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Education Background:

Ph.D. in Electronic Science and Technology (Advisor: Dr. Chengbin Ma)

Univ. of Michigan-SJTU Joint Institute 04/2013 – 03/2016
Shanghai Jiao Tong University Shanghai, China
Thesis Title: “*Analysis and Control of Megahertz Wireless Power Transfer Systems*”

M.S. in Electronic Science and Technology (Advisor: Dr. Chengbin Ma)

Univ. of Michigan-SJTU Joint Institute 09/2010 – 03/2013
Shanghai Jiao Tong University Shanghai, China
Thesis Title: “*13.56 MHz Wireless Power Transfer System Design and Implementation*”

B.S. in Electrical and Computer Engineering

Univ. of Michigan-SJTU Joint Institute 09/2006 – 08/2010
Shanghai Jiao Tong University Shanghai, China
Thesis Title: “*Wireless Power Transfer: Wireless Charging Vehicle*”

Working Experiences:

Associate Professor 01/2024 – Present
School of Information Science and Technology, ShanghaiTech University Shanghai, China

Assistant Professor 03/2018 – 01/2024
School of Information Science and Technology, ShanghaiTech University Shanghai, China

Postdoctoral Researcher (advisor: Dr. Fred Lee) 04/2016 – 03/2018
Center for Power Electronics Systems, Virginia Tech. Virginia, USA

Research Interests:

- Wireless power transfer
- Ultra-high-frequency power conversion
- Applications of wide-band-gap devices
- Magnetic integration
- Modeling and control of resonant convertors
- Intelligent power network

Teaching Experiences:

04/2018-present
10 credits per year

Instructor
Avg. score: 4.88

ShanghaiTech Univ., China

- 2024 Spring (4 credits) EE171: *Power Electronics*, 22 undergraduates, N/A
- 2023 Fall (4 credits) EE273: *Adv. Power Con. Techn.*, 12 graduates, 4.7/5
- 2023 Spring (4 credits) EE171: *Power Electronics*, 10 undergraduates, 4.9/5
- 2022 Fall (4 credits) EE273: *Adv. Power Con. Techn.*, 29 graduates, 5/5
- 2022 Spring (4 credits) EE171: *Power Electronics*, 13 undergraduates, 4.7/5
- 2021 Fall (8 credits) EE171: *Power Electronics* (MOOC recording)
- 2021 Spring (8 credits) EE171: *Power Electronics*, 30 undergraduates, 4.77/5
EE111: *Electric Circuits*, 50 graduates, 4.33/5
- 2020 Fall (4 credits) EE273: *Adv. Power Con. Techn.*, 10 graduates, 5/5
- 2020 Spring (4 credits) EE171: *Power Electronics*, 15 undergraduates, 4.97/5
- 2019 Fall (4 credits) EE273: *Adv. Power Con. Techn.*, 15 graduates, 4.97/5
- 2019 Spring (4 credits) EE171: *Power Electronics*, 10 undergraduates, 5/5
- 2018 Fall (4 credits) EE273: *Adv. Power Con. Techn.*, 13 graduates, 4.74/5

Honors & Awards:

- First-rate undergraduate course of Shanghai (2024)
- Excellent party branch secretary (2024)
- Key courses in universities of Shanghai (2023)
- Top 2% of scientists in their fields for single-year impact (2023, 2022, 2021, 2020)
- Science popularization model of ShanghaiTech (2023)
- Mingzhu talented scholar (2023)
- Outstanding mentor of ShanghaiTech Dadao college (2023, 2022)
- Outstanding Guidance Teacher in the National Electronic Design Competition (2023)
- IESES Conference Outstanding Service Award (2023)
- Second prize in the 1st Shanghai course ideological and political teaching design exhibition (2023)
- Second prize in the 2nd teaching innovation competition for the universities of Shanghai (2022)
- University-level quality course (2022)
- SIST excellence in research (2022, 2021)
- Outstanding reviewer awards of IEEE Trans. Power Electron. (2021)
- Excellent volunteer of China electrotechnical society (2021)
- Excellent mentor of SIST (2021)
- Outstanding presentation of APEC (2022)
- Award paper in IES-SYPA competition (2019)
- Shanghai eastern scholar (2019)
- Excellent instructor for the industry practice (2018)
- Shanghai sailing program award (2018)

- National scholarship (2015)
- Top ten research groups of Shanghai Jiao Tong university (2014)
- Excellent graduate student scholarship (2014)
- Covidien scholarship (2014, 2013)
- Annual excellent volunteer for blood donation (2012)

Research Grants and Contracts: (unit: RMB)

