

Curriculum Vita

Name: Hongwen He
Position: Professor, Vice Dean
Gender: Male; **Date of Birth:** Sept.21, 1975
E-mail: hwhebit@bit.edu.cn;
Tel: +86 10 6891 8879 (Office)
Address: *National Engineering Laboratory for Electric Vehicles, Beijing Institute of Technology (BIT), No.5 Zhongguancun South Street, Haidian District, Beijing, 100081, P.R.China*



Research Interests:

*Design and Intelligent Control on Powertrains in Hybrid Vehicles
Energy Management and Optimization Control on Electric Vehicles
Modeling and State Estimations of Batteries*

Education

Mar.2000 – Mar.2003	School of Mechanical Engineering, Beijing Institute of Technology	Ph.D. <i>In Vehicle Engineering</i>
Aug.1997 – Mar. 2000	School of Automotive Engineering, Jilin University of Technology	Master of Science <i>In Vehicle Engineering</i>
Sept.1993 – Jul. 1997	School of Automotive Engineering, Jilin University of Technology	Bachelor <i>In Vehicle Engineering</i>

Employment

Mar.2003 – Jun.2007	School of Mechanical Engineering, BIT	Assistant Professor
Jul.2007 – Jun. 2011	School of Mechanical Engineering, National Engineering Laboratory for Electric Vehicles, BIT	Associate Professor
Jul.2011 – Now	School of Mechanical Engineering, National Engineering Laboratory for Electric Vehicles, BIT	Professor
Oct.2015- Now	School of Mechanical Engineering, Beijing Institute of Technology	Vice Dean

Professional Activities

- **Principal Investigator** of Collaborative Innovation Center of Electric Vehicles in Beijing since 2014
- **Guest Editor** of the journal *Applied Energy* in 2019
- **Editorial Member** of the journal *Vehicles* since 2019
- **Editorial Member** of the journal *Energies* since 2018
- **Conference Co-chair** of the International Conference on Electric and Intelligent Vehicles, 21-25 November 2018, Australia
- **Conference Co-chair** of the International Conference on Energy, Ecology and Environment, 26-29 July 2017, Sweden
- **Senior Member** of the China Society of Automotive Engineers since 2019
- **Senior Member** of the IEEE since 2012
- **Board Member** of the China Hydrogen Alliance since 2018
- **Board Member** of the China Industry Technology Innovation Strategic Alliance for Electric Vehicles since 2014
- **Execultive Director** of the 10th Applied Energy UniLab “Batteries and management for all-climate Electric Vehicles” since 2018
- **Director** of BIT-Uwaterloo Joint Laboratory for Green and Intelligent Vehicles since 2016
- **Reviewer** of 10+ Journals: *Applied Energy*, *Journal of Power Sources*, *Energy Conversion and Management*, *Energy*, *Journal of Energy Storage*, *International Journal of Energy Research*, *IEEE Transactions on Vehicular Technology* and other 8 Chinese Journals.

Awards

- **Ranked 3rd**, the second prize of the Chinese State Science and Technology Progress Award in 2015.
- **As the first and corresponding author**, the second prize of Best Paper Award by *Energies*, MDPI in 2015.
- **Ranked 1st**, the second prize of the Technological Invention Award by Chinese Ministry of Industry and Information Technology, in 2016.
- **Ranked 1st**, the first prize of the China Automotive Technological Invention Award by the China Society of Automotive Engineers, in 2018.

- **Ranked 1st**, the first prize of the Natural Science Award by the Chinese Ministry of Education, in 2018.
- **As the corresponding author**, 2018 Best Vehicular Electronics Paper Award by IEEE Vehicular Technology Society, in 2018.
- **Entitled as the Global Highly Cited Researcher** in the field of Engineering by Clarivate Analytics in 2019.

Publications

Prof. He, Highly Cited Researcher in the field of Engineering by Clarivate Analytics, has published 85 SCI-indexed papers and 16 ESI papers, which has been cited 4800+ times in SCI database and cited 7000+ times in Google Scholar. Prof. He holds 32 authorized invention patents, and served as the editor-in-chief of the first and most influential handbook in the new-energy vehicle industry of China, "Handbook of Electric Vehicles, Volume 2: Hybrid Electric Vehicles ", and 2 automotive planning textbooks for higher education.

