

Hailong HE

Associate Research Fellow

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IEEE PES member, Senior member of China Electrotechnical Society (CES)

Participant in drafting mid- and long-term energy development plans of China



Research Interests:

- High-performance thermoelectric devices and their interfaces
- Thermoelectric power systems aiming at diesel engines
- Autonomous and wireless sensors
- Electromagnetic behaviors of liquid metal and its applications

Education & Work Experiences:

- 2019/04-Present: Associate research fellow, EE department, Xi'an Jiaotong University.
- 2016/04-2019/03: Assistant research fellow, EE department, Xi'an Jiaotong University.
- 2010/09-2015/12: Ph.D., Electrical Engineering, Xi'an Jiaotong University.
- 2006/09-2010.06: B.S., Electrical Engineering, Xi'an Jiaotong University.

Awards & Honors:

- The Second Prize of Shaanxi Province Technical Innovation Award, 2020.
- The First Prize of Shaanxi Province Technical Innovation Award, 2015.

Selected Authorized Patents:

- 1-. **H. He**, W. Liu, Y. Wu et al. A test rig to characterize the thermoelectric module, Chinese Patents, 2021/06/01, ZL201811019156.9.
- 2-. **H. He**, P. Zhao, Y. Wu et al. A fault current limiting element for DC power systems. Chinese Patents, 2020/01/31, ZL201810554283.2.
- 3-. Y. Wu, **H. He**, M. Rong et al. An electromagnetic type device to detect the fault in power systems, Chinese Patents, 2020/07/10, ZL201610939480.7.
- 4-. **H. He**, P. Zhao, Y. Wu et al. A liquid metal fault current limiter, Chinese Patents, 2020/01/31, ZL201910171409.2.
- 5-. **H. He**, Y. Wu, X. Zhu et al. A current-limiting air DC circuit breaker using the slot arc, Chinese Patents, 2019/10/15, ZL201810164339.3.
- 6-. Y. Wu, **H. He**, M. Rong et al. A MVDC fault current limiter, Chinese Patents, 2019/04/16, ZL201710696303.5.
- 7-. **H. He**, Y. Wu, C. Niu et al. A liquid metal fault current limiter, Chinese Patents, 2018/12/04, ZL201710522335.3.

- 8-. **H. He**, Y. Wu, M. Rong et al. A liquid metal current limiter using a sliding insulation plate, Chinese Patents, 2018/06/29, ZL201610496684.8.

Selected Journal Publications:

- 1-. J. Wen, C. Niu, **H. He***, W. Han, Y. Zhong, Y. Wu*. A load-dependent model of triboelectric nanogenerators for surface roughness sensing, *IEEE Sens. J.*, **2021**, to be published.
- 2-. Y. Zhang, C. Niu, **H. He***, Y. Wu, M. Rong, K. Yu, H. Ren. First principle study of anisotropic thermoelectric material: $\text{Sb}_2\text{Si}_2\text{Te}_6$, *J. Appl. Phys.*, **2021**, 130, 025102.
- 3-. **H. He**, Z. Fang, C. Niu*, Y. Wu, M. Rong. An in-depth study of nonlinear parametric characterization for thermoelectric generator modules, *Energ. Convers. Manage.*, **2021**, 241, 114314.
- 4-. B. Wang, C. Niu, **H. He***, Y. Wu, M. Rong, L. Wang, J. Li. Development of a hybrid fault current limiter using liquid metal for large capacity MVDC power systems. *IEEE T. Ind. Electron.*, **2021**, to be published.
- 5-. C. Niu, B. Wang, **H. He***, Y. Wu, M. Rong, J. Li, L. Wang, P. Zhao. A novel liquid metal fault current limiter based on active trigger method, *IEEE T. Power Deliver.*, **2021**, to be published.
- 6-. **H. He**, Y. Wu*, W. Liu, M. Rong, Z. Fang, X. Tang. Comprehensive modeling for geometric optimization of a thermoelectric generator module, *Energ. Convers. Manage.*, **2019**, 183, 645-659.
- 7-. **H. He**, W. Liu, Y. Wu*, M. Rong, P. Zhao, X. Tang. An approximate and efficient characterization method for temperature-dependent parameters of thermoelectric modules, *Energ. Convers. Manage.*, **2019**, 180, 584-597.
- 8-. Z. Yang, **H. He***, F. Yang*, Y. Wu, M. Rong, P. Zhao, S. Lv, Q. Wan. A novel topology of a liquid metal current limiter for MVDC network applications, *IEEE T. Power Deliver.*, **2019**, 34(2), 661-671.
- 9-. T. Huo, C. Niu*, **H. He***, Y. Wu, M. Rong, M. Zhu, X. Zhu. An arc squeeze method for DC interruption-experiments and analysis, *IEEE T. Power Deliver.*, **2019**, 34(2), 1069-1078.
- 10-. **H. He**, Y. Wu*, Z. Yang, P. Zhao, X. Zhu, C. Niu, M. Rong. Study of liquid metal fault current limiter for medium-voltage DC power systems, *IEEE T. Comp. Pack. Man.*, **2018**, 8(8), 1391-1400.
- 11-. **H. He**, Y. Wu*, C. Niu, Z. Yang, M. Rong, Y. Sun, K. Li. Investigation of the pinch mechanism of liquid metal for the current limitation application, *IEEE T. Comp. Pack. Man.*, **2017**, 7(4), 563-571.
- 12-. **H. He**, C. Niu*, Y. Li, H. Chen. The arc behavior in a novel kind of GaInSn liquid metal current limiting device, *IEEE T. Plasma Sci.*, **2014**, 42(10), 2612-2613.
- 13-. **H. He**, M. Rong, Y. Wu*, F. Yang, Y. Liu, J. Man, J. Luo, Q. Shi. Experimental research and analysis of a novel liquid metal fault current limiter, *IEEE T. Power Deliver.*, **2012**, 28(4), 2566-2573.
- 14-. Y. Wu*, **H. He**, M. Rong, A. B. Murphy, Y. Liu, C. Niu, X. Wu. The development of the arc in a liquid metal current limiter, *IEEE T. Plasma Sci.*, **2011**, 39(11), 2864-2865.
- 15-. Y. Wu, **H. He**, Z. Hu, F. Yang*, M. Rong, Y. Li. Analysis of a new high-speed DC switch repulsion mechanism, *IEICE T. Electron.*, **2011**, E94C, 9, 1409-1415.