Current

[R1]. <i>Design and Fabrication of a 2kW AGV Coupler</i> (PI)	Nanjing Taiwu	500,000	2023-2025
[R2]. <i>A Course Experiment Platform for Power Electronics Based on Speedgoat</i> (PI)	Ministry of Education of China	50,000	2021-2022
[R3]. <i>Structure Duality and Space Multiplexing of Wireless Power Transfer Systems Based on Uniform Coupler Model</i> (PI)	Natural Science Foundation of China	240,000	2021-2023
[R4]. <i>Compensation decomposition and synthesis for capacitive power transfer</i> Shanghai (PI)	Shanghai Sailing Program	200,000	2019-2022
[R5]. <i>Funding for Shanghai eastern scholar</i> (PI)	Shanghai Government	600,000	2019-2022
[R6]. <i>Start-up funding of ShanghaiTech Univ.</i> (PI)	ShanghaiTech	2,000,000	2018-2021

Past

[R7]. <i>Development of high-efficiency high-power-density 110/24V dc/dc module</i>	CRRC ZIC	1,200,000	2016-2017
[R8]. <i>Power control strategy for MHz multiple-receiver WPT systems</i>	Natural Science Foundation of Shanghai	200,000	2016-2018
[R9]. <i>Voltage balancing techniques based on wireless power transfer</i>	Huawei	400,000	2015-2016
[R10]. <i>Load transformation through buck-boost regulator for wireless charging system</i>	Intel Corporation	250,000	2014-2015
[R11]. <i>Control algorithm for stability improvement in Maglev train</i>	CRRC SRI	250,000	2013-2014
[R12]. <i>Evaluation and improvement of a 13.56 MHz wireless charging system</i>	Intel Corporation	175,000	2013-2014
[R13]. <i>Wireless charging for electrical train based on ultracapacitor</i>	Beijing Jiao Tong Univ.	350,000	2012-2013
[R14]. <i>Control for battery-ultracapacitor hybrid energy storage systems used on electrical train</i>	Beijing Jiao Tong Univ.	200,000	2012-2013

Invited Talks :

Tutorials of International Conference

- [T1]. *"Modelling and Control of Wireless Power Transfer System: State of the Art"*, IEEE International Power Electronics and Motion Control Conference (IPEMC), Chengdou, China, May 17 - 20, 2024.
- [T2]. *"Modelling, Stability Analysis, and Control of Wireless Power Transfer System"*, IEEE International Power Electronics and Application Symposium (PEAS), Guangzhou, China, Nov. 10-13, 2023.
- [T3]. *"Modelling, stability analysis, and control of grid-connected wireless power transfer system"*, IEEE International Symposium on Power Electronics for Distributed Generation (PEDG), Shanghai, China, June 9 – 12, 2023.
- [T4]. *"MHz Wireless Power Transfer: Architecture, Topology, and Design"*, International Conference on Wireless Power Transfer (ICWPT), Chongqing, China, Dec. 2-4, 2022.
- [T5]. *"Analysis and Design of Near-Field Couplers for Wireless Power Transfer"*, International Conference on Industrial Informatics (INDIN), Perth, Australia, July 25-28, 2022.
- [T6]. *"Analysis and Design of Near-Field Couplers for Wireless Charging Applications"*, IEEE International Power Electronics and Application Symposium (PEAS), Shanghai, China, Nov. 12-15, 2021.
- [T7]. *"Emerging Applications and Designs of High-Frequency Wireless Power Transfer Systems"*, IEEE International Symposium on Industrial Electronics (ISIE), Kyoto, Japan, June 20-23, 2021.
- [T8]. *"Multi-Megahertz Wireless Power Transfer Systems"*, IEEE International Power Electronics and Motion Control Conference (IPEMC), Nanjing, China, Nov. 29 - Dec. 3, 2020.
- [T9]. *"System-Level Design and Optimization of Multi-Megahertz Wireless Power Transfer Systems"*, IEEE International Symposium on Industrial Electronics (ISIE), Delft, The Netherlands, June 17-19, 2020.

Academic Seminars/Report

- [T10]. *"Wireless Power Transfer: Navigating Early Academic Career"*, Nanjing University of Science and Technology, June, 2021.
- [T11]. *"Emerging Charging Solution for Electric Vehicle"*, Energy Storage Committee of IEEE PES, Shanghai, China, April, 2021.
- [T12]. *"Magnetic Resonance Based Megahertz Wireless Power Transfer Systems"*, Tongji University, Shanghai, China, Nov., 2020.
- [T13]. *"Megahertz Wireless Power Transfer"*, Tongji University, Shanghai, China, Oct. 22, 2019.
- [T14]. *"Review of Megahertz Wireless Power Transfer"*, SJTU-UM Joint Institute, Shanghai Jiao Tong University, Shanghai, China, Nov., 2018.
- [T15]. *"Megahertz Wireless Power Transfer: From 2D to 3D"*, 2018 ShanghaiTech Workshop on Emerging Devices, Circuits and Systems, Shanghai, China, June, 2018.
- [T16]. *"A 300-W High-Efficiency High-Power-Density Rail Grade DC/DC Module Based on GaN Devices"*, School of Information Science and Technology, Central South University, Changsha, China, May, 2018.

