













# Jiaxin ZHONG (钟家鑫)

## Post-Doc in Acoustics at Penn State University (PSU)

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 Last updated on June 15, 2023  ZnN3mD0AAAAJ   Source code of this CV



## Research Interests



Active Acoustic Metamaterial

Active Noise Control

Audio Signal Processing

Computational Acoustics

Parametric Array Loudspeaker

## Employment



### Post-Doc

 Penn State University

 Dec-2022 – Ongoing

 University Park, USA

 Advisor: Dr. Yun Jing    


## Education



### Ph.D. in Acoustics

 University of Technology Sydney

 Mar-2019 – Aug-2022

 Sydney, Australia

 Advisors: Prof. Ray Kirby    , Dr. Mahmoud Karimi    , Prof. Xiaojun Qiu  

 Parametric Array Loudspeakers and Applications in Active Noise Control

### M.Sc. in Acoustics

 Nanjing University

 Sep-2015 – Jun-2018

 Nanjing, China

 Advisors: Dr. Jiancheng Tao  , Prof. Xiaojun Qiu  



 Effects of a Finite Size Reflecting Disk on Sound Power Measurements


### B.Sc. in Acoustics

 Nanjing University

 Sep-2011 – Jun-2015

 Nanjing, China

 Advisor: Prof. Xinlong Wang 

 The Study of Matching Layers for Ultrasonic Transducers

## Honors & Awards



ASA Early Career Travel Support Award

Acoustical Society of America (ASA)

 17-Apr-2023

ICA-ASA Young Scientist Conference Attendance Grant

International Commission for Acoustics (ICA) with Acoustical Society of America (ASA)

 24-Oct-2022


Young Professional Grant

International Institute of Noise Control Engineering (I-INCE)

 23-Aug-2020

Australian Research Council (ARC) Linkage Scholarship

University of Technology Sydney

 12-Jun-2020

Tech Lab Staff and Student Committee HDR Collaboration Grant

University of Technology Sydney

 18-Oct-2019



Below you can find a list of my academic publications, along with links to DOI, PDF downloads, and Power Point slides. Bold author: **self**. “\*”: corresponding author. Underline author: students under the supervision of Dr. Jiaxin Zhong.



## Books

- [B1] **Jiaxin Zhong** and Xiaojun Qiu, “Acoustic Waves Generated by Parametric Array Loudspeakers,” CRC Press, In preparation (2023).


