

# Hao Xu

Nano-Optoelectronics Lab  
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## RESEARCH EXPERIENCE

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Postdoc, Optoelectronics, <i>Tsinghua University</i> , Beijing, China	04/'24 – Now
Doctorate researcher, Optomechanics, <i>CNRS-IEMN</i> , Paris/Lille, France	01/2024
R.A., Materials optics, <i>Tsinghua University TBSI</i> , Shenzhen, China	10/2020
Advisor: Bilu Liu, Baofu Ding	
Visiting grad student, <i>University of California</i> , San Diego, USA	03/2017

## EDUCATION

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Ph.D. in Microsystems sensors, <i>Universite de Lille</i> , Lille, France	03/2024
Thesis title: <i>Analysis of device properties of silicon nitride membrane nanoelectromechanical resonators for future optomechanical thermometry applications</i>	
Advisor: Didier Théron, Xin Zhou	
M.Eng. in Electronics, <i>Xi'an Jiaotong University</i> , Xi'an, China	06/2018
Advisor: Wenhui Yi	
B.Sc. in Optics, <i>Harbin University of Sci and Tech</i> , Harbin, China	06/2014

## RESEARCH INTERESTS

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His interests focus on opto-electronics sensors, including

- Advanced manufacturing (nano-scale device model, LayoutEditor design)
- Nano-electronics device modelling (theory, FEM simulation analysis)
- Optoelectronics, optomechanics, nanoimaging, neuronal devices and computation

## AWARDS & HONORS

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Doctoral scholarship, Centre National de la Recherche Scientifique	2021 – 2023
Academic scholarship, Xi'an Jiaotong University	2015 – 2018
Excellent graduate student, Xi'an Jiaotong University	11/2016
Outstanding Young Volunteer Award, Xi'an Jiaotong University	11/2016
3rd Award (province) of National Undergraduate Mathematical Contest, Chinese Mathematical Society (CMS)	11/2013

## CONFERENCES & TALKS

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Department EE talk (Invited), Xi'an Jiaotong University, Xi'an, China	01/2024
Global Young Scholars' forum (Invited), CUHK-Shenzhen, China	12/2023
Frontiers of Nanomechanical Systems (FNS), Delft, The Netherlands	06/2023
LIMMS-IEMN workshop on NEMS/MEMS (virtual meeting)	12/2022
Technologies for Neuroengineering (virtual Nature conferences)	10/2022
Nanomechanics and optomechanics seminar, Bordeaux, France	10/2022
Red wine & Cheese lunch talk at University of Bordeaux, France	10/2022
Microsystems group meeting at CNRS-IEMN, Lille/Paris, France	12/2021
Optics group meeting at Tsinghua University TBSI, Shenzhen, China	2018 – 2020
Molecular imaging group meeting at Peking University, Beijing, China	05/2018
Biomechanics group meeting at Xi'an Jiaotong University, Xi'an, China	04/2017
Juice & Snacks lunch talk at University of California, San Diego, USA	02/2017
Electronics group meeting at Xi'an Jiaotong University, Xi'an, China	2015 – 2018

## PEER-REVIEWED PUBLICATIONS

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### [Imaging nanomechanical vibrations and manipulating parametric mode coupling via scanning microwave microscopy \(SMM\)](#)

[Hao Xu](#), Srisaran Venkatachalam, Toky-Harrison Rabenimanana, Christophe Boyaval, Sophie Eliet, Flavie Braud, Eddy Collin, Didier Theron, Xin Zhou\*

(\* corresponding author)

2024, ***Nano Letters***, 24 (28), 8550–8557.

### [Fabrication of silicon nitride membrane nanoelectromechanical resonator](#)

[Hao Xu](#), Srisaran Venkatachalam, Christophe Boyaval, Pascal Tilmant, Francois Vaurrette, Yves Deblock, Didier Theron, Xin Zhou\*

2023, ***Microelectronic Engineering***, 280 (2023) 112064.

### [Capacitively coupled distinct mechanical resonators for room temperature phonon-cavity electromechanics](#)

Alok Pokharel, [Hao Xu](#), Srisaran Venkatachalam, Eddy Collin, Xin Zhou\*

2022, ***Nano Letters***, 22 (18), 7351-7357.

### [Magnetically tunable and stable deep-ultraviolet birefringent optics using two-dimensional hexagonal boron nitride](#)

[Hao Xu](#), Baofu Ding\*, Youan Xu, Ziyang Huang, Dahai Wei, Shaohua Chen, Tianshu Lan, Yikun Pan, Hui-Ming Cheng\* and Bilu Liu\*

(\* corresponding author)

2022, ***Nature Nanotechnology***, 17, 1091-1096.

### [A 2D material-based transparent hydrogel with engineerable interference colours](#)

Baofu Ding, Pengyuan Zeng, Ziyang Huang, Lixin Dai, Tianshu Lan, [Hao Xu](#), Yikun Pan, Yuting Luo, Qiangmin Yu, Hui-Ming Cheng and Bilu Liu\*

2022, ***Nature communications***, 13(1), 1-8.

### [High-q silicon nitride drum resonators strongly coupled to gates](#)

Xin Zhou\*, Srisaran Venkatachalam, Ronghua Zhou, [Hao Xu](#), Alok Pokharel, Andrew Fefferman, Mohammed Zaknourne, Eddy Collin

2021, ***Nano Letters***, 21(13), 5738-5744.

## PEER-REVIEWED PUBLICATIONS

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Obtaining high mechanical performance silk fibers by feeding purified carbon nanotube/lignosulfonate composite to silkworms

Hao Xu, Wenhui Yi\*, Dongfan Li, Ping Zhang, Sweejiang Yoo, Lei Bai, Jin Hou, and Xun Hou

(\* corresponding author)

2019, **RSC Advances**, 9(7), 3558-3569.

Supramolecular interactions of poly [(9, 9-dioctylfluorenyl-2, 7-diyl)-co-thiophene] with single-walled carbon nanotubes

Ping Zhang, Wenhui Yi\*, Hao Xu, Chao Gao, Jin Hou, Weiqiu Jin, Yue Lei, and Xun Hou

2018, **Nanotechnology Reviews**, 7(6), 487-495.

## TECHNICAL SKILLS

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Developer Languages: Python (Matplotlib, Numpy, Pandas)

Developer Tools: COMSOL, Mathematica (Maple), Origin, L<sup>A</sup>T<sub>E</sub>X (Overleaf), Github etc

Hobbies: Full/semi-Marathon, Kayaking, Guitar playing, Sketch painting, Cooking