Industrial Reposts

- [T17]. *"Wireless Power Transfer for Electric Vehicles"*, Shanghai Automotive, Shanghai, China, Jan., 2020
- [T18]. *"A Critical Review of Wireless Chargers for New Energy Vehicle"*, Forum of Customer Energy Management Technology, Shanghai China, Nov., 2019.
- [T19]. *"Wireless Power Transfer and its Applications"*, Anjie Wireless Technology Co., Ltd., Suzhou, China, Aug., 2019.
- [T20]. *"Wireless Chargers for Consumer Electronics"*, Nanfu Battery, Nanping, China, Nov. 2018.

Patents: (name: supervised students)

- [P1]. K. Zhao, **M. Fu**, G. Ning, and R. He, *"A Driving Circuit and Compensation Solution for Wireless Charging System Using Two Coils in Transmitter or Receiver"*, Chinese patent,
- [P2]. S. Gao, Y. Liu, and **M. Fu**, *"A Capacitive Coupler with Low Radiation"*, Chinese patent, 2021
- [P3]. P. Zhao, **M. Fu**, and X. Ji, *"A Wireless Charger Based on H5 Bridge"*, Chinese patent, 2021
- [P4]. M. Zhou, **M. Fu**, and Y. Jiang *"A Simultaneous Power and Information Transfer System Based on Single-Switch Resonant Converter"*, Chinese patent, 2021
- [P5]. Y. Yin, **M. Fu**, and H. Li, *"An Integrated Receiver for Wireless Charging"*, Chinese patent, 2021
- [P6]. H. Li, Y. Liu, **M. Fu**, and Y. Yin *"A Circular Capacitive Coupler"*, Chinese patent, 2021
- [P7]. G. Zheng, **M. Fu**, and C. Qi, and *"A controller for IPT System Using Small-signal Model"*, Chinese patent, 2020
- [P8]. **M. Fu**, R. He, G. Ning, and X. Wang, *"A Research and Development Platform for High-power IPT Systems"*, Chinese patent, 2020
- [P9]. **M. Fu**, P. Zhao, X. Ji, K. Chao, and X. Yu, *"Function Extension of Standard Wireless Charger Based on Power Relay Module"*, Chinese patent, 2020
- [P10]. P. Zhao, M. Zhou, and **M. Fu**, *"Planar Inductive Coupler Using Switchable Relay Coils"*, Chinese patent, 2020
- [P11]. Y. Jiang, and **M. Fu**, *"Load-independent High-efficiency Class E Converters"*, Chinese patent, 2020
- [P12]. Y. Liu, and **M. Fu**, *"Interleaved Capacitive Coupler"*, Chinese patent, 2020
- [P13]. S. Wang, and **M. Fu**, *"High-order Compensations for Capacitive Coupler"*, Chinese patent, 2020
- [P14]. G. Ning, and **M. Fu**, *"A Current Balancing Method for Two-Phase Inductive Power Transfer System"*, Chinese Patent, 2019.
- [P15]. **M. Fu**, and P. Zhao and *"A Novel Wireless Fast Charger with Single Isolation Stage"*, Chinese Patent, 2019.
- [P16]. **M. Fu**, and S. Wang, *"A Capacitive Coupling Based Charger with Constant Output Voltage"*, Chinese Patent, 2019.
- [P17]. J. Feng, Q. Li, F. Lee, and **M. Fu**, *"Omnidirectional Wireless Power Transfer System."* U.S. Patent No. 15/417,353. 27 Jan. 2017.

Publications: (name*: corresponding author; name: supervised students)

Books in preparation

[B1]. M. Fu, and H. Wang, “*High-frequency Power Electronics*”, CMPEDU, in preparation.

Submitted journal papers

- [J1]. S. Yao, X. Wang, and M. Fu*, “*Three-port Wireless Charger for UAV*”, **IEEE Transactions on Power Electronics**, under review.
- [J2]. G. Zheng, T. Li, X. Wang, and M. Fu*, “*Stability and Controller Design of a Two-Stage Inductive Power Transfer System*”, **IEEE Transactions on Industrial Electronics**, under review.
- [J3]. H. Li and M. Fu*, “*Evaluation and Suppression of High Frequency Radiated EMI in Inductive Power Transfer System*”, **IEEE Transactions on Power Electronics**, under review.
- [J4]. M. Zhou, H. Li and M. Fu*, “*High-order Data Transfer Circuits for Simultaneous Wireless Power and Data Transfer Systems*”, **IEEE Journal of Emerging and Selected Topics in Power**, under review.
- [J5]. X. Wang, R. He, and M. Fu*, “*Efficiency Control for Multi-Receiver Inductive Power Transfer Systems Without Knowing Real Coupling*”, **IEEE Journal of Emerging and Selected Topics in Industrial Electronics**, under review.

