Jie He

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EDUCATION

Guangdong Ocean University Sep. 2019-Jun. 2023

B.S. in Electrical Engineering and Automation, GPA:85.1/100, IELTS 7 (6.0)

PUBLICATIONS

[J1] F. Li, **J. He**, et al.: Synchronous Dual-Switch Ultrahigh Step-Up DC-DC Converter Based on Coupled Inductor and Voltage Multiplier for Photovoltaic Systems. **IEEE Trans. Ind. Electron**. 71(5), 4807-4817 (2024)

[J2] P. Luo, **J. He**, et al.: A high step-up DC-DC converter based on three-winding coupled inductor and voltage multiplier for renewable energy applications. **IET Power Electron**. 16(6), 961-974 (2023)

[J3] F. Li, **J. He**, et al.: Quadratic-type high step-up DC-DC converter with continuous input current integrating coupled inductor and voltage multiplier for renewable energy applications. **J. Power Electron.** 23(4), 555–567 (2023)

[C1] **J. He**, F. Li, et al.: A Single Switch Quadratic Step-up DC-DC Converter Based on Three-winding Coupled Inductor and Switch-capacitor. IEEE 6th Information Technology and Mechatronics Engineering Conference (ITOEC). 6,1624-1628 (2022)

[P1] F. Li, **J. He**, et al.: A secondary boost DC-DC converter for fuel cell system. Chinese patent: CN217063567U[P]. 2022-07-26

RESEARCH EXPERIENCE

High step-up DC-DC converters for sustainable energy resources (SERs) Sep. 2021-Jun. 2023

- Proposed 4 new topologies with quadratic technique and continuous input current, high transfer ratio can be achieved by moderate duty cycle, and the voltage stress across the switches is alleviated.
- Contributions: Literature reviews (appreciated by reviewers), operating principles and loss analysis, prototype fabrication, experiment, and maximum power point tracking (MPPT) simulation.

BUCK-BOOST converter for energy storage device Feb. 2022-Sep. 2022

- A proposed topology based on Cuk converter featuring leakage inductance recovery with integrated PI control and voltage feedforward for offshore piezoelectric energy utilization.
- Contributions: Transfer functions calculation and small-signal modeling. Improved the transient response by applying the feedforward control. Component selection and inductors fabrication.

High step-down converter Apr. 2022-Jul. 2022

- A new soft-switching buck converter without an auxiliary switch has been designed to step down the grid voltage to the desired battery connection level.
- Contributions: Simulation, operation principle, steady-state analysis, parameter specification, and report writing.

WORK EXPERIENCE

A 125 kW PV String Inverter — Shenzhen SHINEYOUNG New Energy Tech. Co., Ltd. Jul. 2023-Mar. 2024

Hardware Engineer

- Design the main power board (including boost and 3-level T-type NPC circuit) and SiC MOSFET driver board.
- Double pulse testing (DPT) for worst-case operating conditions (1000 + tests, 500 + datum) and loss analysis.
- Achievement: Implementation of 5-input parallel boost circuit, reduction of 30 % switching loss of the MOSFET, solved the problem of false turn-on of IGBT caused by parasitic inductance.

HONORS & AWARDS

Chinese National Scholarship (top 0.6 %), GDOU 2023

Outstanding Graduates Awards (top 2 %), GDOU 2023

Jiangmen Nanyang Scholarship (top 2 %), JNS 2023/2022

National First Prize, The 1st College E&EE Innovation Competition, Schneider Electric 2022

Academic scholarship, First-class / Second-class / Third-class, GDOU 2022/2021/2020

SERVICES

The student leader of the Power Conversion Innovation Team in GDOU Nov. 2021-Jun. 2023

- Held 2 recruitment sessions with 400 + attendees, interviewed 90 + students, and recruited 30 members.
- Organized 3 laboratory safety training, and supervised over 20 experiments, achieving 0 accidents during the tenure.

SKILLS

- Theoretical analysis (Mathcad, SIMPLIS, MATLAB/Simulink), Data processing (Origin, Visio, Photoshop)
- PCB design (Altium Designer), Programming (CCS, DSPs)
- Proficiency in using DC sources, electronic loads, oscilloscopes, signal generators, multimeters, etc.
- Language: English (IELTS: C1), Mandarin (native), Cantonese (native)