EVS34

Towards Intelligent E-Mobility

ICEIV

International Conference on Electric and Intelligent Vehicles

NANJING,CHINA

JUNE 25-28,2021

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CONTENTS

WELCOME TO ICEIV 2021

In order to build cleaner, more efficient and more intelligent carriers, carrier industries worldwide are developing technologies in the directions of fuel decarburization, energy diversification, power electrification and intelligentialization. As such, research and development of vehicle and the integration of power system, control system and energy storage technology have also attracted enormous attention. The International Conference on Electric and Intelligent Vehicles (shorted as ICEIV2021) will provide an excellent forum for scientists, researchers, engineers and government officials all over the world to present and discuss around the latest key carrier technologies and development trends. The previous three ICEIV conferences were respectively held in Stockholm, Sweden, Melbourne, Australia and Stavanger, Norway, in 2017, 2018, and 2019, with more than 200 participants at each conference.

The conference can accept submissions in Chinese and English. Topics of interest include, but are not limited to Vehicle Technology, Battery System Technology and Propulsion System Technology

(1) Carrier and vehicle technology
(2) Battery and energy storage Technology
(3) Power and drive system technology

Conference Chair: Prof. Fengchun Sun Prof. Rui Xiong

ACKNOWLEDGEMENT

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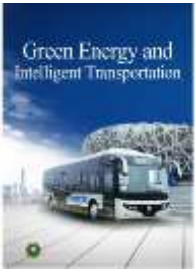

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KEYNOTE SPEAKER 1

Prof. Liyi Li

Title: Green Aviation and Electric Propulsion: Present and Future

Professor Li Liyi engaged in the research of special motors and special electromagnetic devices. Facing the needs of chip manufacturing industry, the linear motor with high precision and high dynamic characteristics in the stage system of lithography machine is studied. In order to meet the requirements of high reliability attitude control of special aircraft, a high overload and high power motor system is developed. The series of high speed spindle motor system has been developed and widely used. In 2012, he was funded by the national fund for Distinguished Young Scholars, and was awarded the title of Yangtze River scholar in 2013, and served in seven academic committees in China. He won the second prize for national technological invention and 6 provincial and ministerial awards. He published more than 300 academic papers, 160 of which have been indexed by SCI. More than 80 patents have been authorized, 3 of which have won silver award of invention exposition, and 10 have realized technology application transformation in enterprises.

Today, aviation industry plays an increasingly important role in serving human production and life, promoting economic development and social progress. However, aircraft noise, particulate matter emissions and carbon dioxide greenhouse gas effect also bring serious pollution to the world. At present, the aviation industry emits more than 900 million tons of carbon dioxide every year, and it is estimated that the emissions will more than triple by 2050. Green aviation technology has become the main driving force leading the change, and low-carbon has become the inevitable requirement and trend of future aviation. This report focuses on high efficiency aviation electric propulsion technology, introduces the current development status of Green Aviation and electric propulsion technology, and prospects the development trend of key technologies of green powered aircraft.

KEYNOTE SPEAKER 2

Prof. Yanwei Ma

Title: Superconducting Materials and their Applications

Prof. Ma is the head of the Department of New Superconducting and Energy Materials in IEECAS. He has an outstanding expertise in the field of superconducting wires and tapes, and has published more than 300 papers in SCI ranked journals so far. He is the editorial-board member of journals such as Supercond. Sci. Technol., Physica C and Sci. Rep.. He has been invited to give 62 plenary or invited presentations in international academic conferences such as ASC, EUCAS, ISS, Vortex and ICMC. Since the discovery of iron-based superconductors (IBS) in 2008, his group was the first to fabricate the iron-based superconducting wires by using the powder-in-tube method. Since then, he has been contributing innovative ideas (and publications) in improving transport critical current density Jc of IBS wires. Due to the original and pioneer work, Prof. Ma was invited to write the first review article on IBS wires for Supercond. Sci. Technol. in 2012. In recent years, he has made many significant contributions in high-performance IBS wires and their practical development, including the first high-performance multifilamentary wire in 2013, realizing the practical level Jc of 10^5 A/ cm^2 at 4.2 K and 10 T in 2014, the first 100-meter class wire in 2016 and the first iron-based superconducting pancake coil in 2019. These advances represent significant breakthrough work in the development of iron-based superconductor technology, and strongly promoted the applications of iron-based superconductors. The contributions of Prof. Ma are highly regarded in superconductor research community. In 2019, the European Society for Applied Superconductivity (ESAS) announced that the 2019 ESAS Award for Excellence in Applied Superconductivity is awarded to Prof. Ma for his “outstanding contributions to the development of superconductive wires with potentially very high impact for applications”.

KEYNOTE SPEAKER 3

Prof. Hong Li

Title: Intrinsic safe lithium ion batteries for EV and stationary energy storage

Hong Li got the degree of bachelor degree in Lanzhou university in 1992, master-degree in Institute of Changchun Applied Chemistry, CAS in 1995 and Ph.D degree in Institute of Physics, CAS in 1999. He is currently a full professor in Institute of Physics, Chinese Academy of Sciences. His research interest is high energy density lithium ion batteries, solid lithium batteries and failure analysis. He has published over 400 papers in peer-reviewed journals with over 30000 times citation and the H-factor is 91. He has filed over 190 patents and 60 have been granted. He is the regional editor of Solid State Ionics and Ionics. He serves as the scientific committee member of MOST and MIIT in China, IMLB and ICESI in the world. He has initiated the Tianmu-lake Institute of Advanced Energy Storage, Yangtze River Delta Physics Research Center, Beijing WeLion New Energy Tech. Ltd., Tianmu Excellent Anode Materials Tech. Ltd, HiNa Battery Tech. Ltd, .

