

# CES Transactions on Electrical Machines and Systems (ISSN 2096-3564) Expired CFP

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# Call for Papers

## *Special Section on Novel Permanent Magnet and Magnetless Machines and Controls*

Due to high torque density and efficiency, permanent magnet machines have been used for many applications, ranging from domestic appliance, industrial automation, robot, electric vehicle, to wind power generation etc. Various novel permanent magnet machine topologies have been developed and many new topologies are still emerging, whilst many novel control strategies are being developed. On the other hand, magnetless machines, including induction, switched and synchronous reluctance, and wound-field synchronous machines, can eliminate the use of expensive rare-earth magnets and their design, analysis and control are currently under extensive investigation.

This Special Section aims to provide a forum for professionals from both academia and industry all over the world to exchange their experience and achievements within the scope of machine topology, design, analysis, control and applications of permanent magnet and magnetless machines. Detailed topics include but are not limited to:

- Novel rotary and linear machine topologies
- Magnetic field analysis
- Machine optimal design
- Machine performance analysis
- Machine parameter identification
- Novel vector and direct torque control strategies
- Sensorless control
- New applications

Contact the deputy editor-in-chief if your manuscript is not within the listed topics, as papers within the general topic of electrical machines and systems are all welcome by the CES TEMS.

### **Brief guideline for authors:**

#### **Papers styles:**

1. Review articles.
2. Original research.
3. Rapid communications.

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Detailed submission guideline and template are available at the submission website. All manuscripts and any supplementary materials should be submitted via the site <https://mc03.manuscriptcentral.com/tems>, choosing "**SS: Novel Permanent Magnet and Magnetless Machines and Controls**" as the manuscript type.

### **About the journal**

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Topics of the CES TEMS include but are not limited to electrical machine topologies and designs, field analysis, motor drives, motion control and servo systems, power electronics and power converters, EMI and EMC techniques, renewable energies, xEV and other electrified transportation techniques, applications of new materials, and many others related to the electrical machines and systems.

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**Editor-in-Chief  
Professor Weiming MA**

### **Deputy Editor-in-Chief**

**Prof. Z.Q. Zhu,**  
University of Sheffield, UK  
[z.q.zhu@sheffield.ac.uk](mailto:z.q.zhu@sheffield.ac.uk)



### **Guest Editors**

**Dr. Guanjin Li**  
[g.li@sheffield.ac.uk](mailto:g.li@sheffield.ac.uk)  
**Prof. Wei Hua**  
[huawei1978@seu.edu.cn](mailto:huawei1978@seu.edu.cn)  
**Prof. Lijian Wu**  
[ljw@zju.edu.cn](mailto:ljw@zju.edu.cn)  
**Prof. Kai Wang**  
[lsnwk@hotmail.com](mailto:lsnwk@hotmail.com)  
**Prof. Xu Liu**  
[liuxuee@gmail.com](mailto:liuxuee@gmail.com)  
**Prof. Kan Liu**  
[lkan@live.cn](mailto:lkan@live.cn)

### **Important Dates**

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**31 January, 2018**  
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# Call for Papers

## *Special Section on Multiphysics Analysis and Design Optimization of Electrical Machines and Systems*

Electrical machines are the hearts of many modern appliances and industrial systems. Their analysis and design optimization processes become more and more complex as more disciplines/domains and constraints are involved, such as electromagnetics, structural mechanics, heat transfer, and control strategies. To achieve multi-objective optimal performance of electrical machines and systems for applications of challenging specifications, such as electric vehicles and wind power generation, it is of great significance to conduct a multi-physics analysis and take a systematic design optimization approach. On the other hand, the performance and quality of batch produced electrical machines depend highly on the material diversities and manufacturing tolerances. To reduce the effects of these uncertainties, effective robust design optimization methods should be investigated.

This Special Section aims to provide a forum for professionals worldwide from both academia and industry to exchange their experiences and achievements within the scope of advanced magnetic materials, multi-physics analysis, efficient design and optimization of electrical machines and drive systems. Detailed topics include but are not limited to:

- Advanced magnetic materials and their applications in electrical machines
- Multi-physics analysis of electrical machines
- Multi-physics design optimization methods for electrical machines
- Effects of material diversities and manufacturing uncertainties on electrical machines
- Robust design optimization for high manufacturing quality
- Design optimization considering control aspects
- Systematic analysis and design optimization of drive systems
- Multi-objective optimization of electrical machines and systems

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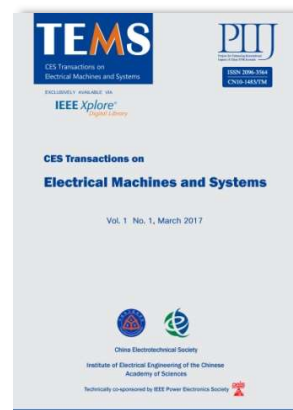
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**Editor-in-Chief  
Professor Weiming MA**

### **Deputy Editor-in-Chief**

**Prof. J.G. Zhu,**  
University of Technology  
Sydney, Australia  
[jianguo.zhu@uts.edu.au](mailto:jianguo.zhu@uts.edu.au)



### **Guest Editors**

**Dr. Gang Lei**  
[gang.lei@uts.edu.au](mailto:gang.lei@uts.edu.au)

**Prof. Weinong Fu**  
[eewnfu@polyu.edu.hk](mailto:eewnfu@polyu.edu.hk)

**Prof. Wei Xu**  
[weixu@hust.edu.cn](mailto:weixu@hust.edu.cn)

**Prof. Shuhong Wang**  
[shwang@mail.xjtu.edu.cn](mailto:shwang@mail.xjtu.edu.cn)

**Prof. Shiyong Yang**  
[eesyyang@zju.edu.cn](mailto:eesyyang@zju.edu.cn)

**Prof. Yongjian Li**  
[herosamlyj@126.com](mailto:herosamlyj@126.com)

**Prof. Chao Bi**  
[bichao@usst.edu.cn](mailto:bichao@usst.edu.cn)

### **Important Dates**

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**30 April, 2018**

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# Call for Papers

## *Special Section on Modeling, Control, and Stability of More Electronics Power Systems*

Power electronic equipment and devices have been widely used in every layer of modern electric power systems to improve energy efficiency and sustainability. In distribution systems, power converters serve as the critical interface between the utility grid and distributed energy resources such as solar photovoltaic, wind turbine and battery energy storage. They also play a key role in controlling the power quality of distribution networks. In transmission systems, high voltage high power electronic converters are the ideal choice for flexible management of power flow in bulk interconnected power systems. On one hand, it is no doubt that the power electronics technology presents electrical engineers many opportunities to realize more efficient and flexible power systems and will become increasingly important for future decarbonized power grids. On the other hand, such power electronic converters exhibit completely distinctive characteristics with traditional power system components and may bring a number of challenging stability issues from both power converter and power system perspectives. Therefore, advanced modeling, control, and stability analysis approaches should be proposed for electrical engineers to better understand and design future more electronics power systems.

This Special Section on Modeling, Control, and Stability of More Electronics Power Systems will be a timely and extremely important topic and of great interests for academics and industries. It will bring together researchers and experts from both power electronics and power systems communities to tackle the technological challenges in future ultracomplex power systems with more electronic devices. Detailed topics include but are not limited to:

- Modeling and stability of grid-interfaced converters
- Grid friendly power electronic converters
- Coordination control of distributed energy resources
- Power quality control
- Hybrid AC/DC interconnected systems
- Electronic distribution and transmission systems
- Modeling and stability of low inertia grids
- Ancillary services from renewables and energy storage

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**Editor-in-Chief  
Professor Weiming MA**

### ***Deputy Editor-in-Chief***

**Prof. Xinbo Ruan,**  
Nanjing University of  
Aeronautics and  
Astronautics,  
China, [ruanxb@nuaa.edu.cn](mailto:ruanxb@nuaa.edu.cn)



### ***Guest Editors***

**Prof. Yi TANG**  
[yitang@ntu.edu.sg](mailto:yitang@ntu.edu.sg)

**Prof. Paolo MATTAVELLI**  
[paolo.mattavelli@unipd.it](mailto:paolo.mattavelli@unipd.it)

### ***Important Dates***

Full paper submission:

**30 May, 2018**

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# Call for Papers

## Special Section on Switched Reluctance Motor and Drives

Switched Reluctance Motors (SRM) have inherent advantages such as simple structure with non winding construction in rotor side, fail safe because of its characteristic which has a high tolerances, robustness, low cost with no permanent magnet in the structure, and possible operation in high temperatures or in intense temperature variations. The torque production in switched reluctance motor structures comes from the tendency of the rotor poles to align with the excited stator poles. The operation principle is based on the difference in magnetic reluctance for magnetic field lines between aligned and unaligned rotor position when a stator coil is excited, the rotor experiences a force which will pull the rotor to the aligned position. This Special Section aims to provide a forum for professionals from both academia and industry all over the world to exchange their experience and achievements within the scope of topology, analysis, and coordinated design and control of the machine. Detailed topics include but are not limited to:

- Machine Optimal Design
- Motor control Strategy
- Motor performance analysis
- Machine parameters identification and measurement
- Power Converter Topology
- Noise and Vibrations
- Applications in Home Appliance, Industry and Traction
- Very Large Scale Application
- Sensor and Sensorless control
- Other Related Topics

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### Brief guideline for authors

#### Papers styles:

1. Review articles.
2. Original research.

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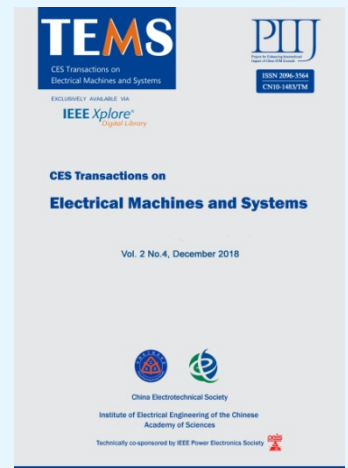
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#### Deputy Editor-in-Chief:

**Prof. Jin-Woo AHN,**  
Kyungshung University, Korea  
[jwahn@ks.ac.kr](mailto:jwahn@ks.ac.kr)



#### Guest Editors:

**Prof. Huijun Wang,**  
[Huijunwang\\_buaa@163.com](mailto:Huijunwang_buaa@163.com)  
**Prof. D. H. Lee**  
Kyungshung University, Korea  
[leedh@ks.ac.kr](mailto:leedh@ks.ac.kr)

### Important Dates

Full paper submission

**31 Aug., 2018**

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**31 Oct., 2018**

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# Call for Papers

## Special Section on Novel Machines and Controls in Electric Propulsion

To reap potentially substantial economic and environmental benefits, the transportation industry is now moving towards electrification, with electric vehicle, all or more electric aircraft, high-speed train, subway, ship propulsion, maglev, etc., being prominent examples. When selecting electric propulsion systems, the cost, reliability, efficiency, maintenance, durability, weight, size, vibration and noise are all considerations, thus bringing great challenges to the design of machines and controllers in electric propulsion systems. Therefore, novel machines and controls in electric propulsion have been hot topics in the last few years.

This Special Section aims to provide a forum for professionals from both academia and industry all over the world to exchange their experience and achievements within the scope of novel machine design and control in electric propulsion applications. Detailed topics include but are not limited to:

- Novel rotary or linear machine topologies in electric propulsion systems
- Optimal design method or algorithm of electric propulsion motors
- Magnetic field analysis of electric propulsion motors
- Performance analysis of electric propulsion motors
- Novel vector and direct torque control strategies in electric propulsion systems
- Sensorless control in electric propulsion systems
- Motor parameter identification and measurement of electric propulsion motors
- New electric propulsion applications
- Other related topics

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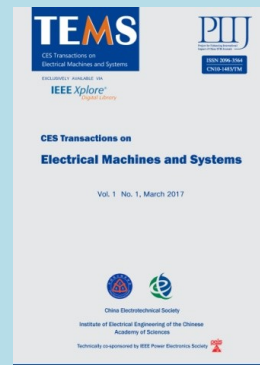
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IEEE  
Editor-in-Chief  
Professor Weiming MA**

### Deputy Editor-in-Chief

**Prof. Ronghai Qu**,  
Huazhong University of Science  
and Technology, China  
[ronghaiqu@hust.edu.cn](mailto:ronghaiqu@hust.edu.cn)



### Guest Editors

**Prof. Ayman EL-Refaie**  
[ayman.el-refaie@marquette.edu](mailto:ayman.el-refaie@marquette.edu)  
**Prof. Juan A. Tapia**  
[juan.tapia@udec.cl](mailto:juan.tapia@udec.cl)  
**Prof. Dong Jiang**  
[jiangd@hust.edu.cn](mailto:jiangd@hust.edu.cn)  
**Prof. Zhuoran Zhang**  
[apsc-zzr@nuaa.edu.cn](mailto:apsc-zzr@nuaa.edu.cn)  
**Prof. Baoquan Kou**  
[koubq@hit.edu.cn](mailto:koubq@hit.edu.cn)  
**Prof. Wenxiang Zhao**  
[zwx@ujs.edu.cn](mailto:zwx@ujs.edu.cn)  
**Prof. Chunhua Liu**  
[chunliu@cityu.edu.hk](mailto:chunliu@cityu.edu.hk)

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# Call for Papers

## *Special Section on Design, Control and Condition Monitoring of High-Performance Electric Machines and Drives*

High-performance electric machines and drives (EMDs) have found extensive applications where characteristics, such as high power density, high reliability, high precision, good environmental adaptability, and low emission, are sorely demanded. The design and control of such high-performance EMDs pose some unique challenges due to the increased electromagnetic, thermal, mechanical and computational stresses exerted on different materials and components of the system. Moreover, the condition monitoring becomes a more important aspect for high-performance EMDs because of small design margins and the high values of the applications in general.

This Special Section aims to provide a forum for professionals from both academia and industry all over the world to exchange their experience and achievements within the scope of design, control and condition monitoring of high-performance electric machines and drives. Detailed topics include but are not limited to:

- High-speed electric machines and magnetic bearings
- High-torque-density electric machines
- Multiphase electric machines
- Linear electric machines
- Machine performance analysis
- Multi-physics analysis and design
- Machine modeling and parameter identification
- Fault-tolerant control and performance analysis
- Novel topologies of electric machines and systems
- FOC, DTC or MPC of multiphase machines
- Novel PWM methods for multiphase machines
- Sensorless control of multiphase electric machines
- Condition monitoring of machines and power converters

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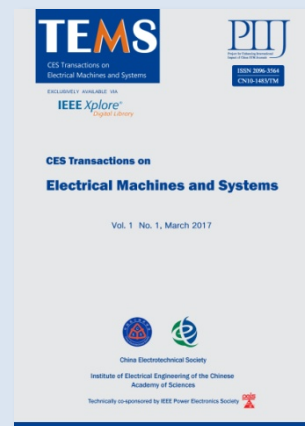
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**Professor Weiming MA**

### **Deputy Editor-in-Chief:**

**Prof. Dong WANG**  
Naval University of Engineering,  
China  
[wangdongl@vip.sina.com](mailto:wangdongl@vip.sina.com)



### **Guest Editors:**

**Prof. Lijian WU**  
[ljw@zju.edu.cn](mailto:ljw@zju.edu.cn)  
**Prof. Pinjia ZHANG**  
[pinjia.zhang@tsinghua.edu.cn](mailto:pinjia.zhang@tsinghua.edu.cn)  
**Prof. Wei XU**  
[weixu@hust.edu.cn](mailto:weixu@hust.edu.cn)  
**Prof. Dong JIANG**  
[jiangd@hust.edu.cn](mailto:jiangd@hust.edu.cn)  
**Prof. Siwei CHENG**  
[siwei\\_cheng@sina.com](mailto:siwei_cheng@sina.com)  
**Dr. Junquan CHEN**  
[chenjunquan888@sina.com](mailto:chenjunquan888@sina.com)

### **Important Dates**

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**30 Apr., 2019**

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# Call for Papers

## *Special Section on Electric Machines and Control for Vehicle Applications*

Due to high torque density and efficiency, permanent magnet machines have been used for the traction motors for Electric Vehicle and Hybrid Vehicle. The torque density has been improved for this decade, almost two times torque density has been achieved. Adding that, a new topology of the PM machines which have variable flux topology has been proposed recently, the machine structure has become complex and exciting. On the other hand, magnet-less machines, including induction, switched and synchronous reluctance, and wound-field synchronous machines, can eliminate the use of expensive rare-earth magnets and their design, analysis and control are currently under extensive investigation.

This Special Section aims to provide a forum for professionals from both academia and industry all over the world to exchange their experience and achievements within the scope of machine topology, design, analysis, control and applications of permanent magnet and magnet-less machines for vehicle applications. Detailed topics include but are not limited to:

- Traction Machines for EV/HEV
- Variable Flux PM Machines for EV/HEV
- Rare-Earth less / Magnet less Machines for EV/HEV
- Open winding Machines and Control
- Multi-Phase Machines for Vehicle Applications
- Multi-Winding Machines for Vehicle Applications
- Related topics for EV/HEV

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**Deputy Editor-in-Chief  
Prof. Kan Akatsu,**  
Shibaura Institute of  
Technology, Japan  
[akatsu@sic.shibaura-it.ac.jp](mailto:akatsu@sic.shibaura-it.ac.jp)



#### **Guest Editors**

**Dr. Hiroya Sugimoto**  
[sugimoto@belm.ee.titech.ac.jp](mailto:sugimoto@belm.ee.titech.ac.jp)

**Dr. Kohei Aiso**  
[kaiso@aoni.waseda.jp](mailto:kaiso@aoni.waseda.jp)

**Dr. Yuting Gao**  
[yutinggao@hust.edu.cn](mailto:yutinggao@hust.edu.cn)

**Dr. Daniel Fernandez**  
[fernandezalodaniel@uniovi.es](mailto:fernandezalodaniel@uniovi.es)

**Dr. Hiroaki Matsumori**  
[matsumori.hiroaki@nitech.ac.jp](mailto:matsumori.hiroaki@nitech.ac.jp)

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[www.cestems.org](http://www.cestems.org)





# Call for Papers

## *Special Section on Optimization Design and Robust Control of Electrical Machines*

In today's world, almost every aspect of modern life is impacted by electric motors. Due to the nearly unlimited types of applications, it is not difficult to imagine a plethora of motors running across the world concurrently at this very moment. It is thus crucial that the motor should be designed with high performance and controlled intelligently, with the technologies linked with optimization, synthesis, analysis, control, measurement and application of electric motors.