The selected 30 papers are listed as following (* means corresponding author):

- [1] **He Hongwen***, Yan Song, Xiao Zhenjun. Integrated control method for a fuel cell hybrid system. ASIA-PACIFIC JOURNAL OF CHEMICAL ENGINEERING. 2009, 4(1):68-72
- [2] **He Hongwen***, Xiong Rui, Zhang Xiaowei, Sun Fengchun, Fan JinXin. State-of-Charge Estimation of the Lithium-Ion Battery Using an Adaptive Extended Kalman Filter Based on an Improved Thevenin Model. IEEE TRANSACTIONS ON VEHICULAR TECHNOLOGY. 2011, 60(4): 1461-69
- [3] **He Hongwen***, Xiong Rui, Guo Hongqiang. Online estimation of model parameters and state-of-charge of LiFePO(4) batteries in electric vehicles. APPLIED ENERGY. 2012, 89(1): 413-420
- [4] **He Hongwen***, Zhang Xiaowei, Xiong Rui, Xu Yongli, Guo Hongqiang. Online model-based estimation of state-of-charge and open-circuit voltage of lithium-ion batteries in electric vehicles. ENERGY. 2012, 39(1): 310-318
- [5] Xiong Rui, **He Hongwen***, Sun Fengchun, Liu Xinlei, Liu Zhentong. Model-based state of charge and peak power capability joint estimation of lithium-ion battery in plug-in hybrid electric vehicles. JOURNAL OF POWER SOURCES. 2013, 229:159-169
- [6] Xiong Rui, **He Hongwen***, Sun Fengchun, Zhao Kai. Evaluation on State of Charge Estimation of Batteries With Adaptive Extended Kalman Filter by Experiment Approach. IEEE TRANSACTIONS ON VEHICULAR TECHNOLOGY. 2013, 62(1):108-117
- [7] **He Hongwen***, Zhang Yongzhi, Xiong Rui, Wang Chun. A novel Gaussian model based

battery state estimation approach: State-of-Energy. APPLIED ENERGY. 2015, 151:41-48

- [8] **He Hongwen***, Xiong Rui, Peng Jiankun. Real-time estimation of battery state-of-charge with unscented Kalman filter and RTOS mu COS-II platform. APPLIED ENERGY. 2016, 162:1410-1418
- [9] Liu Wei, **He Hongwen***, Sun Fengchun. Vehicle state estimation based on Minimum Model Error criterion combining with Extended Kalman Filter. JOURNAL OF THE FRANKLIN INSTITUTE-ENGINEERING AND APPLIED MATHEMATICS. 2016, 353(4):834-56
- [10] Sun Fengchun, Liu Wei, **He Hongwen***, Guo Hongqiang. An integrated control strategy for the composite braking system of an electric vehicle with independently driven axles. VEHICLE SYSTEM DYNAMICS. 2016, 54(8): 1031-52
- [11] Liu Zhentong, **He Hongwen***. Sensor fault detection and isolation for a lithium-ion battery pack in electric vehicles using adaptive extended Kalman filter. APPLIED ENERGY, 2017, 185: 2033-44
- [12] Sun Chao, Sun Fengchun, **He Hongwen***. Investigating adaptive-ECMS with velocity forecast ability for hybrid electric vehicles. APPLIED ENERGY, 2017, 185: 1644-53
- [13] Peng Jiankun, **He Hongwen***, Xiong Rui. Rule based energy management strategy for a series-parallel plug-in hybrid electric bus optimized by dynamic programming. APPLIED ENERGY, 2017, 185: 1633-43
- [14] Wang Chun, **He Hongwen***, Zhang Yongzhi, Mu Hao. A comparative study on the applicability of ultracapacitor models for electric vehicles under different temperatures. APPLIED ENERGY, 2017, 196: 268-78
- [15] Xie Shanshan, **He Hongwen***, Peng Jiankun*. An energy management strategy based on stochastic model predictive control for plug-in hybrid electric buses. APPLIED ENERGY, 2017, 196: 279-88
- [16] Zhang Yongzhi, Xiong Rui*, **He Hongwen***, Shen Weixiang. Lithium-Ion Battery Pack State of Charge and State of Energy Estimation Algorithms Using a Hardware-in-the-Loop Validation. IEEE TRANSACTIONS ON POWER ELECTRONICS. 2017, 32(6):4421-31
- [17] Li Gaopeng, Zhang Jieli, **He Hongwen***. Battery SOC constraint comparison for predictive energy management of plug-in hybrid electric bus. APPLIED ENERGY, 2017, 194: 578-87
- [18] Liu Wei, **He Hongwen***, Sun Fengchun, Lv Jiangyi. Integrated chassis control for a three-axle electric bus with distributed driving motors and active rear steering system. VEHICLE SYSTEM DYNAMICS. 2017, 55(5): 601-625
- [19] **He Hongwen**, Jia Hui, Sun Chao*, Sun Fengchun. Stochastic Model Predictive Control of Air Conditioning System for Electric Vehicles: Sensitivity Study, Comparison, and Improvement. IEEE TRANSACTIONS ON INDUSTRIAL INFORMATICS. 2018, 14(9): 4179-89
- [20] Li Shuangqi, **He Hongwen***, Li Jianwei*. Big data driven lithium-ion battery modeling