KEYNOTE SPEAKER 4

Prof. Ju Li

Title : New Battery Chemistries and Materials Issues

Ju Li has held faculty positions at the Ohio State University, the University of Pennsylvania, and is presently a chaired professor at MIT. His group (http://Li.mit.edu) investigates the mechanical, electrochemical and transport behaviors of materials as well as novel means of energy storage and conversion. Ju is a recipient of the 2005. Presidential Early Career Award for Scientists and Engineers, the 2006 Materials Research Society Outstanding Young Investigator Award, and the TR35 award from Technological Review. Ju was elected Fellow of the American Physical Society in 2014 and a Fellow of the Materials Research Society in 2017.

Hybrid anion- and cation-redox (HACR) cathodes that combine the redox capacities of transition-metal cations and oxygen/sulfur anions [1] provide new opportunities for rechargeable batteries. High-voltage electrolytes and coatings [2] reduce the stress-corrosion cracking (SCC) of electrodes and the depletion of liquid electrolytes, to prolong the cycle life. New developments in Lithium-metal batteries with mixed ionic-electronic conductor (MIEC) porous interlayers and ion-electron insulator (IEI) binders will be discussed [3]. Finally, the challenges with “renewable wastes” will be introduced, and microwave based treatments will be discussed [4].

[1] "Gradient Li-rich oxide cathode particles immunized against oxygen release by a molten salt treatment," Nature Energy 4 (2019) 1049; Nature Energy 4 (2019) 374.

[2] "Ultra-high-voltage Ni-rich layered cathodes in practical Li metal batteries enabled by a sulfonamide-based electrolyte," Nature Energy 6 (2021) 495; Nature Energy 6 (2021) 362.

[3] "Li metal deposition and stripping in a solid-state battery via Coble creep," Nature 578 (2020) 251. “Porous Mixed Ionic Electronic Conductor Interlayers for Solid-State Batteries,” Energy Material Advances (2021) 1519569.

[4] “Self-Perpetuating Carbon Foam Microwave Plasma Conversion of Hydrocarbon Wastes into Useful Fuels and Chemicals,” Environ. Sci. Technol. 55 (2021) 6239.

PRACTICAL GUIDE

About NANJING

Nanjing, the capital city of Jiangsu Province and the provincial political, economic and cultural center, is located in the lower reaches of Yangtze River, southwest of the province.

Nanjing's advantageous geographical position and long history culture make Nanjing rich tourism resources. Nanjing was the ancient capital of the six dynasties in Chinese history, a city of ten dynasties; also it is the famous historical and cultural city and tourist city. Various types of tourism resources can be found here, including mountain, water, city and forest.

Nanjing is recognized as the museum of modern Chinese history.

Venue Information

Nanjing Air-Hub International Expo Center is located in Lishui District, Nanjing. It is a multi-dimensional transportation center integrating the airport, high-speed railway, expressway and shipping. It is easily accessible using any means of transportation, only 8km form Lukou International Airport and next to the S7 light rail station, to reach the venue.

Aviation

Nanjing Lukou International Airport is only 8 km away from Nanjing Air-Hub International Expo Center, 35 km away from the city and 45-minute drive to the city. The airport has opened nearly 120 routes to 42 domestic cities and 19 international and two regional cities. It has regularly direct passenger route including Nanjing to Hong Kong, Macau, Singapore, Seoul in Korea, Osaka in Japan, Bangkok in Thailand, Frankfurt in Germany and other cities. Also, it has regularly virtual international routes to Los Angeles, London, Moscow, Vancouver changing flights from Beijing. It also has occasional chartered airplane from Nanjing to Kuala Lumpur, Phuket, Sabah, etc.

PRACTICAL GUIDE

Railway

Nanjing has four passenger station including Nanjing Railway Station, Nanjing West Railway Station, Nanjing South Railway Station and Nanjing North Railway Station (Pukou Train Station). Also, it has one marshalling yard Nanjing East Railway Station. At present, Nanjing South Railway Station, 30 km away from Nanjing Air-Hub International Expo Center, mainly operates the high-speed rail Beijing-Shanghai Express Railway, Shanghai-Wuhan-Chengdu High-speed Railway, Nanjing-Hangzhou High-speed Railway, Nanjing-Anqing High-speed Railway, etc. which has become important traffic portal in Nanjing and one of the major transportation hubs in east China.

Taxi

The starting price of the taxi in Nanjing is 10 yuan/3 km and additional 2.4 yuan (daytime) or 3.2 yuan (night) per kilometer beyond 3 km, adding with 1 yuan for fuel surcharges. There is no charge for the waiting time.

Subway

The first subway in Nanjing was officially opened on September 3, 2005 By the end of 2019, Nanjing subway consisted of 10 lines and had a 378-kilometer subway line; in 2030, Nanjing will have 17 subway lines which constitute a total network of 655 km of rail transit network in Nanjing. The tickets fare of Nanjing subway is from 2 yuan to 11 yuan. Nanjing Air-Hub International Expo Center is next to the S7 light rail station.

SPEAKER GUIDE

PRESENTATION VENUES

The following table lists the presentation venues which are used in the detailed program.

Event	Location
Opening of ICEIV	A3-M4ABC
Inauguration Ceremony of Energy Storage System and Equipment Technical Committee	A3-M4ABC
Session A	A4-M5A
Session B	A4-M5B
Session C	A4-M5C
Session D	A4-O23
China Electrotechnical Society Youth Technical Forum	A4-M5B
The appointment ceremony of IEEE Power & Energy Society Electric Vehicle Satellite Committee-China Battery System Subcommittee	A4-M5B