This special issue of TEMS is to provide a forum for researchers and experts from both academia and industry all over the world to exchange their experiences and achievements within the scope of optimal design and intelligent control of electrical machines. Detailed topics include but are not limited to:

- Optimization of electromagnetic design
- Intelligent control of electric motor
- Machine parameters identification and measurement
- High torque density motor technology
- High speed motor technology
- Electrical machine designed for transportation
- Coordination between machine design and drive control

Contact the deputy editor-in-chief if your manuscript is not within the listed topics, as papers within the general topic of electrical machines and systems are all welcome by the CES TEMS.

### **Brief guide line for authors**

#### **Papers styles:**

1. Review articles.
2. Original research.
3. Rapid communications.

All submitted papers must be in English, must not be published by or currently under review for any other journal or conference.

Detailed submission guide line and template are available at the submission website. All manuscripts and any supplementary materials should be submitted via the site <https://mc03.manuscriptcentral.com/tems>, choosing "**SS: Optimization Design and Robust Control of Electrical Machines**" as the manuscript type.

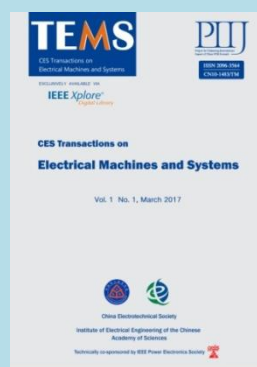
### **About the journal**

The CES TEMS is a brand-new quarterly journal published by the China Electrotechnical Society (CES) and the Institute of Electrical Engineering of the Chinese Academy of Sciences, with co-sponsorship of IEEE PELS, starting from March 2017.

Topics of the CES TEMS include but are not limited to electrical machine topologies and designs, field analysis, motor drives, motion control and servo systems, power electronics and power converters, EMI and EMC techniques, renewable energies, xEV and other electrified transportation techniques, applications of new materials, and many others related to the electrical machines and systems.

The CES TEMS is an open-access journal, currently with no publication charge applied to the authors. Published papers will be included in the IEEE Xplore. Inclusion in other globally recognized data base such as the Web of Science (SCI) is under arrangement.

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**Editor-in-Chief**  
**Professor Weiming MA**

#### **Executive Editor-in-Chief:**

**Prof. BI Chao**  
Shanghai University for Science & Technology, China  
[Bichao@usst.edu.cn](mailto:Bichao@usst.edu.cn)



#### **Guest Editors:**

**Prof. JIANG Quan**  
[jiangquan@usst.edu.cn](mailto:jiangquan@usst.edu.cn)  
**Prof. LIU Chunhua**  
[chualiu@eee.hku.hk](mailto:chualiu@eee.hku.hk)  
**Prof. LIN Minyao**  
[mylin@seu.edu.cn](mailto:mylin@seu.edu.cn)  
**Prof. ZHU Jianguo**  
[jianguo.zhu@sydney.edu.au](mailto:jianguo.zhu@sydney.edu.au)  
**Prof. Robert NILSSEN I**  
[Robert.nilssen@ntnu.no](mailto:Robert.nilssen@ntnu.no)  
**Prof. XIAO Xi**  
[Xiao\\_xi@tsinghua.edu.cn](mailto:Xiao_xi@tsinghua.edu.cn)  
**Prof. CHAI Jianyun**  
[chaijy@mail.tsinghua.edu.cn](mailto:chaijy@mail.tsinghua.edu.cn)  
**SHEN Jianxin**  
[J\\_X\\_Shen@zju.edu.cn](mailto:J_X_Shen@zju.edu.cn)

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*In Volume 4, Issue 1, 2020*



# Call for Papers

## *Special Section on High-Reliability Electric Machine Systems and Fault-Tolerant Operation Technology*

The electric machine systems have been utilized widely and played important roles in many industrial applications, e.g., electrified transportation, wind power generation and aerospace applications. In those applications, the failures in electric machine systems may cause drive chains to lose the power partially or even totally, and lead to catastrophic damages. The high-reliability electric machine systems and fault-tolerant operation technology are critical enablers for the industry to unlock significant improvements in system maintainability, total life-cycle costs, and overall system reliability.

The high-reliability electric machine systems offer features of simple and robust structures in electrical machines, power converters and controllers, and low failure rate. When unavoidable failures occur, the faulty parts in electric machine systems should be diagnosed accurately and isolated effectively. The fault-tolerant strategies can help the system maintain operation performance in some certain aspects, and thus keep the total system working continuously. Today, the high-reliability electric machine systems and fault-tolerant operation technology not only become the hot topics in academic research, but also have practical significance in industrial applications.

Detailed topics include but are not limited to:

- Reliable topologies and control schemes of electrical machines
- Reliable topologies and modulation strategies of power converters
- Design and analysis of high-reliability electric machine systems
- Condition monitoring of electric machine systems
- Fault diagnosis of electric machines and power converters
- Fault-tolerant operation of electric machines and power converters
- Sensorless control of electric machines and power converters
- Electrolytic capacitorless motor drives and power generation systems
- Magnetic bearing and bearingless motor drives
- Applications of high-reliability electric machine systems

### **Brief guideline for authors:**

#### **Papers styles:**

1. Review articles.
2. Original research.
3. Rapid communications.

All submitted papers must be in English, must not be published by or currently under review for any other journal or conference.

Detailed submission guideline and template are available at the submission website. All manuscripts and any supplementary materials should be submitted via the site <https://mc03.manuscriptcentral.com/tems>, choosing "**SS: High-Reliability Electric Machine Systems and Fault-Tolerant Operation Technology**" as the manuscript type.

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**Editor-in-Chief  
Professor Weiming MA**

### **Deputy Editor-in-Chief**

**Prof. Ming Cheng**  
Southeast University, China  
[mcheng@seu.edu.cn](mailto:mcheng@seu.edu.cn)



**Prof. Zheng Wang**  
Southeast University, China  
[zwang@seu.edu.cn](mailto:zwang@seu.edu.cn)



### **Guest Editors**

**Prof. Marco Liserre**  
[ml@tf.uni-kiel.de](mailto:ml@tf.uni-kiel.de)  
**Prof. Jiabin Wang**  
[j.b.wang@sheffield.ac.uk](mailto:j.b.wang@sheffield.ac.uk)  
**Prof. W.P. Cao**  
[w.p.cao@aston.ac.uk](mailto:w.p.cao@aston.ac.uk)  
**Prof. Jiangbiao He**  
[jiangbiao@ieee.org](mailto:jiangbiao@ieee.org)  
**Prof. Yihua Hu**  
[y.hu35@liverpool.ac.uk](mailto:y.hu35@liverpool.ac.uk)  
**Prof. Wei Xu**  
[weixu@hust.edu.cn](mailto:weixu@hust.edu.cn)  
**Prof. Wenxiang Zhao**  
[zwx@ujs.edu.cn](mailto:zwx@ujs.edu.cn)

### **Important Dates**

Fullpaper submission:

**30 March, 2020**

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# Call for Papers

## Special Section on Structured Microgrids and Flexible Electronic Large Power Transformers

Structured microgrids (S $\mu$ Gs) and Flexible electronic large power transformers (FeLPTs) are emerging as two essential technologies for renewable energy integration and flexible power transmission. (FeLPT is general term used to describe electronic power transformers at megawatts levels for typical grid and traction applications. Other terms used today include Smart Transformers, Power Electronic Transformer, Solid-State Transformers, etc.) A FeLPT's flexibility for processing, control, and re-configurability offers the capability for flexible transmission for effective flow control and enable S $\mu$ Gs connectivity while still keeping multi-scale system level control. S $\mu$ Gs provides the integration of renewable energy and storage to balance the energy demand and supply as needed for a given design. Challenges in FeLPTs include efficiency, reliability, size and cost parity. Challenges in S $\mu$ Gs include an accurate forecast for renewable availability, cost-effective integration, and efficient control. As the technologies progress, successful integration of solar and battery energy systems has proven to be technically effective and economically beneficial. Australia Hardsdale Solar Farm has reduced the operator cost by tens of millions, and solar and storage based peakers can cost less than diesel based ones.