Published & accepted journal papers

- [J6]. C. Qi, G. Zheng, Y. Liu, H. Wang, and M. Fu*, “*A Linearized Large-signal Model for Inductive Power Transfer System Using Series Compensation*”, **IEEE Transactions on Industrial Electronics**, early access.
- [J7]. K. Yue, Y. Liu, X. Zhang, M. Fu, J. Liang and H. Wang, “*Transmitter Side Voltage Based Mutual Inductances and Load Tracking for Two-Transmitter LCC-S Compensated Wireless Power Transfer Systems*”, **IEEE Journal of Emerging and Selected Topics in Power Electronics**, early access.
- [J8]. L. Gao, L. Teng, H. Wang, Y. Liu, M. Fu and J. Liang, “*A Self-Sensing Synchronous Switch Circuit for Bidirectional Piezoelectric Energy Conversion*”, **IEEE Transactions on Industrial Electronics**, early access.
- [J9]. Y. Li, J. Chen, Y. Liu, X. Zhao, M. Fu and Z. He, “*An Accurate Modeling and Suppression Method for Current Imbalance in Dual-Receiver WPT Systems for Low-voltage and High-current Applications*”, **IEEE Transactions on Transportation Electrification**, early access.
- [J10]. Y. Zhuge, J. Liang, M. Fu, T. Long and H. Wang, “*Comprehensive Overview of Power Electronics Intensive Solutions for High-Voltage Pulse Generators*”, **IEEE Open Journal of Power Electronics**, vol. 5, pp. 1-20, Mar. 2024.
- [J11]. Z. Li, G. Ning, K. Zhao, H. Wang, Y. Liu and M. Fu*, “*A Dual-Mode Wireless Charger Based on Cascaded Rectifier and Hybrid Compensation*”, **IEEE Transactions on Circuits and Systems II: Express Briefs**, vol. 71, no. 3, pp. 1466-1470, Mar. 2024.
- [J12]. Y. Jiang, J. Liang, H. Wang, Y. Liu and M. Fu*, “*Load-Impedance-Insensitive Design of*

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- High-Efficiency Class EF Inverters*”, **IEEE Transactions on Power Electronics**, vol. 39, no. 2, pp. 1958-1962, Feb. 2024.
- [J13]. X. Wang, R. He, J. Liang, H. Wang, and **M. Fu***, “*Modified LCC Compensation and Magnetic Integration for Inductive Power Transfer*”, **IEEE Journal of Emerging and Selected Topics on Power Electronics**, vol. 12, no. 1, pp. 186-194, Feb. 2024.
- [J14]. B. Xue, L. Wang, P. Zhao, **M. Fu**, J. Liang and H. Wang, “*Decoupled State-Plane Analysis of Series–Series Compensated Bidirectional IPT Systems*”, **IEEE Transactions on Power Electronics**, vol. 39, no. 1, pp. 42-46, Jan. 2024
- [J15]. T. Li, **M. Fu**, H. Wang, Y. Liu and J. Liang*, “*A Three-transistor Energy Management Circuit for Energy-harvesting-powered IoT Devices*”, **IEEE Internet of Things Journal**, vol. 11, no. 1, pp. 1301-1310, Jan. 2024.
- [J16]. B. Xue, L. Liang, **M. Fu** and H. Wang*, “*State-Space Based Universal Time-Domain Model for Voltage-Fed Bidirectional IPT Systems*”, **IEEE Transactions on Industrial Electronics**, vol. 71, no. 1, pp. 615-624, Jan. 2024.
- [J17]. R. He, B. Xue, M. Zhou, **M. Fu**, J. Liang, Y. Liu and H. Wang*, “*Resonant Frequency Tracking Scheme for LLC Converter Based on Large and Small Signal Combined Model*”, **IEEE Access**, vol. 11, pp. 83390-83399, Nov. 2023.
- [J18]. R. He, X. Wang, H. Wang, and **M. Fu***, “*Optimal Terminals of a Multitransmitter Multireceiver Inductive Coupler With Equality Power Constraints*”, **IEEE Transactions on Power Electronics**, vol. 38, no. 10, pp. 11953-11963, Oct. 2023.
- [J19]. Y. Yin, H. Li, S. Gao, Y. Li, X. Zhang and **M. Fu***, “*A Simple Integrated and Low-Radiation Receiver for Inductive Power Transfer*”, **IEEE Transactions on Power Electronics**, vol. 38, no. 10, pp. 11776-11785, Oct. 2023.
- [J20]. P. Zhao, H. Wang, J. Liang and **M. Fu***, “*Detuned LCC/S-S Compensation for Stable-Output Inductive Power Transfer System Under UltraWide Coupling Variation*”, **IEEE Transactions on Power Electronics**, vol. 38, no. 10, pp. 12342-12347, Oct. 2023.
- [J21]. Z. Xie, L. Teng, H. Wang, Y. Liu, **M. Fu** and J. Liang*, “*A Self-Powered Synchronous Switch Energy Extraction Circuit for Electromagnetic Energy Harvesting Enhancement*”, **IEEE Transactions on Power Electronics**, vol. 38, no. 8, pp. 9972-9982, Aug. 2023.
- [J22]. G. Ning, K. Zhou, J. Liang, H. Wang, and **M. Fu***, “*Reconfigurable and Modular Wireless Charger Based on Dual-Band Design*”, **IEEE Transactions on Circuits and Systems II: Express Briefs**, vol. 70, no. 9, pp. 3524-3528, Sep. 2023.
- [J23]. P. Zhao, X. Ji, H. Wang, and **M. Fu***, “*H5-Bridge-Based Bowl-Shape Wireless Charger for Multiple Loads*”, **IEEE Transactions on Industrial Electronics**, vol. 70, no. 9, pp. 8853-8861, Sep. 2023.
- [J24]. M. Zhou, C. Peng, **M. Fu**, J. Liang and H. Wang*, “*Current Zero-Crossing Prediction Based Critical Conduction Mode Control of Totem-Pole PFC Rectifiers*”, **IEEE Transactions on Power Electronics**, vol. 38, no. 7, pp. 8513-8527, July 2023.
- [J25]. K. Yue, Y. Liu*, **M. Fu**, J. Liang and H. Wang, “*Mode Switching Based Parameter Identification for 2TX-IRX Wireless Power Transfer Systems*”, **IEEE Access**, vol. 11, pp. 46847-46859, July 2023.
- [J26]. L. Gao, L. Teng, **M. Fu**, H. Wang, and J. Liang*, “*A Switched-mode Self-sensing Solution for Piezoelectric Synchronous Electric Charge Extraction*”, **IEEE Transactions on Industrial Electronics**, vol. 70, no. 7, pp. 7457-7466, July 2023.