A 3

FUNCTION DIAGRAM OF THE PAVILION

3F

FUNCTION DIAGRAM OF THE PAVILION

2F

FUNCTION DIAGRAM OF THE PAVILION

1F

卫生间 Toilets

会议室 Conference room

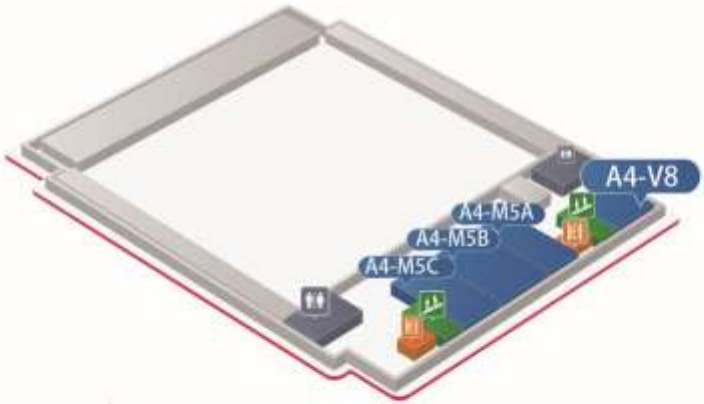
电梯厅 Elevator

楼梯 Stairs

A 4

FUNCTION DIAGRAM OF THE PAVILION

3F



FUNCTION DIAGRAM OF THE PAVILION

2F

FUNCTION DIAGRAM OF THE PAVILION

1F

PROGRAM AT A GLANCE

Registration:

June 25:14:00-17:00; June 26:9:00-12:00, 14:00-17:00; June 27: 9:00-12:00

Friday June 25:

14:00-17:00	The opening ceremony of ICEIV	Location A3-M4ABC
18:30-20:00	Inauguration Ceremony of Energy Storage System and Equipment Technical Committee	Location A3-M4ABC

Saturday June 26

09:00-12:10	The opening ceremony of EVS 34	
12:10-13:00	Lunch	
13:00-14:20	Dialogue Session	
14:30-17:40	Lecture Session	Location A4-M5A and A4-M5C
13:30-17:30	China Electrotechnical Society Youth Technical Forum	Location A4-M5B

Sunday June 27

09:00-12:10	Lecture Session	Location A4-M5A, A4-M5B and A4-M5C
10:40-12:10	The appointment ceremony of IEEE Power & Energy Society Electric Vehicle Satellite Committee-China Battery System Subcommittee	Location A4-M5B
12:10-13:00	Lunch	
13:00-14:20	Dialogue Session	
14:30-17:40	Lecture Session	Location A4-M5A, A4-M5B and A4-M5C

Monday June 28

09:00-12:10	The closing ceremony of EVS 34

PROGRAM AT A GLANCE

Time	Day 1 June 25			
14:00-17:00	The opening ceremony of ICEIV2021 (A3-M4ABC) Chairs: Prof. Hongwen He & Prof. Kai Jiang			
14:00-14:30	Welcome To ICEIV2021			
14:30-15:00	Keynote Speakers1: Prof. Liyi Li Title: Green Aviation and Electric Propulsion: Present and Future			
15:00-15:30	Keynote Speakers2: Prof. Yanwei Ma Title: Superconducting Materials and their Applications			
15:30-16:00	TEA/COFFEE BREAK & TOOK A GROUP PHOTO			
16:00-16:30	Keynote Speakers3: Prof. Hong Li Title: Intrinsic safe lithium ion batteries for EV and stationary energy storage			
16:30-17:00	Keynote Speakers4: Prof. Ju Li Title: New Battery Chemistries and Materials Issues			
17:00-18:30	DINNER			
18:30-20:00	Inauguration Ceremony of Energy Storage System and Equipment Technical Committee (A3-M4ABC)			
Time	Day 2 June 26			
09:00-12:10	The opening ceremony of EVS 34			
Afternoon	A4-M5A	A4-M5B	A4-M5C	
14:30-16:00	VSC	Youth Technical Forum	SES	
Afternoon	A4-M5A		A4-M5C	
16:10-17:40	DOS		BDC	

Time	Day 3 June 27			
Morning	A4-M5A	A4-M5B	A4-M5C	
09:00-10:30	BMM I	BMM II	BMS I	
Morning	A4-M5A	A4-M5B	A4-M5C	A4-O23
10:40-12:10	BMS II	PES ceremony	BMS III	BAMM I
Afternoon	A4-M5A	A4-M5B	A4-M5C	A4-O23
14:30-16:00	MOC	EM	BTM	BAMM II
Afternoon	A4-M5A	A4-M5B		A4-O23
16:10-17:40	VOS	PMS		BAMM III
18:30	BANQUET			
Time	Day 4 June 28			
09:00-12:10	The closing ceremony of EVS 34			

VSC=Vehicle safety and control
SES=Smart energy system
DOS=Diagnosis and optimization system
BDC=Battery design and control
BMM=Battery modeling and management
BMS=Battery management system
MOC=Motor optimization control
EM=Energy management
BTM=Battery thermal management
VOS=Vehicular optimization system
PMS=Power management system
BAMM=Battery management and maintenance

China Electrotechnical Society Youth Technical Forum

1st — Low temperature heating technology of power batteries			
Time：13:30-17:30, Jun 26 2021		**Venue：Room A4-M5B**	
Opening Ceremony Chair: Chengming Zhang, Associate professor of Harbin Institute of Technology			
13:30-13:40	Zhuo Yan	Vice executive secretary of China Electrotechnical Society	Welcome speech
	Kai Wang	Director of Group of Advanced Energy Storage and Application, Research professor of Institute of Electrical Engineering, CAS	Welcome speech
Overview of Industry Challenges Chair: Kai Wang, Professor of Institute of Electrical Engineering, CAS			
13:40-14:00	Qianhui Zhang, Vice chief engineer	Beijing Electric Vehicle Co., LTD	
Keynote Lecture Chair: Caiping Zhang, Professor of Beijing Jiaotong University			
14:00-14:25	Zhe Li, Associate professor of Tsinghua University	Advanced Battery Design Methods and Tools and Their Industrial Practices	
14:25-14:50	Xiaosong Hu, Professor of Chongqing University	Research on Low-Temperature Preheating Control and Temperature Adaptive Heating Strategy of Lithium-ion Batteries	
14:50-15:15	Haifeng Dai, Professor of Tongji University	Low Temperature Heating and Electrothermal Cooperative Management of Lithium-ion Batteries for Electric Vehicles	
15:15-15:40	Xi Zhang, Professor of Shanghai Jiaotong University	State Estimation and Thermal Runaway Prediction of Lithium-ion Batteries based on Electrochemical Mechanism	
15:40-16:05	Chao Lyu, Professor of Harbin Institute of Technology	Optimization strategy of thermal management system and AC heating for lithium-ion batteries	
Technical Seminar Interview Chair: Shiguo Zhou, Seiner Engineer of Yutong Bus Co., LTD			
16:20-17:20	Yongzhi Mao, Chief engineer	Risesun Mengguli New Energy Science & Technology Co., LTD	
	Shiguo Zhou, Seiner Engineer	Yutong Bus Co., LTD	
	Qianhui Zhang, Vice chief engineer	Beijing Electric Vehicle Co., LTD	
	Zhirun Li, Seiner Engineer	Huawei Technologies Co., LTD	
Forum Summary			
17:20-17:30	Hongwen He, Professor of Beijing Institute of Technology		