This special issue will provide a forum for reporting the most recent progress in S $\mu$ Gs, FeLPTs, and related systems issues.

Prospective authors are invited to submit original contributions and survey papers. Papers with applications in nature are particularly welcome. Topics of interest include, but are not limited to the following topics:

- FeLPTs cost and size reduction
- FeLPTs reliability enhancement
- FeLPTs for FACTS applications, particularly for flow control
- FeLPTs related devices and components
- FeLPTs related packaging and system integration
- FeLPTs insertion into substation and operation experience
- S $\mu$ Gs energy balance techniques and algorithms
- S $\mu$ Gs AI for renewable forecasting methods and techniques
- S $\mu$ Gs system integration and operation
- S $\mu$ Gs control techniques for transactive energy
- FeLPTs and S $\mu$ Gs integration and simulation

### Brief guideline for authors:

#### Papers styles:

1. Review articles.
2. Original research.
3. Rapid communications.

All manuscripts must be submitted through Manuscript Central at <https://mc03.manuscriptcentral.com/tems>. Submissions must be clearly marked "S $\mu$ Gs and FeLPTs Integration" on the cover page. When uploading your paper, please select your manuscript type "Special Issue." Refer to <http://www.cestems.org> for general information about electronic submission through Manuscript Central. Manuscripts submitted for the special issue will be reviewed separately and will be handled by the guest editorial board noted below.

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### Editor-in-Chief

Don Tan, IEEE Fellow  
[dong.tan@ieee.org](mailto:dong.tan@ieee.org)



### Guest Editors

Zhengming Zhao, IEEE Fellow  
[zhaozm@tsinghua.edu.cn](mailto:zhaozm@tsinghua.edu.cn)

Juri Jatskevich, IEEE Fellow  
[jurij@ece.ubc.ca](mailto:jurij@ece.ubc.ca)

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[hxn@zju.edu.cn](mailto:hxn@zju.edu.cn)

Marco Liserre, IEEE Fellow  
[ml@tf.uni-kiel.de](mailto:ml@tf.uni-kiel.de)

### Guest Associate Editors

Joao Pinto,  
[joao.pinto@ufms.br](mailto:joao.pinto@ufms.br)

Xin Xiang,  
[x.xiang14@imperial.ac.uk](mailto:x.xiang14@imperial.ac.uk)

Shuai Shao,  
[shaos@zju.edu.cn](mailto:shaos@zju.edu.cn)

Xin Zhang,  
[jackzhang@ntu.edu.sg](mailto:jackzhang@ntu.edu.sg)

Yu Chen,  
[ayu03@hust.edu.cn](mailto:ayu03@hust.edu.cn)

Giovani De Carne,  
[giovanni.carne@kit.edu](mailto:giovanni.carne@kit.edu)

João Peças Lopes,  
[jpl@fe.up.pt](mailto:jpl@fe.up.pt)

Zhixiang Zou,  
[zzou@seu.edu.cn](mailto:zzou@seu.edu.cn)

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Full paper submission:

**20 July, 2020**

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# Call for Papers

## *Special Section on High Performance Design and Driving Technologies of Motor & Drive System for Various Applications*

Recently, conventional power drive systems using internal combustion engine has been replaced by electric motor drive systems having high performance and ecofriendly features. In addition, 4th Industrial Revolution and Industry 4.0 have been the biggest issue in the world from several years ago. This movement and change make the electric machine systems as more important and substantial technology in high-end application industries.

Amid this tremendous change in industry field, high performance motor & drive system is the major core technology especially for specific industrial application requiring high efficiency, high precision and fast response, high speed and high power density.

Many research works about various kinds of motor design, driving circuit and control have been studied for the more high performance itself until now. In addition to this research and technology development, the application technology is also very important to meet the requirements of various application systems. The research result and experience data of "High Performance Design and Driving Technologies of Motor & Drive System for Various Applications" will be helpful to progress these high-end industrial applications.

Detailed topics of motor & drive system include but are not limited to:

- Electric vehicles and automobile parts
- Smart factory and manufacturing systems
- Smart actuators for various uses
- Robot manipulation system and powertrain
- Drones and aircrafts
- Electric propulsion systems to replace combustion engine
- Home appliances
- Military applications
- Magnetic gear system
- High speed, precision, efficiency and power density motor & drive system applications

### **Brief guideline for authors:**

#### **Papers styles:**

1. Review articles.
2. Original research.
3. Rapid communications.

All submitted papers must be in English, must not be published by or currently under review for any other journal or conference.

Detailed submission guideline and template are available at the submission website. All manuscripts and any supplementary materials should be submitted via the site <https://mc03.manuscriptcentral.com/tems>, choosing "**SS: High Performance Design and Driving Technologies of Motor & Drive System for Various Applications**" as the manuscript type.

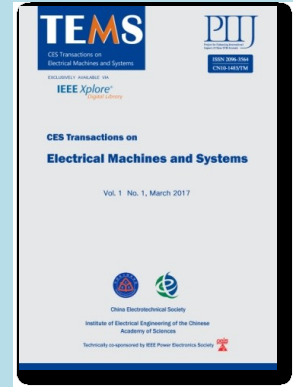
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**Editor-in-Chief  
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### **Deputy Editor-in-Chief**

**Prof. Tae-Uk JUNG,**  
Kyungnam University, Korea  
[tujung@kyungnam.ac.kr](mailto:tujung@kyungnam.ac.kr)



### **Guest Editors**

**Prof. D. H. Lee**  
Kyungsu University, Korea  
[leedh@ks.ac.kr](mailto:leedh@ks.ac.kr)

**Prof. Seonhwan Hwang**  
Kyungnam University, Korea  
[seonhwan@kyungnam.ac.kr](mailto:seonhwan@kyungnam.ac.kr)

**Prof. Jaesuk Lee**  
Jeonbuk National University, Korea  
[jaesuk@jbnu.ac.kr](mailto:jaesuk@jbnu.ac.kr)

**Dr. Do-Kwan Hong**  
Korea Electrotechnology Research Institute  
[dkhong@keri.re.kr](mailto:dkhong@keri.re.kr)

### **Important Dates**

Full paper submission:

**20 Oct., 2020**

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**20 Nov., 2020**

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# Call for Papers

## Special Section on Model Predictive Control of Motor Drives

For decades, field oriented control (FOC) has become a de facto industry standard for high performance control of ac motor drives. However, both the industry and academic communities are still striving to find more advanced control techniques to achieve better steady state performance, quicker dynamic response and simpler structure. For this aim, direct torque control (DTC), and more recently, model predictive control (MPC), have attracted increasing attention in the area of ac motor drives. Owing to its simple concept, fast transient response and flexibility in incorporating various constraints, MPC is regarded as a powerful and attractive alternative to conventional FOC and DTC. However, MPC has not yet reached a mature stage for industrial applications. Many aspects, e.g., reduction of computational burden, sensorless control, robustness against parameter mismatches, etc. need to be further investigated.

This Special Section aims to provide a forum for professionals from both academic and industrial communities to exchange their experience and latest achievements in the field of predictive control of motor drives. Topics of interest include, but are not limited to:

- Finite/continuous control set-model predictive control of motor drives (e.g., current, voltage, torque, flux or speed predictive control)
- Predictive control applied to power converters for motor drive supply control (e.g., back-to-back converters, matrix converters, multi-level converters)
- Multi-vector predictive control of motor drives
- Speed/position sensorless predictive control of variable-speed motor drives
- Predictive control schemes for post-fault operation of motor drives
- Predictive control with field-weakening and/or overmodulation
- Robust predictive control methods
- Model-free predictive control methods
- Long-horizon predictive control schemes
- Predictive control with modulated switching patterns
- Other related topics

Contact the deputy editor-in-chief if your manuscript is not within the listed topics, as papers within the general topic of electrical machines and systems are all welcome by the CES TEMS.

### Brief guideline for authors:

#### Papers styles:

1. Review articles.
2. Original research.
3. Rapid communications.

All manuscripts must be submitted through Manuscript Central at <https://mc03.manuscriptcentral.com/tems>. Submissions must be clearly marked **“SS: Model Predictive Control of Motor Drives”** on the cover page. When uploading your paper, please select your manuscript type “Special Issue.” Refer to <http://www.cestems.org> for general information about electronic submission through Manuscript Central. Manuscripts submitted for the special issue will be reviewed separately and will be handled by the guest editorial board noted below.

