



# 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. 4<sup>th</sup>, 2025)

**First-authored publications (#contributing equally; \*corresponding authors)**

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* *In press* (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. Wang#, **Z. Gong**#, R. Chen, X. Xi, J. Chen, Y. Yang, H. Chen\*, E. Li, I. Kaminer\*, and X. Lin\*, Free-electron ultra-directional transition radiation from deep-subwavelength epsilon-near-zero metamaterials. *Under review* (2024).
4. **Z. Gong**, H. Chen\*, X. Lin\*, Anomalous Maxwell-Garnett theory for non-magnetic photonic time crystals beyond the long wavelength-limit.

*Under preparation* (2024).

5. X. Xi<sup>#</sup>, **Z. Gong**<sup>#</sup>, H. Chen<sup>\*</sup>, X. Lin<sup>\*</sup>, Achromatic interfacial Cherenkov radiation from photonic crystals. *Under preparation* (2024).

### Co-authored publications

6. R. Chen<sup>#</sup>, J. Chen<sup>#</sup>, **Z. Gong**, X. Zhang, X. Zhu, Y. Yang, I. Kaminer<sup>\*</sup>, H. Chen<sup>\*</sup>, B. Zhang, X. Lin<sup>\*</sup>, Free-electron Brewster-transition radiation. *Sci. Adv.* **9**, eadh8098 (2023).
7. J. Chen, R. Chen, F. Tay, **Z. Gong**, H. Hu, Y. Yang, X. Zhang, C. Wang, I. Kaminer<sup>\*</sup>, H. Chen<sup>\*</sup>, B. Zhang, X. Lin<sup>\*</sup>, Low-velocity-favored transition radiation. *Phys. Rev. Lett.* **131**, 113002 (2023).
8. X. Zhang, C. Bian, **Z. Gong**, R. Chen, T. Low<sup>\*</sup>, H. Chen<sup>\*</sup>, X. Lin<sup>\*</sup>, Hybrid surface waves in twisted anisotropic heterometasurfaces. *Phys. Rev. Appl.* **21**, 064034 (2024).
9. R. Chen, **Z. Gong**, J. Chen, X. Zhang, X. Zhu, H. Chen<sup>\*</sup>, X. Lin<sup>\*</sup>, Recent advances of transition radiation: fundamentals and applications. *Materials Today Electronics* **3**, 100025 (2023).
10. C. Wang, X. Chen, **Z. Gong**, R. Chen, H. Hu, H. Wang<sup>\*</sup>, Y. Yang, T. Low, B. Zhang, H. Chen, and X. Lin<sup>\*</sup> 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 multilayers, *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 Bachelor'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, Beijing, 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.