ORAL PRESENTATIONS

Day 2 June 26			
Room: A4-M5A **Lecture Session: Vehicle safety and control** **Session Chair: Zeyu Chen**			
Invited Speech			
Time	Paper ID	Author	Title
14:30-14:50	1990158	Zeyu Chen	A simplified thermal model for battery external short circuit for fault detection applications
Oral Presentations			
Time	Paper ID	Author	Title
14:50-15:04	13251805	Xiaoguang Guo	Multidisciplinary Optimization on Energy Management and Mechanical System of Hybrid Electric Vehicles
15:05-15:19	6150585	Jin Jia	Simulation Analysis of Shielding Effectiveness of High Voltage Cable and Connector for the Electric Vehicle
15:19-15:33	11551160	Xiaoyu Wang	Study on Mechanism Analysis and Method of Skidding Prediction for Electric Vehicle based on Time-Delay Effect of Force Transmission
15:33-15:47	6251270	Pengfei Li	Design and Realization of Auxiliary Power Unit Control System for RE-EV
15:47-16:00	2671433	Yong Tian	Metal object detection for a wireless charging system based on machine learning and hyperspectral imaging

ORAL PRESENTATIONS

Day 2 June 26			
Room: A4-M5C **Lecture Session: Smart Energy System** **Session Chair: Yong Tian**			
Invited Speech			
Time	Paper ID	Author	Title
14:30-14:50	2670221	Yong Tian	GSSA Modeling and H-infinity Control for Dynamic Wireless Power Transfer System of Electric Vehicles
Oral Presentations			
Time	Paper ID	Author	Title
14:50-15:04	6150587	Jin Jia	Research on the Radiated Immunity Test Methods of ADAS Functions in Intelligent Vehicles
15:05-15:19	2200521	Nan Liu	Trajectory tracking of an autonomous vehicle using a nonlinear model predictive control approach
15:19-15:33	12051033	Bin Huang	Research on Cooperative Eco-driving Control Method of Intelligent Connected Vehicle for Multi-vehicle Cooperation
15:33-15:47	12151529	Bin Wang	Functional Safety Validation Platform for Electric Drive System based on X-in-the-loop in CATARC
15:47-16:00	6190598	Junyi Tang	Planning of electric vehicle charging facilities in conjunction with traffic and grid requirements

ORAL PRESENTATIONS

Day 2 June 26			
Room: A4-M5A **Lecture Session: Diagnosis and optimization system** **Session Chair: Changjun Xie**			
Invited Speech			
Time	Paper ID	Author	Title
16:10-16:30	1270277	Jichao Hong	Fault Diagnosis of Real-scenario Battery Systems Based on the Modified Entropy Algorithms in Electric Vehicles
Oral Presentations			
Time	Paper ID	Author	Title
16:30-16:44	10350857	Quanqing Yu	Multi-fault detection of battery sensor based on two dimensional convolution neural network
16:44-16:58	3620325	Chen Yu	Day ahead optimal dispatch of microgrid based on taxi trip data in Harbin
16:58-17:12	2670463	Yong Tian	Multi-thread Sensing Coil Design for Metal Object Detection of Wireless Power Transfer Systems
17:12-17:26	1990172	Bo Zhang	Fault diagnosis approach for short circuits of lithium-ion batteries in electric vehicles
17:26-17:40	5800544	Jiulong Wang	A Quasi-Z Source Buck-boost DC-DC Converter with Wide Step-up/-down Range for Fuel Cell Vehicles

ORAL PRESENTATIONS

Day 2 June 26			
Room: A4-M5C **Lecture Session: Battery design and control** **Session Chair: Zhongbao Wei**			
Invited Speech			
Time	Paper ID	Author	Title
16:10-16:30	12131825	Zhongbao Wei	Moving Horizon-based Current Estimation for Current Sensor-less Smart Lithium-ion Battery
Oral Presentations			
Time	Paper ID	Author	Title
16:30-16:44	1600121	Yuting Ma	Research on multi-model probabilistic SoC fusion estimation of ultracapacitors
16:44-16:58	11541507	Xiaoguang Yang	A Thermally Modulated Battery For Mass-Market Electric Vehicles
16:58-17:12	12601219	Weiwei Huo	Fault Diagnosis for Proton Exchange Membrane Fuel Cell Based on mechanism model
17:12-17:26	14501835	Xingyu Zhao	Layered δ-MnO2 Nanosheets as Cathode for High Performance Aqueous Zinc Ions Battery
17:26-17:40	10401822	Minghua Chen	High-energy-density Hybrid Supercapacitor Based on Nickel Sulfide Cathode