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IEEE  
Editor-in-Chief  
Professor Weiming MA**

### Deputy Editor-in-Chief

**Prof. Yongchang Zhang,**  
North China Electric Power  
University, China  
[zyc@ncepu.edu.cn](mailto:zyc@ncepu.edu.cn)



### Guest Editors

**Prof. Jose Rodriguez**

[jose.rodriguez@unab.cl](mailto:jose.rodriguez@unab.cl)

**Prof. Jianguo Zhu**

[jianguo.zhu@sydney.edu.au](mailto:jianguo.zhu@sydney.edu.au)

**Prof. Gaolin Wang**

[wgl818@hit.edu.cn](mailto:wgl818@hit.edu.cn)

**Prof. Fengxiang Wang**

[fengxiang.wang@fjirms.ac.cn](mailto:fengxiang.wang@fjirms.ac.cn)

**Prof. Shuyin Yang**

[yangsy@hfut.edu.cn](mailto:yangsy@hfut.edu.cn)

**Prof. Zhonggang Yin**

[zhgyin@xaut.edu.cn](mailto:zhgyin@xaut.edu.cn)

**Prof. Feng Niu**

[niufeng@hebut.edu.cn](mailto:niufeng@hebut.edu.cn)

**Prof. Yong Yang**

[yangy1981@suda.edu.cn](mailto:yangy1981@suda.edu.cn)

**Prof. Haitao Yang**

[yhtseaky@gmail.com](mailto:yhtseaky@gmail.com)

### Important Dates

Full paper submission:

**30 March, 2021**

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# Call for Papers

## *Special Section on Electrical Machine Systems in More/All Electric Aircraft*

The More Electric Aircraft (MEA)/All Electric Aircraft (AEA) system is being widely recognized as the future for the aerospace industry to meet the power demands of increasing electric loads, reducing aircraft emissions, improving fuel economy, and lowering the cost of the total system. Although MEA/AEA architecture offers significant overall system benefits in high reliability, improved fuel efficiency, and reduced emissions, the MEA/AEA concept imposes increasing demands on the electrical machines and their control system. More electrical machine systems are engaged in this aviation invention. And electrical machines are the critical components used in MEA/AEA, such as generators, electromechanical actuators (EMAs), electrohydraulic actuators (EHAs), electric propulsion, air compressors and fuel pumps, etc. High power density electric machines are the enabling technologies for the successful advancement of MEA/AEA, and there are still a number of areas where improvements must be made in terms of the reliability, rated power, dynamic performance, volume, cost and environmental suitability of systems.

This Special Section aims to bring to together researchers and practitioners from industry, research laboratories, academia and government to present the challenges and opportunities related to Electrical Machine Systems in MEA/AEA. Topics of interest include, but are not limited to:

- Generators: starter/generators, high speed generators, multi-stage alternators, etc.
- EMA/EHA motors: high dynamic motors, high power density motors, high integration actuators, etc.
- Electric propulsion motors: high torque density motors, high efficiency motors, high rated power motors, etc.
- Air compressor and fuel pump motors: high speed motors, high temperature motors, etc.
- High reliability electrical machines: redundant electrical machines, fault tolerant electrical machines, etc.
- Electrical machine controls: intelligent control, artificial intelligence (AI) control, fault diagnosis, etc.
- Power semiconductors: wide bandgap power devices, characterization, gate drives, etc.
- Power converters: topologies, modeling and control, etc.
- Thermal models of electrical machines and power converters
- Thermal management of electrical machines and power converters
- Relevant simulation techniques for electrical machines and power converters: co-simulation, multi-domain simulation and hardware-in-the-loop simulation, etc.
- Special electrical machine topologies and their control technologies

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and IEEE  
Editor-in-Chief  
Professor Weiming MA**

#### ***Deputy Editor-in-Chief***

**Xiaofeng Ding,**  
Beihang University, China  
[dingxiaofeng@buaa.edu.cn](mailto:dingxiaofeng@buaa.edu.cn)



#### ***Guest Editors***

**Hong Guo**  
[guohong@buaa.edu.cn](mailto:guohong@buaa.edu.cn)  
**Kaushik Rajashekara**  
[ksrja@uh.edu](mailto:ksrja@uh.edu)  
**Patrick Chi kwong Luk**  
[p.c.k.luk@cranfield.ac.uk](mailto:p.c.k.luk@cranfield.ac.uk)  
**Li Yi Li**  
[liliyi@hit.edu.cn](mailto:liliyi@hit.edu.cn)  
**Bo Zhou**  
[zhoubo@nuaa.edu.cn](mailto:zhoubo@nuaa.edu.cn)  
**Jinglin Liu**  
[Jinglinl@nwpu.edu.cn](mailto:Jinglinl@nwpu.edu.cn)  
**Wenxiang Zhao**  
[zwx@ujs.edu.cn](mailto:zwx@ujs.edu.cn)  
**Zhuoran Zhang**  
[apsc-zzr@nuaa.edu.cn](mailto:apsc-zzr@nuaa.edu.cn)  
**Pinjia Zhang**  
[Pinjia.zhang@mail.tsinghua.edu.cn](mailto:Pinjia.zhang@mail.tsinghua.edu.cn)  
**Xiaoyan Huang**  
[xiaoyanhuang@zju.edu.cn](mailto:xiaoyanhuang@zju.edu.cn)  
**Shoujun Song**  
[sunnyway@nwpu.edu.cn](mailto:sunnyway@nwpu.edu.cn)  
**Chengming Zhang**  
[cmzhang@hit.edu.cn](mailto:cmzhang@hit.edu.cn)  
**Jiadan Wei**  
[weijiadan@nuaa.edu.cn](mailto:weijiadan@nuaa.edu.cn)



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# Call for Papers

## *Special Section on High Efficient, Energy-saving and Intelligent Motor Systems*

With the demand of energy saving and emission reduction and the guidance of related policies such as "carbon peaking and carbon neutral", efficient energy-saving motor has been obtained great development. The high-efficiency and energy-saving of motor systems involves all aspects of motor design, drive control, materials, manufacturing, and testing, and is an important research branch in the motor field. At present, the measures to achieve high-efficiency and energy-saving motors in engineering often lead to the increase of the volume and weight of the motor, the increase of material consumption and other problems. Therefore, how to achieve energy saving and emission reduction through advanced motor technology such as new topological structures, new material applications, optimal design methods and new control strategies has become a new challenge faced by motor researchers.

Also, with the continuous development of industrial automation, the degree of informatization and automation of industrial production is getting higher, and the traditional motor control center can no longer meet the users' requirements for motor control and protection. At the same time, if cloud computing technology, big data technology and motor system are combined, it can further realize the prediction of motor failure and life and the adaptive management of motor energy efficiency, so as to promote the better development of smart motors and realize "Mechatronics". The high efficiency, miniaturization, integration and drive integration of the motor industry have become the current irreversible trend. Therefore, on the premise of safe operation of the motor, the realization of intelligent and automated operations such as self-diagnosis, self-protection, self-regulation, and remote control of the motor system, etc., have put forward new and multiple challenges to the control ability and learning ability of the motor system, as well as the fault-tolerant operation of the motor.

In order to further strengthen academic exchanges, and promote the exchange of experiences and achievements of researchers and experts from both academia and industry all over the world in the field of optimized design of motor, application of new materials, new topological structure and intelligent control, the editorial department of "Transactions of China Electrotechnical Society" and "CES TEMS" specially invited Professor Ronghai Qu from Huazhong University of Science and Technology as the Deputy Editor in Chief organizing the topic of "High Efficient, Energy-saving and Intelligent Motor Systems". Detailed topics include but are not limited to:

- Modeling, simulation and design method of motor systems
- New principles, new structures, and new topologies of motor systems
- High-performance intelligent control strategy of motor system
- Multi-physics coupling and intelligent analysis of electric, magnetic, thermal and mechanical fields in motor system
- New energy-saving materials and processing technologies for motor systems;
- Electromagnetic compatibility technology of motor system
- Fault Diagnosis and Reliability Evaluation of Motor System
- Sensorless Control Technology of Motor System
- Intelligent fuzzy control technologies of motor system
- Integrated control technology of smart motor system
- Intelligent motor system and other applications
- Other related topics

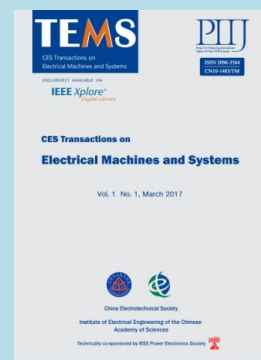
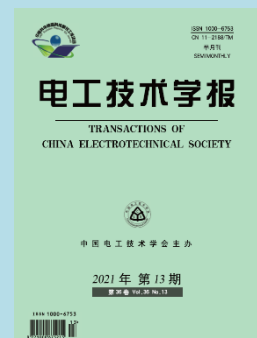
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2. Original research.
3. Rapid communications.

