



Zheng Gong (龚政)

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Research Interests

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



Education

2022-now: PhD. candidate (five-year direct PhD program), Zhejiang University, China (advisors: Prof. [Xiao Lin](#) and Prof. [Hongsheng Chen](#))

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

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



Full Publication List (Updated Aug. 12th, 2024)

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

1. **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).
2. **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. *Under review* (2024).
3. Z. Wang, **Z. Gong***, H. Chen*, X. Lin*, Directional transition radiation via ultrathin anisotropic epsilon-near-infinity metamaterials. *Under preparation* (2024).
4. X. Xi, **Z. Gong***, H. Chen*, X. Lin*, Achromatic intefacial Cherenkov radiation via Brewster effect. *Under preparation* (2024).

Co-authored Publications

5. 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).
6. 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).
7. 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).
 8. 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).

Conference Activities

1. **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*, Chengdu, China, 2024-04-21 to 2024-04-25. [Onsite oral presentation]
2. Zun Wang; **Zheng Gong**; Hongsheng Chen; Xiao Lin; Directional Transition Radiation from Slow Electrons via Anisotropic Metamaterials, *Photonics and Electromagnetics Research Symposium*, Chengdu, China, 2024-04-21 to 2024-04-25.
3. Ruoxi Chen; Jialin Chen; **Zheng Gong**; Xinyan Zhang; Xingjian Zhu; Yi Yang; Ido Kaminer; Hongsheng Chen; Baile Zhang; Xiao Lin; Free-electron Brewster-transition radiation, *Photonics and Electromagnetics Research Symposium*, Chengdu, China, 2024-04-21 to 2024-04-25.
4. Jialin Chen; Ruoxi Chen; Fuyang Tay; **Zheng Gong**; Hao Hu; Yi Yang; Xinyan Zhang; Chan Wang; Ido Kaminer; Hongsheng Chen; Baile Zhang; Xiao Lin; Low-velocity-favored Transition Radiation Based on Ultrathin ENZ Slab, *Photonics and Electromagnetics Research Symposium*, Chengdu, China, 2024-04-21 to 2024-04-25.
4. Xinyan Zhang; Chenxu Bian; **Zheng Gong**; Ruoxi Chen; Tony Low; Hongsheng Chen; Xiao Lin; Hybrid Surface Waves in Twisted Anisotropic Hetero-metasurfaces, *Photonics and Electromagnetics Research Symposium*, Chengdu, China, 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 (Top 1% among all graduates of Beijing), 2022
- ✧ Outstanding Bachelor's Thesis of Beijing, China; 2022.06.
- ✧ Outstanding Graduate of Beijing, China; 2022.06.
- ✧ First-class Scholarship (<3%); Beijing University of Posts and Telecommunications; 2021.09/ 2020.09/ 2019.09 for three consecutive years.
- ✧ Three-Good Students; Beijing University of Posts and Telecommunications; 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.