## Journal Articles

- [J20] **Jiaxin Zhong**, Haishan Zou, and Jing Lu\*, “A modal expansion method for simulating reverberant sound fields generated by a directional source in a rectangular enclosure,” *J. Acoust. Soc. Am.* Under Review (2023).
- [J19] **Jiaxin Zhong**, Tao Zhuang, Ray Kirby, Mahmoud Karimi, Jing Lu, and Dong Zhang\*, “Suppressing grating lobes for a steerable parametric array loudspeaker,” *IEEE Trans. Audio Speech Lang. Process.* Under review (2023).
- [J18] **Jiaxin Zhong**, Haishan Zou, Jing Lu, and Dong Zhang\*, “A modified convolution model for calculating the far field directivity of a parametric array loudspeaker,” *J. Acoust. Soc. Am.* 153(3), 1439–1451 (2023).
- [J17] Tao Zhuang, **Jiaxin Zhong**\*, Ray Kirby, Mahmoud Karimi, and Jing Lu, “A steerable non-paraxial Gaussian beam expansion for a steerable parametric array loudspeaker,” *J. Acoust. Soc. Am.* 153(1), 124–136 (2023).
- [J16] **Jiaxin Zhong**, Tao Zhuang, Ray Kirby, Mahmoud Karimi, Xiaojun Qiu, Haishan Zou\*, and Jing Lu, “Low frequency audio sound field generated by a focusing parametric array loudspeaker,” *IEEE Trans. Audio Speech Lang. Process.* 30, 3098–3109 (2022).
- [J15] **Jiaxin Zhong**, Ray Kirby, Mahmoud Karimi, and Haishan Zou\*, “A spherical wave expansion for a steerable parametric array loudspeaker using Zernike polynomials,” *J. Acoust. Soc. Am.* 152(4), 2296–2308 (2022).
- [J14] **Jiaxin Zhong**, Ray Kirby, Mahmoud Karimi, Haishan Zou\*, and Xiaojun Qiu, “Scattering by a rigid sphere of audio sound generated by a parametric array loudspeaker,” *J. Acoust. Soc. Am.* 151(3), 1615–1626 (2022).
- [J13] **Jiaxin Zhong**, Tao Zhuang, Ray Kirby, Mahmoud Karimi, Haishan Zou\*, and Xiaojun Qiu, “Quiet zone generation in a free field with multiple parametric array loudspeakers,” *J. Acoust. Soc. Am.* 151(2), 1235–1245 (2022).
- [J12] **Jiaxin Zhong**, Ray Kirby, Mahmoud Karimi, and Haishan Zou\*, “A cylindrical expansion of the audio sound for a steerable parametric array loudspeaker,” *J. Acoust. Soc. Am.* 150(5), 3797–3806 (2021).
- [J11] **Jiaxin Zhong**\*, Ray Kirby, and Xiaojun Qiu, “The near field, Westervelt far field, and inverse-law far field of the audio sound generated by parametric array loudspeakers,” *J. Acoust. Soc. Am.* 149(3), 1524–1535 (2021).
- [J10] **Jiaxin Zhong**\* and Xiaojun Qiu, “On the spherical expansion for calculating the sound radiated by a baffled circular piston,” *J. Theor. Comput. Acoust.* 2050026 (2020).
- [J9] **Jiaxin Zhong**\*, Shuping Wang, Ray Kirby, and Xiaojun Qiu, “Reflection of audio sounds generated by a parametric array loudspeaker,” *J. Acoust. Soc. Am.* 148(4), 2327–2336 (2020).
- [J8] **Jiaxin Zhong**\*, Shuping Wang, Ray Kirby, and Xiaojun Qiu, “Insertion loss of a thin partition for audio sounds generated by a parametric array loudspeaker,” *J. Acoust. Soc. Am.* 148(1), 226–235 (2020).
- [J7] **Jiaxin Zhong**\*, Ray Kirby, and Xiaojun Qiu, “A spherical expansion for audio sounds generated by a circular parametric array loudspeaker,” *J. Acoust. Soc. Am.* 147(5), 3502–3510 (2020).
- [J6] **Jiaxin Zhong**, Baicun Chen, Jiancheng Tao\*, and Xiaojun Qiu, “The performance of active noise control systems on ground with two parallel reflecting surfaces,” *J. Acoust. Soc. Am.* 147(5), 3397–3407 (2020).
- [J5] Shuping Wang\*, **Jiaxin Zhong**, Xiaojun Qiu, and Ian Burnett, “A note on using panel diffusers to improve sound field diffusivity in reverberation rooms below 100 Hz,” *Appl. Acoust.* 169, 107471 (2020).
- [J4] **Jiaxin Zhong**\*, Ray Kirby, and Xiaojun Qiu, “A non-paraxial model for the audio sound behind a non-baffled parametric array loudspeaker (L),” *J. Acoust. Soc. Am.* 147(3), 1577–1580 (2020).
- [J3] **Jiaxin Zhong**, Jiancheng Tao\*, and Xiaojun Qiu, “Increasing the performance of active noise control systems on ground with two vertical reflecting surfaces with an included angle,” *J. Acoust. Soc. Am.* 146(6), 4075–4085 (2019).
- [J2] **Jiaxin Zhong**, Jiancheng Tao\*, and Xiaojun Qiu, “Increasing the performance of active noise control systems on ground with a finite size vertical reflecting surface,” *Appl. Acoust.* 154, 193–200 (2019).
- [J1] **Jiaxin Zhong**, Jiancheng Tao\*, Feng Niu, and Xiaojun Qiu, “Effects of a finite size reflecting disk in sound power measurement,” *Appl. Acoust.* 140, 24–29 (2018).