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**Editor-in-Chief**  
**Professor Weiming MA**

### **Deputy Editor-in-Chief**

**Prof. Ronghai Qu**

Huazhong University of Science and Technology, China  
[ronghaiqu@hust.edu.cn](mailto:ronghaiqu@hust.edu.cn)



### **Guest Editors**

**Prof. Shoudao Huang**  
[hsd1962@hnu.edu.cn](mailto:hsd1962@hnu.edu.cn)

**Prof. Jianxin Shen**  
[J\\_X\\_Shen@zju.edu.cn](mailto:J_X_Shen@zju.edu.cn)

**Prof. Fengge Zhang**  
[zhangfg@sut.edu.cn](mailto:zhangfg@sut.edu.cn)

**Prof. Xiuhe Wang**  
[wangxh@sdu.edu.cn](mailto:wangxh@sdu.edu.cn)

**Prof. Metin Aydin**  
[metin.aydin@kocaeli.edu.tr](mailto:metin.aydin@kocaeli.edu.tr)

**Prof. Xiaoyong Zhu**  
[zxyff@ujs.edu.cn](mailto:zxyff@ujs.edu.cn)

**Prof. Yongxiang Xu**  
[xuyx@hit.edu.cn](mailto:xuyx@hit.edu.cn)

**Prof. Zhuoran Zhang,**  
[apsc-zzr@nuaa.edu.cn](mailto:apsc-zzr@nuaa.edu.cn)

**Prof. Gaolin Wang**  
[WGL818@hit.edu.cn](mailto:WGL818@hit.edu.cn)

and <https://mc03.manuscriptcentral.com/tems> (CES TEMS), Submissions must be clearly marked “*High Efficient, Energy-saving and Intelligent Motor Systems*” on the cover page. When uploading your paper, please select your manuscript type “Special Issue.” Refer to <http://www.ces-transaction.com/> and <http://www.cestems.org> for general information about electronic submission through Manuscript Central. Manuscripts submitted for the special issue will be reviewed separately and will be handled by the guest editorial board noted below.

**Prof. Pinjia Zhang**  
pinjia.zhang@tsinghua.edu.cn  
**Prof. Hong Li**  
hli@bjtu.edu.cn  
**Prof. Dawei Li**  
daweili@hust.edu.cn

## About the journal

### *Transactions of China Electrotechnical Society*

“Transactions of China Electrotechnical Society” was founded in 1986. “Journal” is a comprehensive academic journal in the field of electrical engineering hosted by China Electrotechnical Society.

“Journal” is the core journal of many principal retrieval systems such as Engineering Index (EI), Chinese core journals, The key magazine of China technology as well as other related databases.

“Journal” comprehensively reports high-level academic and scientific research achievements in basic theory research and engineering application in the field of electrical engineering. The publication covers various disciplines in the field of electrical engineering, mainly related to electrical appliances, power electronics, power systems, industrial automation, electrical theory, electrical insulation, materials, information technology, and new energy technologies.

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*In Vol. 5, No. 4, 2021*

# Call for Papers

## *Special Section on Special Motor Systems and Intelligent Calculation*

As a key component, special motor systems are widely used in industry, national defense and aerospace applications. Innovations of its fundamental theories and application technologies can promote the progress of relevant disciplines and fields. At the same time, the continuous development of intelligent calculation theories and technologies, such as artificial intelligence, big data and cloud computing, has also brought great vitality and assistance to the theoretical and technological innovations of special motor systems.

In order to further strengthen academic exchanges, and share the experiences and latest achievements of researchers and experts from both academia and industry all over the world in the fields of topologies, analysis, design, optimization, control and intelligent calculation of special motor systems, the editorial department of "Transactions of China Electrotechnical Society" and "CES TEMS" specially invited Professor Ping Zheng from Harbin Institute of Technology as the Deputy Editor in Chief organizing the special issue on "Special Motor Systems and Intelligent Calculation". Detailed topics include but are not limited to:

- New principles, structures, topologies and applications of special motor systems
- Advanced design theories of special motor systems
- Accurate modeling and analysis of special motor systems
- Intelligent optimization technologies of special motor systems
- Vibration and noise analysis of special motor systems
- Advanced drive technologies of special motor systems
- Intelligent control strategies of special motor systems
- EMC technologies of special motor systems
- Intelligent fault diagnosis of special motor systems
- Intelligent health management of special motor systems
- Other related topics

Contact the deputy editor-in-chief if your manuscript is not within the listed topics, as papers within the general topic of electrical machines and systems are all welcome by the CES TEMS and Transactions of China Electrotechnical Society.

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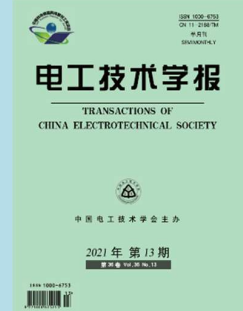
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**Editor-in-Chief**  
**Prof. Weiming Ma**

### **Deputy Editor-in-Chief**

**Prof. Ping Zheng**

Harbin Institute of Technology,  
China  
[zhengping@hit.edu.cn](mailto:zhengping@hit.edu.cn)



### **Guest Editors**

**Prof. Fengge Zhang**

[zhangfg@sut.edu.cn](mailto:zhangfg@sut.edu.cn)

**Prof. Shoudao Huang**

[hsd1962@hnu.edu.cn](mailto:hsd1962@hnu.edu.cn)

**Prof. Deliang Liang**

[dliang@mail.xjtu.edu.cn](mailto:dliang@mail.xjtu.edu.cn)

**Prof. Bo Zhou**

[zhoubo@nuaa.edu.cn](mailto:zhoubo@nuaa.edu.cn)

**Prof. Xiuhe Wang**

[wangxh@sdu.edu.cn](mailto:wangxh@sdu.edu.cn)

**Prof. Wei Hua**

[huawei1978@seu.edu.cn](mailto:huawei1978@seu.edu.cn)

**Prof. Wenxiang Zhao**

[zwx@ujs.edu.cn](mailto:zwx@ujs.edu.cn)

**Prof. Xiaoyong Zhu**

[zxyff@ujs.edu.cn](mailto:zxyff@ujs.edu.cn)

**Prof. Chengde Tong**

[tongchengde@hit.edu.cn](mailto:tongchengde@hit.edu.cn)

theory, electrical insulation, materials, information technology, and new energy technologies.

[www.ces-transaction.com](http://www.ces-transaction.com)



**Prof. Jingang Bai**  
baijingang@hit.edu.cn  
**Prof. Yi Sui**  
suiyi@hit.edu.cn  
**Dr. Mingqiao Wang**  
wangmingqiao@hit.edu.cn

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Final decision notification:

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Publication:

**25 March, 2022**

***In Vol. 6, No. 1, 2022***



# Call for Papers

## *Special Section on Topologies, Modelling, Design, Control and System Integration for Linear Machines and Drives*

With the ability to generate direct thrust without any mechanical transmissions, the linear machines serve as excellent choice for industrial applications requiring linear motions, such as linear metros, MAGLEVs, servo systems, wave-energy generators, conveyors, linear compressor, fast action solenoids, loudspeakers, microphones, *etc.* Due to the special characteristics of linear machines, e.g., the cut-open iron core, the large air-gap length, the end-effects, the half-filled slots, the unbalanced/asymmetric magnetic circuits, the vertical force, both academic and industry face great challenges in design method, control strategies, integration methodologies for high performance linear machines and drives.

This Special Section aims to collect the latest theoretical and technological ideas in the field of linear machines and drive systems. Advancements in the new linear machine topologies, mathematical modelling, design methodologies, high performance control strategies, multi-objective optimization techniques, and so on are of great interest. Manuscript with both theoretical and practical/experimental results are strongly welcome. Topics of interest include, but are not limited to:

- New topologies of linear machines,
- Mathematical modelling of linear machines,
- New materials and applications for linear machines,
- Integrated modelling for linear machines and drive systems,
- Advanced control strategies for linear machines and drive systems,
- Multi-objective optimization techniques for linear machines and drives,
- Other related topics.

Contact the deputy editor-in-chief if your manuscript is not within the listed topics, as papers within the general topic of electrical machines and systems are all welcome by the CES TEMS.

### **Brief guideline for authors:**

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1. Review articles.
2. Original research.
3. Rapid communications.

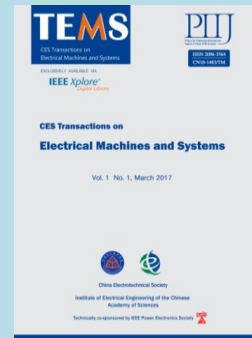
All manuscripts must be submitted through Manuscript Central at <https://mc03.manuscriptcentral.com/tems>. Submissions must be clearly marked “**SS: Topologies, Modelling, Design, Control and System Integration for Linear Machines and Drives**” on the cover page. When uploading your paper, please select your manuscript type “Special Issue.” Refer to <http://www.cestems.org> for general information about electronic submission through Manuscript Central. Manuscripts submitted for the special issue will be reviewed separately and will be handled by the guest editorial board noted below.

