# Chen-Zhu Xie



Portfolio: 🗘 🔼 in

Scholar:  $\Gamma$ 

Preference: 6

Contact:  $\mathbf{\Sigma}$   $\mathbb{X}$ 

Personality: aries (NTP) ab

#### **EDUCATION**

Nanjing University		College	ciences Nanjing, Jiangsu		
Doctor of	Philosophy	Optical Engineering	<i>Q.E.</i> − Top 15%	Nonlinear Fourier Optics <b>?</b> 2025 '27	
∟Disserta	<b>ition</b> : "Analyt	ic 3D vector linear non-un	iform & nonlinear Fourier crys	stal optics in arbitrary $\bar{ar{arepsilon}}, \bar{ar{ar{\chi}}}$ dielectrics" $oldsymbol{\Omega}$	
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	$GPA Rank - 1/400$ $\bigcirc$	DDTank Aimbots 2020 '22	
Freshmar		Science	Sichuan Prov. – Top 2%	7 Notes $\rightarrow$ 3 Books 2016 '18	

### RESEARCH PROJECTS

3D Vector Nonlinear Fourier Crystal Optics	Analytic solution to	2017.03 – 2018.9
		Python —
		SiYuan —
		Mathematica
Memberships	test test test test test test test	2017.03 - 2018.9
	test test test test test test test test	
	test test test	
Vector Nonlinear	test test test test test test test test	2017.03 - 2018.9
Fourier Optics	test test	
test test test test		

#### 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 $k_0^\omega$ High N.A. 3D vector non-uniform analytic linear & nonlinear Fourier crystal optics $m{\Omega}$	2024.03
Emphasizing $G_{\mathrm{xyz}}^{\omega}$ 3D vector non-uniform analytic linear & nonlinear Fourier crystal optics $oldsymbol{\Omega}$	2023.12
Involving $\bar{\bar{\chi}}^{(2)}_\omega$ anisotropy <b>Vector</b> non-uniform analytic linear & nonlinear Fourier crystal optics $oldsymbol{Q}$	2023.06
!Unitary $G_{\omega}^{\pm} \Leftarrow$ !Hermitian $\bar{\bar{\varepsilon}}_{\mathrm{r}}^{\omega} \Rightarrow$ Non-uniform analytic linear & nonlinear Fourier crystal optics $\P$	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 $\P$	2022.09
Solution $\mathcal{F}[E_3] = \mathcal{F}[f(\mathcal{F}^{-1}[\cdot])]$ to the Eq. below <b>Nonlinear</b> angular spectrum theory for SFG $\bigcirc$	2022.06
Solution $\mathcal{F}[E_3] = \iiint$ to $(\nabla^2 + k_3^2) E_3(r) \propto P_3^{(2)}(r)$ Nonlinear convolution solution to SFG $\bigcirc$	2022.03
↑ Nonlinear THz LiNbO₃-based metasurface	2022.01
♠ BWOPO + THz optical parametric amplification Mathematica — BookxNote Pro	2021.12
igcap THz backward optical parametric oscillator (BWOPO) Mathematica — VBA Excel	2021.11
igcap 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
$\bigcirc \text{ Electricity} \xrightarrow{\text{produce}} \text{Acoustics} \xrightarrow{\text{modulate}} \text{Optics} $ RoamEdit $- \text{VBA Excel}$	2021.07
$\bigcirc$ 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
	2020.12
$\bigcirc$ Multicycle THz pulse generation by OR in LiNbO $_3$ crystals VBA PowerPoinT	2020.10

Skills Languages

• **Skill Group:** List of technologies

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• Language: language proficiency level

- EXAM: details

• Language: language proficiency level

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#### Honors & Awards

A J	Doctor's Qualification Exam (Oral)	Excellent (	Top 15%	Nanjing U.	2024.01
Academia	Bachelar Dissertation 🞧 & Defense 🔼	Excellent 🙃	1/90	Northeastern U.	2020.06
Compatition	Three Provinces Achievement Expo	Exhibition (7)	Leader	Three Prov.	2019.10
Competition	"Challenge Cup" Tech Competition	Grand prize 🞧	Leader	Liaoning Prov.	2019.06
Scholarships	Academic Fellowship	1st class	¥40,000	Nanjing U.	2020-24
&	"Jinchuan" Scholarship	1st place	¥5,000	Northeastern U.	2019.04
Fellowships	Academic Scholarship	1st place 🕠	¥2,000	Northeastern U.	2018.06
renowships	Entrance Scholarship	3rd place	¥5,000	Leshan No.1 H.S.	2013.09
Honors	Graduation with honor	Outstanding		Northeastern U.	2020.07
&	League Member	Excellent 🕤		Northeastern U.	2019.11
Titles	Undergraduate Student	Excellent (?)		Northeastern U.	2018.12
Mambanahina	Chinese Society for Optical Engineering	Member 🕠		Nanjing U.	2021-25
Memberships	"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

Detailed explanation of what you do at this club

2016–2017

• Volunteer at Some Event Fall 2019

• Volunteer at Some Event Winter 2015

Detailed explanation of what you do in this event

Detailed explanation of what you do in this event