ORAL PRESENTATIONS

Day 3 June 27			
Room: A4-M5A **Lecture Session: Battery modeling and management I** **Session Chair: Chaolong Zhang**			
Invited Speech			
Time	Paper ID	Author	Title
09:00-09:20	2990281	Chaolong Zhang	Battery state-of-health estimate for lithium-ion battery using information entropy and PSO-LSTM
Oral Presentations			
Time	Paper ID	Author	Title
09:20-09:34	11530868	Chenxu Wang	The Open Circuit Voltage Prediction Based on Long Short-Term Memory Recurrent Neural Networks
09:34-09:48	10240827	Kui Zhang	Research on low temperature AC heating system of lithium-ion battery based on wireless charging
09:48-10:02	2941388	Tongxin Shan	Explosion Behaviors Investigation of Large-format Lithium-ion Pouch Cells
10:02-10:16	10220821	Jiahuan Lu	Prediction of battery capacity degradation under varied operating conditions using deep learning
10:16-10:30	10841870	Xiaopeng Tang	Battery State of Charge Estimation Considering the Uncertainties of Battery Ageing

ORAL PRESENTATIONS

Day 3 June 27			
Room: A4-M5B **Lecture Session: Battery modeling and management II** **Session Chair: Limei Wang**			
Invited Speech			
Time	Paper ID	Author	Title
09:00-09:20	2790223	Yongzhi Zhang	An Online Health Diagnosis and Prognosis Method for Lithium-ion Batteries Using Least Squares Algorithm
Oral Presentations			
Time	Paper ID	Author	Title
09:20-09:34	6141666	Shucheng He	A energy management system for second-life battery in renewable energy systems considering battery degradation costs
09:34-09:48	12821905	Yi Wu	Online Capacity Estimation Based on Semi-Supervised Convolutional Neural Network and Partial Charging Information
09:48-10:02	9591157	Suzhen Liu	Estimation of LiFePO4 Battery State of Charge Based on the Time Domain Features of Ultrasonic Waves
10:02-10:16	16202070	Liang Ma	A Multi Head Deep Learning Algorithm for State of Charge Estimation
10:16-10:30	12131823	Zhongbao Wei	Machine Learning Enabled Multiphysics-Constrained Fast Charging of Lithium-Ion Battery

ORAL PRESENTATIONS

Day 3 June 27			
Room: A4-M5C **Lecture Session: Battery management system I** **Session Chair: Simin Peng**			
Invited Speech			
Time	Paper ID	Author	Title
09:00-09:20	4870964	Simin Peng	A capacity optimization method based on modified genetic algorithm for the battery energy storage system in power distribution network
Oral Presentations			
Time	Paper ID	Author	Title
09:20-09:34	4610438	Shuai Jiang	Qt-based power battery management system core algorithm auxiliary development software
09:34-09:48	9591154	Suzhen Liu	Experimental Study on Lithium-ion Battery Performance at Different Discharge Rates
09:48-10:02	10080843	Wanzhou Sun	Study on the characteristics of lithium-ion batteries under repeatedly short-time external short circuit
10:02-10:16	1631984	Chaocheng Fang	SOC Estimation for Supercapacitor based on Adaptive Extended Kalman Filter with Variable Temperature Model
10:16-10:30	13321216	Peng Huang	A novel dual-source battery system for pure electric vehicles

ORAL PRESENTATIONS

Day 3 June 27			
Room: A4-M5A **Lecture Session: Battery management system II** **Session Chair: Aihua Tang**			
Invited Speech			
Time	Paper ID	Author	Title
10:40-11:00	1720135	Aihua Tang	Multi-model fusion dynamic state-of-charge estimation of lithium-ion battery in electric vehicles
Oral Presentations			
Time	Paper ID	Author	Title
11:00-11:14	10181012	Yu Tian	A variable duty cycle control strategy for heating of all-climate batteries at low temperatures
11:14-11:28	10131039	Liang Zhang	A self-resonated heating circuit for Lithium-ion battery at low temperature based on LC resonance
11:28-11:42	5940558	Rui Xiong（Student）	Capacity fading Model of Vanadium Redox Flow Battery Considering Bulk Electrolyte Transfer
11:42-11:56	9530741	Ziyou Zhou	A Battery Life Estimation Method for Electric Vehicles
11:56-12:10	5040445	Yiran Lin	Battery capacity estimation based on incremental capacity analysis considering charging current rate

ORAL PRESENTATIONS

Day 3 June 27			
Room: A4-M5C **Lecture Session: Battery management system III** **Session Chair: Yanan Wang**			
Invited Speech			
Time	Paper ID	Author	Title
10:40-11:00	2090177	Yanan Wang	Effects of structure and material parametes on thermal performance of li-ion battery under fast charging conditions
Oral Presentations			
Time	Paper ID	Author	Title
11:00-11:14	14201494	Xiaoyu Li	Battery pack state of health prediction based on the electric vehicle management platform data
11:14-11:28	5380584	Longxing Wu	Online SOC estimation based on simplified electrochemical model for lithium-ion batteries considering sensor bias
11:28-11:42	4301341	Jufeng Yang	State-of-health estimation for lithium-ion batteries based on frequency characteristic analysis of equivalent circuit model
11:42-11:56	3411286	Jun Xu	A mechanical-electronic coupling model based state of charge estimation method for Lithium-ion pouch battery module
11:56-12:10	10320842	Jintao Huang	An extended equivalent circuit model of Lithium-ion battery considering surface SOC

ORAL PRESENTATIONS

Day 3 June 27			
Room: A4-O23 **Lecture Session: Battery management and maintenance I** **Session Chair: Quanqing Yu**			
Invited Speech			
Time	Paper ID	Author	Title
10:40-11:00	NA	Binyu Xiong	Research on Modeling and Operation Optimization Strategy of All-vanadium Redox Flow Battery
Oral Presentations			
Time	Paper ID	Author	Title
11:00-11:14	4570414	Yanzhou Duan	Efficient Online Equalization Strategy for Electric Vehicles Based on State of Charge
11:14-11:28	9771007	Peifeng Huang	Battery Fault Diagnosis Based on Abnormal Capacity Fading Prediction by Combining Long Short-term Memory Neural Network and Savitzky-Golay Filter
11:28-11:42	4991050	Qionglin Shi	Physics-based Fractional-order Model of Liquid Metal Battery
11:42-11:56	12021602	Weitao Zou	Fuel Cell Degradation based Cost-Optimal Energy Management for FC-CHP Microgrid: A Game Theoretic Approach
11:56-12:10	2670221	Yong Tian	Model Predictive Control for Output Current of Electric Vehicle Dynamic Wireless Charging Systems