### **About the journal**

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IEEE Editor-in-Chief  
Prof. Weiming MA**

### **Deputy Editor-in-Chief**

**Prof. Wei Xu**  
Huazhong University of Science and  
Technology, China  
[weixu@hust.edu.cn](mailto:weixu@hust.edu.cn)



### **Guest Editors**

**Prof. Qinfen Lu**  
[luqinfen@zju.edu.cn](mailto:luqinfen@zju.edu.cn)  
**Prof. Jiwen Zhao**  
[ustczjw@hfut.edu.cn](mailto:ustczjw@hfut.edu.cn)  
**Prof. Xuzhen Huang**  
[huangxuzhen@nuaa.edu.cn](mailto:huangxuzhen@nuaa.edu.cn)  
**Prof. Jin Xu**  
[15308653681@163.com](mailto:15308653681@163.com)  
**Prof. Baoquan Kou**  
[koubq@hit.edu.cn](mailto:koubq@hit.edu.cn)  
**Prof. Guangtong Ma**  
[gtma@swjtu.edu.cn](mailto:gtma@swjtu.edu.cn)  
**Prof. Guobing Lin**  
[linguobin@tongji.edu.cn](mailto:linguobin@tongji.edu.cn)  
**Prof. Junyong Lu**  
[jyluneu@163.com](mailto:jyluneu@163.com)  
**Prof. Wei Wang**  
[wangwei1986@seu.edu.cn](mailto:wangwei1986@seu.edu.cn)  
**Prof. Liyi Li**  
[liliyi@hit.edu.cn](mailto:liliyi@hit.edu.cn)  
**Prof. Gang Lv**  
[ganglv@bjtu.edu.cn](mailto:ganglv@bjtu.edu.cn)  
**Prof. Liang Xu**  
[xuliang0511@ujs.edu.cn](mailto:xuliang0511@ujs.edu.cn)  
**Prof. Ping Zheng**  
[zhengping@hit.edu.cn](mailto:zhengping@hit.edu.cn)  
**Prof. Zhaolong Sun**  
[brucesunzl@126.com](mailto:brucesunzl@126.com)  
**Prof. Essam Eddin M. Rashad**  
[emrashad@f-eng.tanta.edu.eg](mailto:emrashad@f-eng.tanta.edu.eg)  
**Prof. Jianguo Zhu**  
[jianguo.zhu@sydney.edu.au](mailto:jianguo.zhu@sydney.edu.au)  
**Prof. Ion Boldea**  
[ion.boldea@upt.ro](mailto:ion.boldea@upt.ro)

### **Important Dates**

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**30 April, 2022**

Final decision notification:

**20 May, 2021**

Publication:

**25 June, 2021**

*In Vol. 6, No. 2, 2022*

# Call for Papers

## Special Section on High Torque Performance Machine Systems

With the rapid development of aerospace, industrial robots, numerical control machine tool and other high-end equipment, machine system, as the core power source of high-end equipment, requires a higher torque performance. High torque density means that the machine has a smaller size and weight, which is critical in aerospace, electric vehicles and other applications where machine volume and mass requirements are stringent. In industrial robots and numerical control machine tools, the torque pulsation of the machine has an important effect on positioning accuracy and running smoothness. In this context, high torque performance machine system has gradually become an important research branch in the field. At present, in order to achieve the goal of high torque density, the machine often works in the state of high electromagnetic load. However, limited by the current density and heat dissipation conditions, the torque density of the machine is difficult to further breakthrough. In addition, the suppression of pulsation often leads to the decrease of torque density, and it is difficult to balance the high torque density and low torque pulsation. On the other hand, under the requirements of machine system integration development, the integration degree of the machine system is high, and multi-physical factors coupling effect become strong. Since the model accuracy of the machine system is poor, high-quality design and control is difficult to achieve. The above key problems pose severe challenges to the design, analysis and control of high torque performance machine system.

High torque performance machine system contains many challenges. From the perspective of machine body, the research branch includes but not limited to the machine topology structure, application of new materials, and new optimization algorithms. This part of the research should also consider the influence of coupling factors of multiple physical fields. From the perspective of control system, the research branches include but are not limited to control strategy, hardware circuit and application of new power electronic devices. This part of the research needs to be considered in combination with the special operating conditions of high torque performance machines. In addition to the above research, the fault tolerant design of machine system, robustness optimization and high reliability operation method of high torque performance machine in high reliability applications also need to be considered carefully.

In order to further strengthen academic exchanges, and promote the exchange of experiences and achievements of researchers and experts from both academia and industry all over the world, the editorial department of "Transactions of China Electrotechnical Society" and "CES TEMS" specially invited Professor Wenxiang Zhao from Jiangsu University as the Deputy Editor-in-Chief organizing the topic of "High Torque Performance Machine Systems". Detailed topics include but are not limited to:

- New principles and topologies of high torque performance machines
- Drive and control techniques of high torque performance machine
- Fine modeling of high torque performance machine systems
- Application of new materials and devices for high torque performance machines
- Loss and temperature field analysis of high torque performance machines
- Fault detection and high reliability control for high torque performance machines
- Vibration and noise analysis and suppression of high torque performance machines
- Multi-objective optimization design of high torque performance machines
- High torque performance machine system application

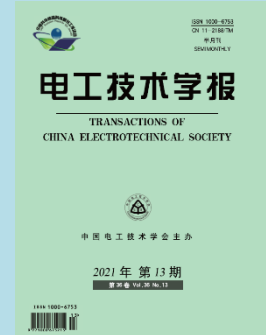
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### Deputy Editor-in-Chief

**Prof. Wenxiang Zhao**

Jiangsu University, China  
zwx@ujs.edu.cn



### Guest Editors

**Prof. Zheng Wang**

zwang@seu.edu.cn

**Prof. Xuzhen Huang**

huangxuzhen317@163.com

**Prof. Dawei Li**

daweili@hust.edu.cn

**Prof. Xiao Liu**

xiaoliu@hnu.edu.cn

**Prof. Wenliang Zhao**

wlzhao@sdu.edu.cn

**Prof. Ying Xie**

xieying\_1975@163.com

**Prof. Xianglin Li**

lxllcc@126.com

**Prof. Guodong Yu**

yuguodong@hit.edu.cn

**Prof. Liang Xu**

xuliang0511@ujs.edu.cn

<https://mc03.manuscriptcentral.com/tems> (CES TEMS), Submissions must be clearly marked “**High Torque Performance Machine Systems**” on the cover page. When uploading your paper, please select your manuscript type “Special Issue”. Refer to <http://www.ces-transaction.com/> and <http://www.cestems.org> for general information about electronic submission through Manuscript Central. Manuscripts submitted for the special issue will be reviewed separately and will be handled by the guest editorial board noted below.

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Publication:

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**In Vol. 6, No. 3, 2022**

# Call for Papers

## *Special Section on Electrical Machines and Systems in New Energy Applications*

Controlling carbon emission to achieve green and sustainable development has become a global consensus and general trend. China has established “30.60” decarbonization goal for carbon peak and carbon neutrality. As electromechanical energy conversion devices, the electrical machines and systems play important roles in both renewable energy harvesting, such as wind, tidal, ocean current energy, etc., and new energy drive, such as electric vehicle, more electric aircraft, and more electric ship, etc. However, the improvement of their power density, efficiency, and reliability faces many new challenges in the background of new energy applications. How to further improve these performances from the aspects of novel topologies, intelligent optimization method, advanced control strategy, online fault diagnosis and health management, etc., becomes a key issue to promote applications of electrical machines and systems in the new energy area.

In order to further strengthen academic exchanges, and promote the exchange of experiences and latest achievements in the topology, analysis, design, control, operation and maintenance of electrical machine and system in new energy applications among researchers and experts from both academia and industry all over the world, the editorial department of "Transactions of China Electrotechnical Society" and "CES TEMS" specially invited Professor Lijian Wu from Zhejiang University as the Deputy Editor in Chief organizing the topic of "Electrical Machines and Systems in New Energy Applications". Detailed topics include but are not limited to:

- New topologies
- Modeling and simulation technique
- Design and optimization method
- High-performance control strategy
- Grid forming control technology of renewable generator systems
- Vibration and noise analysis
- Thermal management
- Fault diagnosis and fault-tolerant control
- Intelligent state perception and reliability evaluation
- Health management method
- Application of new materials, new devices and new processes
- Application of artificial intelligence
- Other related topics of electrical machine and control system for new energy applications

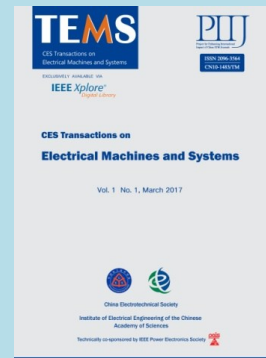
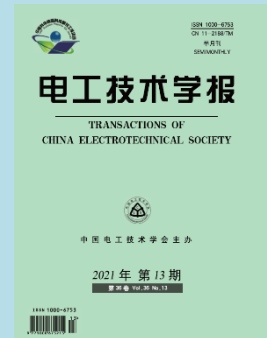
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**Editor-in-Chief**  
**Professor Weiming MA**

### ***Deputy Editor-in-Chief***

**Prof. Lijian Wu**  
Zhejiang University, China  
[ljw@zju.edu.cn](mailto:ljw@zju.edu.cn)



### ***Guest Editors***

**Prof. Kai Wang**  
[k.wang@nuaa.edu.cn](mailto:k.wang@nuaa.edu.cn)  
**Prof. Dawei Li**  
[daweili@hust.edu.cn](mailto:daweili@hust.edu.cn)  
**Prof. Cungang Hu**  
[hcg@ahu.edu.cn](mailto:hcg@ahu.edu.cn)  
**Prof. Junquan Chen**  
[chenjunquan888@sina.com](mailto:chenjunquan888@sina.com)  
**Prof. Xiao Liu**  
[xiaoliu@hnu.edu.cn](mailto:xiaoliu@hnu.edu.cn)  
**Prof. Shi Jin**  
[jinshi@sut.edu.cn](mailto:jinshi@sut.edu.cn)  
**Prof. Wei Wang**  
[wangwei1986@seu.edu.cn](mailto:wangwei1986@seu.edu.cn)  
**Prof. Feng Niu**

## About the journal

### *Transactions of China Electrotechnical Society*

"Transactions of China Electrotechnical Society" was founded in 1986. "Journal" is a comprehensive academic journal in the field of electrical engineering hosted by China Electrotechnical Society.