Conference Publications (Oral ' _ '):

- 1- **H. He**, J. Li, Y. Wu* et al. Introduction of an active triggered liquid metal fault current-limiting method. *5th Int Conf Electrical Power Equipment- ICEPE 2019*, Kitakyushu, Japan.
- 2- **B. Wang**, **H. He**, Y. Wu* et al. Investigation of a liquid metal fault current limiter based on current injection method. *5th Int Conf Electrical Power Equipment- ICEPE 2019*, Kitakyushu, Japan.
- 3- M. Rong, **Z. Yang**, Q. Wan, **H. He*** et al. Investigation of liquid metal current limiter for MVDC power system. *5th Int Conf Electrical Power Equipment- ICEPE 2019*, Kitakyushu, Japan.
- 4- W. Liu, **H. He***, Y. Wu et al. Experimental comparison between a novel characterization method with several typical ones for temperature-dependent parameters of TEGs. *38th Int Conf Thermoelectrics -ICT 2019*. Gyeongju, South Korea.
- 5- **M. Rong**, Y. Wu*, H. Sun, **H. He**. Medium and high voltage DC breaking technology. *2018 IEEE Int Conf High Voltage Engineer and Appl- ICHVE 2018*, Athens, Greece.
- 6- **H. He***, **S. Lv**, W. Liu et al. Dynamic behavior of current-through Galinstan in liquid metal current limiter. *4th Int Conf Electrical Power Equipment- ICEPE 2017*, Xi'an, China.
- 7- **Z. Yang**, **H. He***, Y. Wu et al. Investigation of liquid metal current limiter based on a novel topology. *4th Int Conf Electrical Power Equipment- ICEPE 2017*, Xi'an, China.
- 8- **H. He**, M. Rong, Y. Wu* et al. Experimental research on the dumbbell-like arc plasma in liquid metal current limiter. *21st Int Conf Gas Discharges and their Appl- GD 2016*, Nagoya, Japan.
- 9- **H. He**, M. Rong, Y. Wu* et al. Experimental research on the current limiting performance of liquid metal current limiter. *3rd Int Conf Electrical Power Equipment- ICEPE 2015*, Busan, Korea.
- 10- **H. He**, M. Rong, Y. Wu* et al. Experimental investigation of gainsn current limiter based on a novel principle. *2nd Int Conf Electrical Power Equipment- ICEPE 2013*, Matsue, Japan.
- 11- **H. He**, Y. Wu*, M. Rong et al. Experimental research on the arc plasma in a liquid metal current limiter, *19th Int Conf Gas Discharges and their Appl- GD 2012*, Beijing, China.
- 12- F. Yang*, **H. He**, M. Rong et al. Operating property analysis of a new high-speed DC switch repulsion mechanism. *1st Int Conf Electrical Power Equipment- ICEPE 2011*, Xi'an, China.