ORAL PRESENTATIONS

Day 3 June 27			
Room: A4-M5A **Lecture Session: Motor optimization control** **Session Chair: Chengming Zhang**			
Invited Speech			
Time	Paper ID	Author	Title
14:30-14:50	2130377	Chengming Zhang	Characteristic Analysis of Propulsion Motor with Series/Parallel Switched Windings for Unmanned Aerial Vehicle
Oral Presentations			
Time	Paper ID	Author	Title
14:50-15:04	1820167	Xuerong Li	A Method to Solve the Blind Area of Phase Current Reconstruction of Three-Phase Permanent Magnet Synchronous Motor
15:05-15:19	2391962	Xinyang Wu	Loss prediction of vehicle permanent magnet synchronous motor based on deep learning
15:19-15:33	2400192	Hongling Chen	Study on temperature rise characteristics of permanent magnet synchronous motor of electric vehicle under high altitude environment
15:33-15:47	11510928	Xintong Zhang	Electromagnetic analytical model of PMSM fed by SVPWM inverter based on equivalent magnetic network
15:47-16:00	11820915	Chaoyu Zhang	An Improved ADRC Speed Controller Based on Active Resistance in Speed Control System of PMSM

ORAL PRESENTATIONS

Day 3 June 27			
Room: A4-M5B **Lecture Session: Energy management** **Session Chair: Jianwei Li**			
Invited Speech			
Time	Paper ID	Author	Title
14:30-14:50	12021602	Jianwei Li	A System Prediction based Energy Management forPhotovoltaic/Fuel Cell/Battery hybrid Combined Heat and Power System Inside Smart Home
Oral Presentations			
Time	Paper ID	Author	Title
14:50-15:04	1490122	Liu Rui	Energy management strategy of electric vehicle based on variable temperature model
15:05-15:19	1570789	Jian Yang	Fuzzy logic-based energy management strategy for a novel electromechanical-hydraulic coupling electric vehicle
15:19-15:33	1990734	Zhiyuan Fang	Energy Management Strategy for Plug-in Hybrid Electric Vehicle Based on the Reinforcement Learning Method
15:33-15:47	10031513	Ruoyan Han	Reinforcement Learning Based Energy Management Strategy to concurrently optimise fuel consumption & PEMFC lifetime for Fuel Cell Hybrid Electric Vehicles
15:47-16:00	2000845	Zewen Meng	Research on Energy Recovery Efficiency of Different Accumulators of the Electromechanical-hydraulic Coupling Electric Vehicle

ORAL PRESENTATIONS

Day 3 June 27			
Room: A4-M5C **Lecture Session: Battery thermal management** **Session Chair: Jun Xu**			
Invited Speech			
Time	Paper ID	Author	Title
14:30-14:50	3411281	Jun Xu	A novel electro-thermal model with three heat sources of a lithium-ion battery cell
Oral Presentations			
Time	Paper ID	Author	Title
14:50-15:04	2951617	Yangjie Zhou	Overcharge investigation of large format lithium-ion pouch cells under compression in electric vehicles: Thermal runaway features and a forewarning strategy
15:05-15:19	14001441	Yasong Sun	Development and analysis of a new cylindrical lithium-ion battery thermal management system
15:19-15:33	1990169	Shijie Li	Control Strategy of Extremely Fast Heating for Lithium-ion battery under Low Temperatures
15:33-15:47	2901883	Jinghan Zhang	An experimental Study on Thermal Runaway and "Cell-Module-Package" Propagation of Ternary Lithium-ion Batteries
15:47-16:00	3990365	Xinghao Du	Online Identification of Lithium-ion Battery Model Parameters with Initial Value Uncertainty and Measurement Noise

ORAL PRESENTATIONS

Day 3 June 27			
Room: A4-O23 **Lecture Session: Battery management and maintenance II** **Session Chair: Quanqing Yu**			
Invited Speech			
Time	Paper ID	Author	Title
14:30-14:50	NA	Jufeng Yang	Research on state-of-health estimation for lithium-ion batteries based on vehicle operating data
Oral Presentations			
Time	Paper ID	Author	Title
14:50-15:04	12281222	Meilin Han	Analysis and Improvement Measures of Driving Range Attenuation of Electric Vehicles in Winter
15:05-15:19	2830233	Xin Lai	Soft Clustering of Retired Lithium-ion Batteries for Echelon Utilization Using Gaussian Mixture Model Based on Electrochemical Impedance Spectroscopy
15:19-15:33	9410733	Qiangwei Li	Online State of Charge Estimation Method Based on Fractional-order Equivalent Circuit Model
15:33-15:47	14301634	Wei Zhou	A Novel Low-cost Dual-source Battery System with Partially Replaceable Battery Pack
15:47-16:00	6000564	Yesen Yang	A Lithium-ion Battery Model Based on Long Short Term Memory Neural Network

ORAL PRESENTATIONS

Day 3 June 27			
Room: A4-M5A **Lecture Session: Vehicular optimization system** **Session Chair: Xiaogang Wu**			
Invited Speech			
Time	Paper ID	Author	Title
16:10-16:30	2290326	Lina Xia	Driving Style Recognition Model Based on NEV High-frequency Big Data
Oral Presentations			
Time	Paper ID	Author	Title
16:30-16:44	15982034	Fuyu Yang	AN AEB Control Strategy Based on the Double Discrimination of Safety Distance and Time-to-collision
16:44-16:58	11730895	Fengning Yu	Research on 3D Object Detection Based on LiDAR and Camera Fusion
16:58-17:12	1620123	Fengchen Liu	Parameter matching method for battery-supercapacitor electric vehicle
17:12-17:26	14501835	Xingyu Zhao	Enhanced stability of MnO2 cathodes for aqueous zinc ion batteries via atomic layer deposition
17:26-17:40	9960822	Zhenyu Sun	Big Data Platform and Data Analysis for Fuel Cell Vehicle