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- [J27]. X. Ji, P. Zhao, H. Wang, Z. Yang and **M. Fu***, “*Multiple-Receiver Inductive Power Transfer System Based on Multiple-Coil Power Relay Module*”, **IEEE Transactions on Circuits and Systems I: Regular Papers**, vol. 70, no. 6, pp. 2625-2634, June 2023.
- [J28]. C. Qi, G. Zheng, J. Liang, Y. Liu, H. Wang, and **M. Fu***, “*A Simplified Three-order Small-signal Model for Capacitive Power Transfer System Using Series Compensation*”, **IEEE Transactions on Power Electronics**, vol. 38, no. 5, pp. 5688-5692, May 2023.
- [J29]. Y. Jiang, H. Li, Y. Liu, J. Liang and **M. Fu***, “*Multi-Constraint Design of Single-Switch Resonant Converters Based on Extended Impedance Method*”, **IEEE Journal of Emerging and Selected Topics on Power Electronics**, vol. 11, no. 2, pp. 1901-1912, April 2023.
- [J30]. K. Zhao, G. Ning, R. He, H. Yang, H. Wang, and **M. Fu***, “*An Unsymmetrical Driving Scheme for Inductive Power Transfer Systems Using Decoupled Transmitter Coils*”, **IEEE Journal of Emerging and Selected Topics on Industrial Electronics**, vol. 4, no. 2, pp. 614-624, April 2023.
- [J31]. H. Li, Y. Liu, and **M. Fu***, “*Circular Capacitive Coupler with Multilayer Interleaving for Stable Output*”, **IEEE Transactions on Microwave Theory and Techniques**, vol. 71, no. 2, pp. 719-726, Feb. 2023.
- [J32]. L. Wang, H. Wang*, **M. Fu**, J. Liang, and Y. Liu, “*A Three-Port Energy Router for Grid-Tied PV Generation Systems with Optimized Control Methods*”, **IEEE Transactions on Power Electronics**, vol. 38 no. 1, pp. 1577-1582, Jan. 2023
- [J33]. G. Zheng, C. Qi, J. Liang, Y. Liu, H. Wang, and **M. Fu***, “*Uniform and Simplified Small-Signal Model for Inductive Power Transfer Systems*”, **IEEE Transactions on Power Electronics**, vol. 38 no. 2, pp. 658-664, Jan. 2023
- [J34]. Y. Gao, Z. Chen, H. Wang, Y. Liu, **M. Fu**, J. Liang*, “*A Load-Independent Fission-Type Inductive Power Transfer System for 3D Reconfigurable IoT Array*”, *IEEE Access*, vol. 11, pp. 8878-8888, Jan. 2023.
- [J35]. Z. Wei, H. Wang*, Y. Lu, D. Shu, G. Ning, and **M. Fu***, “*Bidirectional constant current string-to-cell battery equalizer based on L2C3 resonant topology*”, **IEEE Transactions on Power Electronics**, vol. 38, no. 1, pp. 666-577, Jan. 2023.
- [J36]. R. He, P. Zhao, G. Ning, K. Yue, Y. Liu, and **M. Fu***, “*Optimal Driving and Loading Scheme for Multiple-Receiver Inductive Power Transfer Systems*”, **IEEE Transactions on Industrial Electronics**, vol. 69, no. 12, pp. 12665-12675, Dec. 2022.
- [J37]. R. He, X. Wang, **M. Fu***, “*Maximized Efficiency of Multi-coil Inductive Power Transfer System*” *Journal of Power Supply*, vol. 20, no. 6, pp. 102-110, Nov. 2022. (Chinese)
- [J38]. G. Zheng, K. Zhao, H. Wang, J. Liang, **M. Fu***, “*Small-Signal Model for Inductive Power Transfer Systems Using LCC-S Compensation*”. *Transactions of China Electrotechnical Society*, vol. 37, no. 21, pp. 5369-5376, Nov. 2022. (Chinese)
- [J39]. Y. Gao, **M. Fu**, H. Wang and J. Liang, “*A 2-D Inductive Power Transfer Network for Powering Massive Neighboring IoT Devices*”, *IEEE Access*, vol. 10, pp. 113560-113569, Oct. 2022.
- [J40]. J. Liang, L. Wang, **M. Fu**, J. Liang and H. Wang*, “*Overview of Voltage Regulator Modules in 48 V Bus-based Data Center Power Systems*,” *CPSS Transactions on Power Electronics and Applications*, vol. 7, no. 3, pp. 283-299, Sep. 2022.
- [J41]. Y. Yin, H. Li, and **M. Fu***, “*Inductive Coupler Analysis Based on Scattering Parameters with Non-Standard Terminal Impedance*”, **IEEE Journal of Emerging and Selected Topics**