## Conference Papers

- [C9] John Arthur Case, Carter Paprocki, Hannah Kurdila, Trent Furlong, Eric Rokni, Yu-Tong Wang, **Jiaxin Zhong**, Jun Ji, Daniel Russell, Andrew Barnard, "Sound power characterization of Corsi-Rosenthal boxes using DIY comparison method," *NOISE-CON 2023*, Grand Rapids, MI, USA, May 15–18, 2023. 
- [C8] **Jiaxin Zhong** and Yun Jing, "Fast and accurate modeling of parametric array loudspeakers in the frequency domain," *Acoustical Society of America 184th Meeting*, Chicago, Illinois, USA, May 8–12, 2023. 
- [C7] **Jiaxin Zhong**, Ray Kirby, Mahmoud Karimi, Xiaojun Qiu, and Jing Lu, "Audio sound field generated by a parametric array loudspeaker in a rectangular room with lightly damped walls," *The 24th International Congress on Acoustics (ICA)*, Gyeongju, Korea, October 24–28, 2022. **Invited.** 
- [C6] **Jiaxin Zhong**, Tong Xiao, Benjamin Halkon, Ray Kirby, and Xiaojun Qiu, "An experimental study on the active noise control using a parametric array loudspeaker," *Inter-Noise 2020*, Seoul, Korea, August 23–26, 2020. 
- [C5] **Jiaxin Zhong**, Jiancheng Tao, and Xiaojun Qiu, "A numerical study on active noise radiation control systems between two parallel reflecting surfaces," *The 18th Asia-Pacific Vibration Conference*, Sydney, Australia, November 18–20, 2019. 
- [C4] Xiaojun Qiu, Qiaoxi Zhu, Shuping Wang, and **Jiaxin Zhong**, "A case study on the new reverberation room built in University of Technology Sydney," *The 23rd International Congress on Acoustics (ICA)*, Aachen, Germany, September 9–13, 2019. 
- [C3] Jiancheng Tao, **Jiaxin Zhong**, and Xiaojun Qiu, "Progress of research on active noise radiation control with reflecting surfaces," *Inter-Noise 2019*, Madrid, Spain, June 16–19, 2019. 
- [C2] **Jiaxin Zhong**, Jiancheng Tao, and Xiaojun Qiu, "Effects of the finite circular baffle size on the sound power measurements," *Inter-Noise 2017*, Hong Kong, China, August 27–30, 2017. 
- [C1] Jiancheng Tao, **Jiaxin Zhong**, and Xiaojun Qiu, "Noise radiation from an AC filter capacitor," *Inter-Noise 2017*, Hong Kong, China, August 27–30, 2017. 



## Issued Patents

- [P1] **Jiaxin Zhong**, Jiancheng Tao, and Xiaojun Qiu, "A method for increasing the performance of active noise control systems with a partition (一种使用隔墙提高有源声辐射控制系统降噪量的方法)," *CN Patent ZL201811394850.9*, Filed Nov 22, 2018, and issued June 6, 2023. 







## Professional Activities & Services



### Membership

- |   |   |
|---|---|
| • Member, <b>Institute of Electrical and Electronics Engineers (IEEE)</b> |  1 Mar 2022 – Present      |
| • Young Professionals, <b>IEEE</b>  |  1 Jan 2022 – 31 Dec 2023  |
| • Student Member, <b>Acoustical Society of America (ASA)</b>              |  1 Jan 2021 – 11 May 2023  |
| • Member, <b>Acoustical Society of America (ASA)</b>                      |  11 May 2023 – Present     |
| • Associate Member, <b>Audio Engineering Society (AES)</b>                |  27 Jul 2021 – 6 June 2023 |
| • Member, <b>Audio Engineering Society (AES)</b>                          |  6 June 2023 – Present     |

### Reviewer

- |   |  |
|---|--|
| • Applied Acoustics                                 |  2020 – Present |
| • Applied Sciences                                  |  2021 – Present |
| • Journal of the Audio Engineering Society          |  2023 – Present |
| • The 18th Asia-Pacific Vibration Conference (APVC) |  2019           |
| • The Journal of the Acoustical Society of America  |  2022 – Present |
| • Wave Motion                                       |  2021 – Present |

### Session Chair

- Sound Field manipulation for Personal Audio, **185th Meeting of Acoustical Society of America (Acoustics 2023)**  
 **Jiaxin Zhong** and Sipei Zhao    Sydney, Australia  4–8 Dec 2023