

# MAOYUAN LI

## Special Researcher, JSPS Postdoctoral Fellow

### PERSONAL INFORMATION

**Address:** Department of Electrical and Electronic Engineering,  
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### EDUCATION

- 2015.06—2021.03 **Ph.D.**, majored in Instrumentation Engineering, School of Optics and Photonics, Beijing Institute of Technology. **Reference:** Yong Song
- 2011.09—2015.06 **B.E.**, majored in Instrument Science and Technology, School of Optics and Photonics, Beijing Institute of Technology.

### WORK EXPERIENCE

- 2021.11—2023.10 **Postdoctoral Researcher**, Intervention Center, Oslo University Hospital, Oslo, Norway. **Reference:** Ilangko Balasingham
- 2022.04-2023.10 **Guest Researcher**, Department of Electronic Systems, Norwegian University of Science and Technology (NTNU), Trondheim, Norway. **Reference:** Ali Khaleghi
- 2023.11-2025.11 **Special Researcher, JSPS Fellow**, Department of Electrical and Electronic Engineering, Tokyo Institute of Technology. **Reference:** Takahiro Aoyagi

### PUBLICATION (Cited by 200, H-index 7, Feb. 18, 2024)

#### JOURNAL

- [1] **M. Li**, A. Khaleghi, A. Hasanvand, R. P. Narayanan and I. Balasingham, "A New Design and Analysis for Metasurface-Based Near-field Magnetic Wireless Power Transfer for Deep Implants," in **IEEE Transactions on Power Electronics**, 2024.
- [2] **Maoyuan Li**, Yong Song, Yongtao Hou, Ning Li, Yurong Jiang, Muhammad Sulaman, Qun Hao. Comparable Investigation of Characteristics for Implant Intra-Body Communication Based on Galvanic and Capacitive Coupling. *IEEE Transactions on Biomedical Circuits and Systems*, vol. 13, no. 6, pp. 1747-1758, 2019.
- [3] **Maoyuan Li**, Yong Song, Wansong Li, Guangfa Wang, Tianpeng Bu, Yufei Zhao and Qun Hao. The Modeling and Simulation of the Galvanic Coupling Intra-Body Communication via Handshake Channel.

*Sensors*, vol. 17, no. 4, pp. 863-879, 2017.

- [4] Yun Li, Yong Song, Xianyu Kong, **Maoyuan Li**, Yufei Zhao, Qun Hao and Tianxin Gao. The Simulation of the Recharging Method Based on Solar Radiation for an Implantable Biosensor. *Sensors*, vol. 16, no. 9, pp. 1468-1480, 2016.
- [5] Shangnan Zhao, Yong Song, Yufei Zhao, Yun Li, Lin Li, Qun Hao, and **Maoyuan Li**. Infrared target detection method based on the receptive field and lateral inhibition of human visual system. *Applied Optics*, vol. 56 no. 6, pp. 8555-8563, 2017.
- [6] Muhammad Sulaman, Yong Song, Shengyi Yang, **Maoyuan Li**, Muhammad Imran Saleem, Perumal Veeramalai Chandrasekar, Yurong Jiang, Yi Tang and Bingsuo Zou. Ultra-sensitive solution-processed broadband photodetectors based on vertical field-effect transistor. *Nanotechnology*, vol. 31, no. 10, 2019.
- [7] Muhammad Sulaman, Yong Song, Shengyi Yang, Qun Hao, Yuejin Zhao, **Maoyuan Li**, Muhammad Imran Saleem, Perumal Veeramalai Chandrasekar, Yurong Jiang, Yi Tang and Bingsuo Zou. High-performance solution-processed colloidal quantum dots based tandem broadband photodetectors with dielectric interlayer. *Nanotechnology*, vol. 30, no. 46, 2019
- [8] Muhammad Sulaman, Yong Song, Shengyi Yang, Muhammad Imran Saleem, **Maoyuan Li**, Chandrasekar Perumal Veeramalai, Ruonan Zhi, Yurong Jiang, Yanyan Cui, Qun Hao, and Bingsuo Zou. Interlayer of PMMA Doped with Au Nanoparticles for High-Performance Tandem Photodetectors: A Solution to Suppress Dark Current and Maintain High Photocurrent. *ACS Applied Materials & Interfaces*, vol. 12 no. 23, pp. 26153-26160, 2020.
- [9] Ali Imran, Muhammad Sulaman, Yong Song, Deborah Eric, Muhammad Noaman Zahid, Muhammad Yousaf, Muhammad Imran Saleem, **Maoyuan Li**, Duo Li. Modeling and simulation of high-efficiency GaAs PIN solar cell. *Journal of Computational Electronics*, vol. 20, pp. 310–316, 2021.
- [10] Zhang X, Song Y, Zhou Y, **Li M**, Ren W, Ma Y, Li C, Cao Y. The Retrieval and Effect of Core Parameters for Near-Field Inter-Body Coupling Communication. *Sensors*. 2023; 23(12):5521.