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- on **Industrial Electronics**, vol. 3, no. 4, pp. 12665-12675, Sep. 2022.
- [J42]. S. Wang, R. He, J. Liang, and **M. Fu***, “*High-Order Compensated Capacitive Power Transfer Systems with Coupling Independent Resonance*”, **IEEE Transactions on Circuits and Systems I: Regular Papers**, vol. 69, no. 8, pp. 3450-3460, Aug. 2022.
- [J43]. G. Ning, K. Zhao and **M. Fu***, “*A Passive Current Sharing Method for Multi-Transmitter Inductive Power Transfer Systems*”, **IEEE Transactions on Industrial Electronics**, vol. 69, no. 5, pp. 4617-4626, May 2022.
- [J44]. L. Wang, **M. Fu**, H. Wang*, Z. Xie, and J. Liang, “*Three-Port Power Electronic Interface with Decoupled Voltage Regulation and MPPT in Electromagnetic Energy Harvesting Systems*”, **IEEE Transactions on Industry Application**, vol. 58, no. 2, pp. 2144-2154, March-April 2022.
- [J45]. G. Zheng, P. Zhao, H. Li, and **M. Fu***, “*Small-Signal Model of an Inductive Power Transfer System Using LCC–LCC Compensation*”, **IEEE Transactions on Industry Applications**, vol. 58, no. 1, pp. 1201-1210, Jan.-Feb. 2022.
- [J46]. P. Zhao, M. Zhou, Y. Jiang, and **M. Fu***, “*Horizontal Charging Area Extension Based on Switchable Relay Coils*”, **IEEE Transactions on Industry Applications**, vol. 58, no. 1, pp. 1071-1080, Jan.-Feb. 2022.
- [J47]. Y. Liu, T. Wu, and **M. Fu***, “*Interleaved Capacitive Coupler for Wireless Power Transfer*”, **IEEE Transactions on Power Electronics**, vol. 36, no. 12, pp. 13526-13535, Dec. 2021.
- [J48]. J. Kang*, Y. Liu, L. Sun, Z. Zhong, and **M. Fu**, “*A Reduced-Order Model for Wirelessly Excited Machine Based on Linear Approximation*”, **IEEE Transactions on Power Electronics**, vol. 36, no. 11, pp. 12389-12399, Nov. 2021.
- [J49]. P. Zhao, G. Zheng, R. He, Y. Liu and **M. Fu***, “*A 45-W Two-Stage Wireless Fast Charger Using Unregulated Inductive Power Transfer*”, **IEEE Journal of Emerging and Selected Topics in Industrial Electronics**, vol. 2, no. 3, pp. 287-296, July 2021.
- [J50]. J. Feng*, Q. Li, F. Lee, and **M. Fu**, “*LCCL-LC Resonant Converter and Its Soft Switching Realization for Omnidirectional Wireless Power Transfer Systems*”, **IEEE Transactions on Power Electronics**, vol.36, no.4, pp. 3828-3839, April 2021.
- [J51]. X. Li, L. Teng, H. Tang, J. Chen, H. Wang, Y. Liu, **M. Fu**, and J. Liang*, “*ViPSN: a vibration-powered IoT platform*”, **IEEE Internet of Things Journal**, vol.8, no.3, pp. 1728-1739, Feb. 2021.
- [J52]. K. Yue, Y. Liu*, P. Zhao, B. Wang, **M. Fu**, and H. Wang, “*Dynamic State Estimation Enabled Health Indicator for Parametric Fault Detection in Switching Power Converters*”, **IEEE Access**, vol.9, 33224-33234, Feb. 2021.
- [J53]. S. Wang, J. Liang, and **M. Fu***, “*Analysis and Design of Capacitive Power Transfer Systems Based on Induced Voltage Source Model*”, **IEEE Transactions on Power Electronics**, vol.35, no.10, pp. 10532-10541, Oct. 2020.
- [J54]. Y. Liu, B. Wang, X. Zheng*, D. Lu, **M. Fu** and N. Tai, “*Fault Location Algorithm for Non-Homogeneous Transmission Lines Considering Line Asymmetry*”, **IEEE Transactions on Power Delivery**, vol.35, no.5, pp. 2425 - 2437, Oct. 2020.
- [J55]. **M. Fu***, C. Fei, Y. Yang, Q. Li, and F. Lee, “*A GaN-Based DC-DC Module for Railway Applications: Design Consideration and High-Frequency Digital Control*”, **IEEE Transactions on Industrial Electronics**, vol.67, no.2, pp.1638-1647, Feb. 2020.