method based on SDAE-ELM algorithm and data pre-processing technology. APPLIED ENERGY. 2019, 242: 1259-73

- [21] Liu Qingwu, **He Hongwen***. The velocity regulation of power consumption with traffic lights for electric vehicles. PROCEEDINGS OF THE INSTITUTION OF MECHANICAL ENGINEERS PART D-JOURNAL OF AUTOMOBILE ENGINEERING. 2019, 233(9): 2312-22
- [22] Li Yuecheng, **He Hongwen***, Peng Jiankun*, Wang Hong. Deep Reinforcement Learning-Based Energy Management for a Series Hybrid Electric Vehicle Enabled by History Cumulative Trip Information. IEEE TRANSACTIONS ON VEHICULAR TECHNOLOGY. 2019, 68(8): 7416-30
- [23] Peng Jiankun, Luo Jiayi, **He Hongwen***, Lu Bing. An improved state of charge estimation method based on cubature Kalman filter for lithium-ion batteries. APPLIED ENERGY, 2019, 253: 113520
- [24] Li Yuecheng, **He Hongwen***, Khajepour Amir, Wang Hong*, Peng Jiankun. Energy management for a power-split hybrid electric bus via deep reinforcement learning with terrain information. APPLIED ENERGY. 2019, 255: 113762
- [25] **He Hongwen***, Wang Chen, Jia Hui, Cui Xing. An intelligent braking system composed single-pedal and multi-objective optimization neural network braking control strategies for electric vehicle. APPLIED ENERGY. 2020, 259: 114172
- [26] **He Hongwen***, Cao Jianfei, Cui Xing. Energy optimization of electric vehicle's acceleration process based on reinforcement learning. JOURNAL OF CLEANER PRODUCTION. 2020, 248: 119302
- [27] Wei Dong, **He Hongwen***, Cao Jianfei. Hybrid electric vehicle electric motors for optimum energy efficiency: A computationally efficient design. ENERGY. 2020, 203: 117779
- [28] **He Hongwen**, Shengwei Quan, Wang Ya-Xiong*. Hydrogen circulation system model predictive control for polymer electrolyte membrane fuel cell-based electric vehicle application. INTERNATIONAL JOURNAL OF HYDROGEN ENERGY. 2020 DOI: 10.1016 / j.ijhydene.2019.12.147
- [29] **He Hongwen**, Quan Shengwei, Sun Fengchun, Wang Ya-Xiong. Model Predictive Control With Lifetime Constraints Based Energy Management Strategy for Proton Exchange Membrane Fuel Cell Hybrid Power Systems. IEEE TRANSACTIONS ON INDUSTRIAL ELECTRONICS, 2020, 67(10): 9012-23
- [30] Z. Wei, G. Dong, X. Zhang, J. Pou, Z. Quan and **H. He***, Noise-Immune Model Identification and State of Charge Estimation for Lithium-ion Battery Using Bilinear Parameterization. IEEE TRANSACTIONS ON INDUSTRIAL ELECTRONICS, 2020. DOI: 10.1109/TIE.2019.2962429.