



# Peiliang LIU

PhD student in nonlinear optics, focusing on parametric process for terahertz wave generation, funded by the China Scholarship Council (CSC).

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## RESEARCH INTERESTS

- Terahertz wave generation by polariton parametric scattering in lithium niobate.
- Bound states in the continuum within metasurface or photonic crystal.

## EXPERIENCE

- **Sep. 2024 – Present:** PhD student in nonlinear optics | Université de Bordeaux, Talence, France. (**Thesis title:** Optical parametric process in the far-infrared)

Current research involves experimental investigation of terahertz wave generation by polariton parametric scattering in lithium niobate pumped by femtosecond laser centered at 1  $\mu\text{m}$ . By designing an appropriate waveguide structure, the conversion efficiency might be enhanced by satisfying the phase-matching condition and overcoming the limitation of material absorption.

- **Sep. 2021 – Jun. 2024:** Master in Photonics | Shanghai Normal University, Shanghai, China. (**Research direction:** Bound states in the continuum within terahertz metasurface)

Research during this period involved simulation of S-parameters and eigenmodes of terahertz metasurfaces, design of metasurface structures, and experimental characterization of transmission using terahertz time-domain spectroscopy. The far-field polarization topological properties of bound states in the continuum were investigated, and the underlying physical mechanisms were elucidated using temporal coupled-mode theory.

- **Feb. 2019 – Jul. 2020:** Application Engineer in a machine vision technology company at Guangdong, China, focusing on evaluating the solution of machine vision for industrial inspection with industrial light sources, cameras, and lenses.
- **Sep. 2014 – Jun. 2018:** Bachelor in Applied Physics | Sichuan Agricultural University, Sichuan, China.

## PUBLICATIONS

- [1] The impact of contact and contactless interaction between the meta-atoms on terahertz bound state in the continuum, *Journal of Physics D: Applied Physics*, 2024, 57(5), 055103.
- [2] Governance of Friedrich-Wintgen bound states in the continuum by tuning internal coupling of meta-atoms, *Optics Letters*, 2024, 49(5), 1301-1304.
- [3] Terahertz bound states in the continuum on-and-off- $\Gamma$  point of a moiré photonic superlattice, *Optics Letters*, 2024, 49(24), 7016-7019.
- [4] Terahertz Branch Selection of Friedrich-Wintgen Bound States in the Continuum via Altering the Intra-Action of Meta-Atom, *ACS Applied Optical Materials*, 2025, 3(5), 1145–1152.