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- [J56]. R. He, P. Zhao, M. Fu*, Y. Liu, H. Wang, and J. Liang, “Decomposition and Synthesis of High-Order Compensation Inductive Power Transfer Systems for Improved Output Controllability”, **IEEE Transactions on Microwave Theory and Technique**, vol.67, no.11, pp. 4514-4523, Nov. 2019.
- [J57]. J. Feng*, Q. Li, Fred C. Lee, and M. Fu, “Transmitter Coils Design for Free-Positioning Omnidirectional Wireless Power Transfer System”, **IEEE Transactions on Industrial Informatics**, vol.15, no.8, pp. 4656-4664, Aug. 2019.
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- [C2]. W. Sun, Y. Jiang, H. Wang, J. Liang and **M. Fu**, “*Load-Insensitive Design of Class E Inverter Based on Inequality Constraints*”, 2024 10th International Power Electronics and Motion Control Conference (IPEMC 2024 - ECCE Asia), Chengdu, China, May. 17-20, 2024.
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Alumni (supervised):

- [S1]. Shiyang Wang, **M.S.**, 09/2017 – 06/2020, ShanghaiTech
Thesis: *Modeling and High-Order Compensation of Capacitive Power Transfer System*
Current position: Ph.D. candidate at University of Wisconsin–Madison
- [S2]. Yipeng Liu, **M.S.**, 09/2018 – 06/2021, ShanghaiTech
Thesis: *Design and Optimization of Capacitive Coupler for Wireless Power Transfer*
Current position: Hardware engineer of Huawei
- [S3]. Kai Zhao, **M.S.**, 09/2019 – 06/2022, ShanghaiTech
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- [S4]. Peng Zhao, **Ph.D.**, 09/2018 – 06/2023, ShanghaiTech
Thesis: *Inductive Power Transfer with High Spatial Freedom*;
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- [S5]. Rong He, **Ph.D.**, 09/2018 – 06/2023, ShanghaiTech
Thesis: *Analysis and Control of Multi-coil Wireless Power Transfer Systems*;
Current position: Hardware engineer of Huawei
- [S6]. Yiming Yin, **M.S.**, 09/2020 – 06/2023, ShanghaiTech

Thesis: *A Low-radiation Integrated Receiver for Inductive Power Transfer*

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[S7]. Maode Zhou, M.S., 09/2020 – 07/2023, ShanghaiTech

Thesis: *High-order circuit for simultaneous wireless data and power transfer*

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[S8]. Chao Fei, Ph.D., 04/2016-03/2018, Virginia Tech

Project: *High-frequency high-power density power converters for railway applications;*

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Project: *High-frequency high-power density power converters for railway applications;*

Current position: Senior Application Engineer, Analog Devices, USA

[S10]. Junjie Feng, Ph.D., 04/2016-06/2020, Virginia Tech

Research: *Omnidirectional wireless power transfer;*

Current position: Application Engineer, Navitas Semiconductor, USA.

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Research: *Model and control for wirelessly charged electric machine*

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Ph.D. Students (Under supervision)

[S12]. Guangdong Ning, 09/2019 – present, ShanghaiTech

Research: *Modular and reconfigurable IPT systems*

[S13]. Guangce Zheng, 09/2019 – present, ShanghaiTech

Research: *Modeling and stability analysis of IPT systems*

[S14]. Yifan Jiang, 09/2019 – present, ShanghaiTech

Research: *Single-switch resonant converter*

[S15]. Heyuan Li, 09/2020 – present, ShanghaiTech

Research: *Radiation evaluation and attenuation for near-filed coupler*

[S16]. Xinlin Wang, 09/2021 – present, ShanghaiTech

Research: *Bidirectional IPT systems*

Master Students (Under supervision)

