 2019.09 for three consecutive years.

- ✧ Three-Good Students; BUPT; 2021.09/ 2020.09/ 2019.09 for three consecutive years.
- ✧ First Prize; 12th National College Student Mathematics Competition, China; 2020.12.
- ✧ Third Prize; National College Student Electronic Design Competition - Embedded System Invitational Competition (Intel Cup), China; 2020.10.
- ✧ First Prize; National College Student Mathematical Modeling Competition, Bejing, China; 2020.12.
- ✧ First Prize; Integrated Circuit Design Competition (Digital Group), Beijing, China; 2020.12.
- ✧ Second Prize; 6th China International "Internet+" Innovation and Entrepreneurship Competition, Beijing ,China; 2020.08.
- ✧ H Award (Honorable Mention); International Mathematical Contest in Modeling (MCM-ICM); 2020.04.