#### CONFERENCE

- [1] **Maoyuan Li**, Ali Khaleghi, Ram Prasad Narayanan, and Ilanko Balasingham. Safety Analysis of Metasurface-Based Near-field Wireless Power Transfer System for Deep Implants, *IEEE Wireless Power Technology Conference and Expo 2023*.
- [2] **Maoyuan Li**, Yong Song, Guangfa Wang, Qun Hao, Kai Zang. Characterization of the implantable intra-body communication based on capacitive coupling by transfer function. *International Conference on Sensing Technology IEEE*, 2016.
- [3] Yongtao Hou, Yong Song, **Maoyuan Li**, Xu Zhang, Ning Li, Wangwang Zhu, Yongjia Wang. Design of Image Transmission System of Intra-Body Communication Based on Capacitive Coupling. *IEEE International Conference on Signal, Information and Data Processing*, 2019.
- [4] Ning Li, Yurong Jiang; **Maoyuan Li**, Xu Zhang, Yongtao Hou, Yongjia Wang, Wangwang Zhu; Yong Song. A Method to Eliminate the Impact of Parasitic Capacitance for Intra-Body Communication using Mach-Zehnder Electro-Optical Modulation. *2020 3rd International Conference on Advanced Electronic Materials, Computers and Software Engineering (AEMCSE)*, Shenzhen, China, 2020.
- [5] Wangwang Zhu, Taogeng Zhou, Ya Zhou, **Maoyuan Li**, Yu Chen, Yufei Zhao, Yong Song. An audio transmission system based on capacitive coupling intra-body communication. *2021 International Conference on Communications, Information System and Computer Engineering (CISCE)*, Beijing, China, pp. 183-187, 2021

#### JOURNAL Under Preparation and Peer Review

1 Paper is under review in the International Journal of Electronics and Communications

3 Papers are preparing and targeting IEEE transactions.

#### AREAS OF INTEREST

- Body area networks: Joint wireless information transfer and wireless power transfer

- implantable medical devices: Cardiac Pacemaker, Brain Stimulator, etc.
- Biomedical circuits and systems design.

#### **PROJECTS EXPERIENCE**

- [1] **JSPS OVERSEAS RESEARCH FELLOWSHIPS, Simultaneous Wireless Power and Information Transfer for Medical Implants by Near-field Coupling, 18.11.2023-17.11.2025, P23762. (Principle Investigator)**
- [2] **Postdoctoral Fellowship in Wireless Communication System Design for In-body Medical Implants. Health South-East Trust, 01.11.2021 - 31.10.2023, European Union.**
- [3] **The National Natural Science Foundation of China (60801050), 2015.1 to 2017.1**
- [4] **The National Natural Science Foundation of China (81671787) 2017.1—2020.6**

#### **PROFESSIONAL SKILL**

- Skilled in **MATLAB** and mathematical foundation.
- Skilled in **COMSOL, ANSYS, CST** with rich experience in bio-electromagnetics simulation.
- Familiar with **BAN technology**, especially **PHY layer**.
- Strong foundation in the development of **FPGA** systems.
- Skilled in using **Altium Designer** to design the circuit board.