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Research: *Small-signal model of CPT systems*

[S18]. Xiaoxuan Ji, 09/2021 – present, ShanghaiTech

Research: *Power relay based IPT systems*

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Research: *Multiple-port converter*

[S20]. Kun Xiao, 09/2022 – present, ShanghaiTech

Research: *Modular IPT coupler*

[S21]. Zhonchang Li, 09/2022 – present, ShanghaiTech

Research: *Bidirectional IPT Systems*

[S22]. Tianqi Li, 09/2022 – present, ShanghaiTech

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[S23]. Xiang Gao, 09/2023 – present, ShanghaiTech
Research: *Model of resonant converter*
[S24]. Shiqi Gao, 09/2023 – present, ShanghaiTech
Research: *Integrated coupler*
[S25]. Pengyu Chen, 09/2023 – present, ShanghaiTech
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- Senior Member:
 - Institute of Electrical and Electronics Engineers (IEEE)
 - China Electrotechnical Society (CES)
 - China Power Supply Society (CPSS)
- Member:
 - IEEE Industrial Electronics Society
 - IEEE Power Electronics Society
 - CES Technical Committee of WPT Techniques
 - CPSS Technical Committee of WPT Techniques and Equipment
 - CPSS Technical Committee of Lightning Power Supply
 - CPSS Working Committee of Young Scholars
- Conference Publication Chair/Co-chair:
 - The 3rd IEEE International Conference on Industrial Electronics for Sustainable Energy Systems (IESES), Shanghai, China, July 26 – 28, 2023.
- Conference Local Organization Committee Chair/Co-chair:
 - The 2023 IEEE 14th International Symposium on Power Electronics for Distributed Generation (PEDG), Shanghai, China, June 9 – 12, 2023.
 - The 2022 International Conference on Wireless Power Transfer (ICWPT), Chongqing, China, Dec. 2 – 4, 2022.
 - The 2022 Annual ShanghaiTech Symposium on Information Science and Technology (ASSIST), Shanghai, China, Aug. 27 – 28, 2022.
 - The 2022 IEEE 23rd International Conference on Industrial Technology (ICIT), Shanghai, China, Aug. 22 – 25, 2022.
 - The 2021 International Conference on Wireless Power Transfer (ICWPT), Nanjing, China, June 24 – June 28, 2021.
- Conference Technical Program Committee Member:
 - IEEE International Power Electronics and Application Conference, Xiamen, China, Nov. 4 -7, 2022.
 - IEEE International Power Electronics and Motion Control Conference (IPEMC), Nanjing, China, Nov. 29 – Dec. 2, 2020.
- Conference Special Section Organization:
 - “*Near-field Wireless Power Transfer: Design, Optimization, and Control*”, IEEE International Symposium on Industrial Electronics (ISIE), June 1-3, 2022, Alaska, USA
 - “*Emerging Wireless Power Transfer Technologies*”, Annual Conference of the IEEE

Industrial Electronics Society (IECON), Oct. 13-16, 2021, Online.

- “*Emerging Technologies of Wireless Power Transfer Systems*”, IEEE International Symposium on Industrial Electronics (ISIE), June 20-23, 2021, Kyoto, Japan
- “*Near-Field Wireless Power Transfer*”, IEEE International Power Electronics and Motion Control Conference (IPEMC), May 31 - June 3, 2020, Nanjing, China
- “*Multi-Megahertz Wireless Power Transfer: Design, Optimization, and Control*”, Annual Conference of the IEEE Industrial Electronics Society (IECON), Oct. 14-17, 2019, Lisbon, Portugal.

➤ Track/Section Chair:

- ASSIST 2024
- IESSES 2023, SYPS 2023, CPSS 2023
- ISIE 2022, PEAC 2022
- ICWPT 2021, IECON 2021, ISIE 2021
- IPEMC (ECCE-Asia) 2020
- VEH 2019, IECON 2019

➤ Associate Editor:

- IEEE IES Industrial Electronics Technology News (ITeN), Jan. 2020 - present

➤ Technical Journal Paper Reviewer:

- IEEE Transactions on Industrial Electronics (TIE)
- IEEE Transactions on Industrial Informatics (TII)
- IEEE Transactions on Power Electronics (TPEL)
- IEEE Transactions on Microwave Theory and Techniques (TMTT)
- IEEE Transactions on Transportation Electrification (TTE)
- IEEE Transactions on Intelligent Transportation Systems (TITS)
- IEEE Transactions on Industry Applications (TIA)
- IEEE Transactions on Vehicular Technology (TVT)
- IEEE Transactions on Circuits and Systems I: Regular Papers (TCAS-I)
- IEEE Transactions on Circuits and Systems II: Express Briefs (TCAS-II)
- IEEE Journal of Emerging and Selected Topics in Power Electronics (JESTPE)
- IEEE Journal of Emerging and Selected Topics in Industrial Electronics (JESTIE)
- etc.