ORAL PRESENTATIONS

Day 3 June 27			
Room: A4-M5B **Lecture Session: Power management system** **Session Chair: Chun Wang**			
Invited Speech			
Time	Paper ID	Author	Title
16:10-16:30	4490403	Bing-ang Mei	Estimating Energy and Power Densities for Pseudocapacitors from Cyclic Voltammetry and Galvanostatic Cycling
Oral Presentations			
Time	Paper ID	Author	Title
16:30-16:44	4301320	Jufeng Yang	A fast state-of-health estimation method for lithium-ion batteries considering the incomplete constant-voltage charging scenario
16:44-16:58	10350858	Quanqing Yu	Current sensor fault diagnosis method based on an improved equivalent circuit battery model
16:58-17:12	1580120	Chun Wang	State of Charge Estimation for Supercapacitor Pack based on Unscented Kalman Filter
17:12-17:26	2670214	Yong Tian	Living object detection of electric vehicle wireless charging based on millimeter-wave radar
17:26-17:40	1641988	Qiang Li	A Comparative Study on the Establishment of the Variable Temperature Model for Ultracapacitor and the Method of Estimating the State of Charge

ORAL PRESENTATIONS

Day 3 June 27			
Room: A4-O23 **Lecture Session: Battery management and maintenance III** **Session Chair: Quanqing Yu**			
Invited Speech			
Time	Paper ID	Author	Title
16:10-16:30	NA	Yongquan Sun	Effects of vibration on reliability and degradation of cylinderical Li-ion batteries
Oral Presentations			
Time	Paper ID	Author	Title
16:30-16:42	14311706	Zheng Chen	State of Charge Estimation for Lithium-ion Batteries Based on Cubature Kalman filter
16:42-16:54	11600881	Shihuai Zhu	A Temperature Simulation Model of Battery Thermal Management System Based on Distributed Parameters
16:54-17:16	5270497	Haolun Xu	Numerical Study of Heat Transfer Enhancement in the Electric Vehicle Battery via Vortex-induced Agitator
17:16-17:28	5270489	Haolun Xu	Battery Thermal Management For Electric Vehicles By A Thermal Connector With Embedded Oscillating Heat Pipe
17:28-17:40	380042	Miaomiao Hu	An Energy Analysis of E-platooning
17:26-17:40	630070	Eduardo MELLO	One-pedal Driving Vversus Coasting: An Energy Efficiency Analysis

POSTER PRESENTATIONS

Day 2 June 26 13:00-14:20			
Dialogue Session: Battery Modeling and Management **Session Chair: Xiaopeng Tang**			
Booth ID	Paper ID	Author	Title
P111	1980178	Wang Jian	The Analysis of Series Hybrid Energy Storage System for Regenerative Braking Based on Energy Constraint Control Aimed at Deceleration
P112	2070180	Huang Aibao	Energy-optimal Adaptive Cruise Control Strategy for Electric Vehicles Based on Model Predictive Control
P113	15781991	Shuna JIANG	Research on PEMFC Water Management Fault Diagnosis Method Based on Learning Vector Quantization Neural Network and Kernel Principal Component Analysis
P114	2320194	Li Junfu	Power state estimation of lithium-ion batteries based on electrochemical model
P115	11800925	Li Yinlu	Speed Control of Permanent Magnet Synchronous Motor Based on Global Load Observer + New Reaching Law
P116	2510436	Peng Jichang	Off line parameter identification of lithium-ion battery based on relaxation characteristics
P117	3220482	Zhao Fei	Design and Analysis of the Linear Permanent Magnet Machine for Compressor
P118	3631049	Chen Jie	Thermal Runaway Modeling of NCM Lithium-ion Batteries Under Different States Of Charge (SOC)
P119	4471393	Gao Le	Research on Online Parameters Identification

			Method of Fractional Order Model for Lithium-ion battery
P120	4560447	Zheng Xunjia	Two-dimensional traffic risk modeling method considering longitudinal and lateral factors
P121	5411489	Chen Jinchun	The Currents Coordinative Control Strategy of Integrated Motor-Drive and Battery-Charging System Based on the Split-Field-Winding Doubly Salient Electromagnetic Machine in Driving Mode
P122	5510652	Wang Haitao	Optimization of liquid cooling structure for cylindrical lithium ion batteries
P123	9020696	Tan Zihao	Prediction for the Remaining Useful Life of Lithium-ion Battery Based on RVM-GM with Dynamic Size of Moving Window
P124	9781436	Zhang Zhengjie	Research on Real-time SOC Estimation of Lithium Battery Based on Strong Tracking Adaptive Extended Kalman Filter
P125	9971627	Liu Deliang	A trajectory tracking controller of multi-axis steering vehicle with coupling Horizontal and longitudinal motion
P126	10061912	Zheng Linfeng	Data analysis and visualization platform design for batteries using Flask-based Python web service
P127	10380861	Zhao Qian	Comparative Analysis on Economy Performance of a Pure Electric Passenger Car under WLTC and CLTC-P Conditions
P128	11710972	Zhang Jingchen	Research on Shift Decision of 2-speed Transmission in Battery Electric Vehicle Based on Knowledge

POSTER PRESENTATIONS

Day 2 June 26 13:00-14:20			
Dialogue Session: Energy and Battery System **Session Chair: Yongzhi Zhang**			
Booth ID	Paper ID	Author	Title
P129	11770899	Jiang Fengyang	Research on Point Cloud Registration Method of Vehicle-mounted Lidar
P130	11921779	Li Da	A Comprehensive Safety Evaluation Method for Electric Vehicles based on Analytic Hierarchy Process
P131	12161032	Chen Wenxin	A SOC-based fast charging optimization strategy for lithium-ion batteries using dynamic programming
P132	12180976	Lin Jing	Improved Multi-stage Constant Current Charging Method Based on Internal Resistance of Liquid Metal Battery
P133	12581046	Kang Chunjian	State of charge and state of health estimation of series lead-acid battery pack based on EKF algorithm
P134	12681846	Liu Zhicheng	Battery fault prognosis for electric vehicles based on ARIMA and CNN-LSTM in Real Time
P135	12881133	Qu Weiwei	Degradation Mechanism Diagnosis of Lithium-Ion Battery by Incremental Capacity Curves Peaks Analysis
P136	13021741	Cheng Yuanyang	An Improved Structure for Multi-sector Bearingless Motor
P137	14551631	Zhang	Optimization of DC-Link Capacitor in Motor Driver