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"Journal" comprehensively reports high-level academic and scientific research achievements in basic theory research and engineering application in the field of electrical engineering. The publication covers various disciplines in the field of electrical engineering, mainly related to electrical appliances, power electronics, power systems, industrial automation, electrical theory, electrical insulation, materials, information technology, and new energy technologies.

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### *CES TEMS*

CES TEMS is a brand-new quarterly journal published by the China Electrotechnical Society (CES) and the Institute of Electrical Engineering of the Chinese Academy of Sciences, with co-sponsorship of IEEE PELS, starting from March 2017.

CES TEMS is an open-access journal, currently with no publication charge applied to the authors. Published papers will be included in the IEEE Xplore. Also, CES TEMS has been Indexed by CSCD. Inclusion in other globally recognized data base such as the Web of Science (SCI) is under arrangement.

[www.cestems.org](http://www.cestems.org)



niufeng@hebut.edu.cn

**Prof. Hui Yang**

huiyang@seu.edu.cn

**Prof. Xiaoqin Zheng**

zhengxiaoqin@qdu.edu.cn

**Prof. Jien Ma**

majian@zju.edu.cn

### *Important Dates*

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# Call for Papers

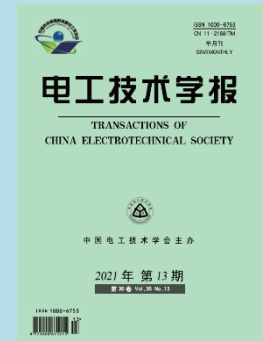
## Special Section on Drive Motor Systems for Electric Vehicles

The mutual empowerment of “electrification, intelligence and connectivity” has brought the world's electric vehicles into a stage of rapid growth with the sales of electric vehicles approached 10% of the global car sales in 2021, and the total number of electric vehicles on the world's roads has reached 16.5 million. The drive motor system is one of the three core technologies of new energy vehicles. The development of silicon carbide devices, electrical materials, permanent magnet motors, power electronics and integration of motor and transmission technologies has greatly improved the power density, efficiency and energy utilization rate of the drive motor system.

The drive motor system of electric vehicles has multi-dimensional technical characteristics of high density (integration), high efficiency (wide high efficiency area), low mechanical noise and low electromagnetic noise, and the rapid development of intelligent vehicles and driverless vehicles has added a new dimension of “system health management” to the drive motor system. Therefore, the research on electric vehicle drive motor system with multi-dimensional technology features presents a new situation of “developing new materials and new devices, applying intelligent and big data technology to transform the existing electric drive system design and technology, interdisciplinary and industrial chain integration”. In terms of driving motor controller, the development of silicon carbide device technology brings about the doubling of controller power density and the improvement of efficiency, but the fast switching and high frequency modulation bring about the electromagnetic compatibility problem of the system. In terms of motor and motor control, the application of flat wire winding, low-weight rare earth magnetic steel, high-performance magnetic conductive materials and super copper wire has brought about and will bring about a great improvement in motor performance, but the motor design and high-performance control technology need to be further studied, and with the adoption of silicon carbide devices and high speed motors in electric vehicles, it is necessary to study the online condition monitoring and health management of key components and systems, including power modules, motor insulation and high speed bearings.

In order to further strengthen academic exchanges and promote the sharing of experiences and achievements of researchers and experts from academia and industry around the world in the fields of optimal design of electric vehicles motors, application of new materials and devices, new topologies, intelligent control and health management, etc, the editorial department of “Transactions of Electrical Technology” and “CES Transactions on Electrical Machines and Systems” jointly invited Prof. Xuhui Wen from Institute of Electrical Engineering, Chinese Academy of Sciences as the Deputy Editor in Chief, and another 12 well-known experts at home and abroad as the Guest editors to organize the special issue on “Electric vehicle Driving Motor System”. We warmly welcome domestic and foreign experts and scholars in this field to contribute actively. Detailed topics include but are not limited to:

- Preparation of super copper wire and its application in driving motor system
- Low - weight rare earth material and its application in driving motor system
- High performance magnetic conductive material and its application in driving motor system
- Wide band gap device and its application in driving motor system
- Modeling, simulation analysis and design method of driving motor system
- New principle, new structure, new topology of the drive motor system
- High performance intelligent control strategy for driving motor system
- Coupling and intelligent analysis of multi-physical field including electrical, magnetic, thermal and mechanical in drive motor system
- Electromagnetic compatibility technology for drive motor system
- Fault diagnosis and health management of driving motor system
- Electromechanical integration technology for drive motor system
- Drive motor system intelligence and other applications



**Editor-in-Chief**  
**Professor Weiming MA**

### Deputy Editor-in-Chief

**Prof. Xuhui Wen**

Institute of Electrical Engineering of the  
Chinese Academy of Sciences, China  
[wxh@mail.iee.ac.cn](mailto:wxh@mail.iee.ac.cn)



### Guest Editors

**Prof. Tao Fan**

Institute of Electrical Engineering of the  
Chinese Academy of Sciences,  
[fantao@mail.iee.ac.cn](mailto:fantao@mail.iee.ac.cn)

**Prof. Dong Jiang**

Huazhong University of Science and  
Technology,  
[jiangd@hust.edu.cn](mailto:jiangd@hust.edu.cn)

**Prof. Yinze Yang**

McMaster University,  
[yangy9@mcmaster.ca](mailto:yangy9@mcmaster.ca)

**Prof. Xin Zhang**

Zhejiang University,  
[zhangxin\\_ieee@zju.edu.cn](mailto:zhangxin_ieee@zju.edu.cn)

**Prof. Yan Xu**

Nanyang Technological University,  
[xuyan@ntu.edu.sg](mailto:xuyan@ntu.edu.sg)

**Prof. Xinhua Guo**

Huaqiao University,

Contact the deputy editor-in-chief if your manuscript is not within the listed topics, as papers within the general topic of electrical machines and systems are all welcome by the CES TEMS and Transactions of China Electrotechnical Society.

### **Brief guideline for authors:**

#### **Papers styles:**

1. Review articles.
2. Original research.
3. Rapid communications.

All manuscripts must be submitted through Manuscript Central at <http://www.ces-transaction.com/> (Transactions of China Electrotechnical Society), and <https://mc03.manuscriptcentral.com/tems> (CES TEMS). Submissions must be clearly marked “**Drive Motor Systems for Electric Vehicles**” on the cover page. When uploading your paper, please select your manuscript type “Special Issue.” Refer to <http://www.ces-transaction.com/> and <http://www.cestems.org> for general information about electronic submission through Manuscript Central. Manuscripts submitted for the special issue will be reviewed separately and will be handled by the guest editorial board noted below.

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[www.cestems.org](http://www.cestems.org)



[guoxinhua@hqu.edu.cn](mailto:guoxinhua@hqu.edu.cn)

**Prof. Shuangxia Niu**  
Hong Kong Polytechnic University,  
[eesxniu@polyu.edu.hk](mailto:eesxniu@polyu.edu.hk)

**Dr. Chaohui Liu**  
The National New Energy Vehicle  
Technology Innovation Center,  
[Liuchaohui@nevc.com.cn](mailto:Liuchaohui@nevc.com.cn)

**Prof. Yihua Hu**  
The University of York,  
[yihua.hu@york.ac.uk](mailto:yihua.hu@york.ac.uk)

**Prof. Pinjia Zhang**  
Tsinghua University,  
[pinjia.zhang@tsinghua.edu.cn](mailto:pinjia.zhang@tsinghua.edu.cn)

**Prof. Zhaoshun Gao**  
Institute of Electrical Engineering of the  
Chinese Academy of Sciences,  
[gaozs@mail.iee.ac.cn](mailto:gaozs@mail.iee.ac.cn)

**Prof. Puqi Ning**  
Institute of Electrical Engineering of the  
Chinese Academy of Sciences,  
[npq@mail.iee.ac.cn](mailto:npq@mail.iee.ac.cn)

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