Chen-Zhu Xie 谢尘竹

Portfolio:
Scholar:
Preference:
Contact:
Personality: INTP AB

Education

Nanjing University   **College** of Engineering and Applied Sciences   Nanjing, Jiangsu

Doctor of Philosophy	Optical Engineering	Q.E. - Top 15%	Nonlinear Fourier Optics	2025 '27

└ **Thesis** - Analytic 3D vectorial linear non-uniform & nonlinear Fourier crystal optics in arbitrary $\bar{\bar{\varepsilon}}, \bar{\bar{\chi}}$ dielectrics ┘

Master 's Studies	Quantum Electronics	Courses Score - 93.5	THz ($> 6G$) OAM Source	2022 '24

Northeastern University   **School** of Physics, **College** of Science   Shenyang, Liaoning

Bachelor of Science	Applied Physics	GPA Rank - 1/400	DDTank Aimbots	2020 '22

└ **Thesis** - Research & design of nonlinear holography based on lithium niobate 3D nonlinear photonic crystal ┘

Freshman in College	Science	Sichuan Prov. - Top 2%	7 Notes → 3 Books	2016 '18

Projects

Memberships test test test test test test	test test test test test test test test test test test test test test test test test test	2017.03 – 2018.9
Memberships	test test test test test test test test test test test test test test test test test test	2017.03 – 2018.9

Scientific Activities

- **Head Teaching Assistant** at University Name   Spring 2019
  Course Name (COURSE CODE)

- **Teaching Assistant** at University Name   Spring 2017
  Course Name (COURSE CODE)

Academic Focus

Next generation high N.A. 3D vector non-uniform analytic linear & nonlinear Fourier crystal optics ⦿		2024.06
!Paraxial k_0^ω **High N.A.** 3D vector non-uniform analytic linear & nonlinear Fourier crystal optics ⦿		2024.03
Emphasizing G_{xyz}^ω **3D** vector non-uniform analytic linear & nonlinear Fourier crystal optics ⦿		2023.12
Involving $\bar{\bar{\chi}}_\omega^{(2)}$ anisotropy **Vector** non-uniform analytic linear & nonlinear Fourier crystal optics ⦿		2023.06
!Unitary $G_\omega^\pm \Leftarrow$!Hermitian $\bar{\bar{\varepsilon}}_{\mathrm{r}}^\omega \Rightarrow$ **Non-uniform** analytic linear & nonlinear Fourier crystal optics ⦿		2023.03
Solution $\mathcal{F}\left[E_\omega^\pm\right]$ to $\left(\nabla^2 + k_{\omega\pm}^2\right)E_\omega^\pm \propto P_{\omega\pm}^{(2)}$ **Analytic** linear & nonlinear Fourier crystal optics ⦿		2022.09
Solution $\mathcal{F}[E_3] = \mathcal{F}\left[f\left(\mathcal{F}^{-1}[\cdot]\right)\right]$ to the Eq. below **Nonlinear** angular spectrum theory for SFG ⦿		2022.06
Solution $\mathcal{F}[E_3] = \iiint$ to $\left(\nabla^2 + k_3^2\right)E_3(r) \propto P_3^{(2)}(r)$ **Nonlinear** convolution solution to SFG ⦿		2022.03
⦿ Nonlinear THz LiNbO$_3$-based metasurface	**Quit THz project formally** | COMSOL	2022.01
⦿ BWOPO + THz optical parametric amplification	Mathematica | BookxNote Pro	2021.12
⦿ THz backward optical parametric oscillator (BWOPO)	Mathematica | VBA Excel	2021.11
⦿ Multi-cycle THz orbital angular momentum (OAM) source	RoamEdit | Blender	2021.11
⦿ Narrow-band THz OAM source via Optical Rectification (OR)	Python | Blender	2021.10
⦿ Electricity $\xrightarrow{\text{produce}}$ Acoustics $\xrightarrow{\text{modulate}}$ Optics	RoamEdit | VBA Excel	2021.07
⦿ Visible Photons $\xrightarrow{\text{SPDC}}$ THz Spectroscopy	BookxNote Pro | GeoGebra | VBA Excel	2021.06
⦿ Cavity Phase Matching $=$ Sheet OPO	Paint 3D | RoamEdit | GeoGebra | VBA Excel	2021.05
⦿ THz Holography via Optical Rectification	Matlab | GeoGebra | VBA Excel	2021.01
⦿ Femtosecond laser $\xrightarrow{\text{Optical Rectification}}$ Terahertz (THz)	GeoGebra | VBA Excel	2020.12
⦿ Multicycle THz pulse generation by OR in LiNbO$_3$ … crystals	VBA PowerPoinT	2020.10

Skills

- **Skill Group:** List of technologies
- **Skill Group:** List of technologies
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- **Skill Group:** List of technologies

Languages

- **Language:** language proficiency level
  - **EXAM:** details
- **Language:** language proficiency level
- **Language:** language proficiency level

Honors & Awards

Category	Title		Level		Rank		Institution		Date
Academia	Doctor's Qualification Exam (Oral)	▶	Excellent	🌐	Top 15%		Nanjing	U.	2024.01
	Bachelar Dissertation 🔗 & Defense	▶	Excellent	🔗	1/90		Northeastern	U.	2020.06
Competition	Three Provinces Achievement Expo	🌐	Exhibition	🔗	Leader		Three	Prov.	2019.10
	"Challenge Cup" Tech Competition	🌐	Grand prize	🔗	Leader		Liaoning	Prov.	2019.06
Scholarships & Fellowships	Academic Fellowship		1st class		¥40,000		Nanjing	U.	2020-24
	"Jinchuan" Scholarship		1st place	🔗	¥5,000		Northeastern	U.	2019.04
	Academic Scholarship		1st place	🔗	¥2,000		Northeastern	U.	2018.06
	Entrance Scholarship		3rd place		¥5,000		Leshan No.1	H.S.	2013.09
Honors & Titles	Graduation with honor	🌐	Outstanding				Northeastern	U.	2020.07
	League Member	🌐	Excellent	🔗			Northeastern	U.	2019.11
	Undergraduate Student		Excellent	🔗			Northeastern	U.	2018.12
Memberships	Chinese Society for Optical Engineering		Member	🔗			Nanjing	U.	2021-25
	"Qian Sanqiang" Talent Class		Head	🌐			I.H.E.P.	🌐	2017-20

Extracurricular Activities

- Member at Some Club — 2017–Current
  Detailed explanation of what you do at this club
- Member at Some Club — 2016–2017
  Detailed explanation of what you do at this club
- Volunteer at Some Event — Fall 2019
  Detailed explanation of what you do in this event
- Volunteer at Some Event — Winter 2015
  Detailed explanation of what you do in this event