		Zhiguo	for Minimizing Its Volume
P138	14601844	Xing Ruipeng	Voltage balance control of flying capacitor in multilevel converter
P139	14671890	Luo Xiao	A path tracking method for autonomous vehicles based on event-triggered variable-parameter MPC
P140	14931818	Jiang Zhiwei	Hybrid excitation flux-switching generator with deexcitation ability
P141	14941894	Wang Sheng	A Fast Open Circuit Voltage Characterization Approach Based on Pulse Currents Injection
P142	15241897	Li Menglin	Design Consideration of Dual Three Phase PMSM Drive System in Electric Vehicles Application
P143	12471185	Zhang Zhaolong	Energy consumption prediction of electric vehicles based on digital twin technology
P144	12180995	Lin Jing	Dual-equivalent Circuit Fusion Model of Liquid Metal Battery
P145	5000945	Fu Yutong	Electromagnetic Shielding Technique for No-insulation Superconducting Rotor Windings in Electrical Aircraft Propulsion
P147	2320201	Li Junfu	Battery capacity prediction based on grey prediction method and electrochemical model
P148	3220541	Zhao Fei	Optimal Design of the Permanent Magnet Shape in an Axial-Flux Vernier Motor
P149	1270280	Hong Jichao	A Critical Review of Data-Driven Safety Management Technologies for Advanced Battery Systems Towards Real-World Electric Vehicles
P150	16182040	Zhao Lei	Research on the self-synchronization characteristics of the planetary row automated

			mechanical transmission electrical driving system
P151	16272062	Li Xiaoquan	Lithium-ion Batteries using electrochemical mechanism model based algorithms for EVs on Electric Vehicles
P152	2820230	Yu Haoran	Study on properties of high nickel ternary cathode material coated with lanthanum oxide
P153	2990281	Zhang Chaolong	Battery state-of-health estimate for lithium-ion battery using information entropy and PSO-LSTM
P154	3610419	Zhang Junming	Simple Recurrent Units Network for State-of-charge Estimation of Lithium-ion Batteries
P155	4720533	Wang Xingyu	Study on stability control of vehicle tire blowout based on run-flat tire
P156	5210568	Dong Sidi	Online State of Charge and State of Power Joint Estimation of Vanadium Redox Flow Battery Based on An Equivalent Circuit Model
P157	5330505	Jiang Kun	Thermal runaway analysis of nickel-rich lithium-ion batteries in different states of charge
P158	5420685	You Anhong	Research on Dual Excitation Wireless Power Transmission System Based on LCC-S Topology
P159	6010640	Pan Xiaobai	Vacant Parking Slot Detection For Self-Parking System
P160	6100620	Xia Ziyi	Centralized PI Controller Matrix Design for the Multi-excitation-unit Inductive Power Transfer System

POSTER PRESENTATIONS

Day 3 June 27 13:00-14:20			
Dialogue Session: Vehicular System **Session Chair: Jichao Hong**			
Booth ID	Paper ID	Author	Title
P111	8981869	Dai Yingpeng	MDSNet: a lightweight network for real-time vision task
P112	9821790	Wang Cunbin	A pulse compound heating strategy for lithium-ion battery based on electro-thermal coupled model
P113	9871813	Wu Xiangfeng	Research on the Acquisition and Amplification of in-plane Signals of Proton Exchange Membrane Fuel Cell
P114	10190837	Ma Jian	Research on Anti-skid Control Strategy for Four-Wheel Independent Drive Electric Vehicle
P115	3380307	Yujie WANG	High Fidelity Fractional Order Thermoelectric Model for Lithium-ion Battery Fast Charging
P116	12011310	Yang Ruidong	The cooling circuit design and performance optimization of battery cooling system in electric vehicle thermal management
P117	12071060	Li Jiabo	State of Charge Estimation for Lithium-ion Batteries based on Dual Kalman filter
P118	12080959	Han Yongjie	Analysis and Design of a Modular Three-Phase Boost-Buck EV Traction Inverter
P119	12411891	Liu Jinjia	Parameter Tuning Method of ZVS Realization of LCC-LCC Compensated Resonant Converter for V2G Bidirectional Wireless Charger

P120	12541177	Chen Qiang	Torque Distribution Control for Electric-Four-Wheel Drive Vehicles Considering Coordination of Stability and Economy
P121	12551183	Hu Han	A Review of Hybrid Control Based on High Frequency Injection Method for Sensorless Permanent Magnet Synchronous Motors
P122	12811119	Zhou Yue	Analysis of the End Effect for a Slotless Long-Stator Permanent Magnet Synchronous Linear Motor
P123	13271294	Gao Dekun	The Eco-Driving Strategy Considering Adjacent Vehicles for Intelligent Connected Vehicles
P124	13321216	Huang Peng	The state of health estimation of lithium ion batteries in charging process
P125	13381516	Wang Yixian	Comparative Analysis of Parallel Hybrid Magnet Memory Machines with Different PM Arrangements
P126	13411225	Yang Xichen	Model-based Fault Diagnosis of External Short Circuit in a Wide Temperature Range for Lithium-ion Battery;Xichen Yang
P127	13441373	NA	Research on the Fusion of Camera and Lidar for 3D Object Detection in Underground Coal Mine
P128	13521753	Luo Xinghua	Research on Torque Distribution Control of Distributed Drive Electric Vehicles
P129	13551397	Wang Jianlong	Hierarchical driving force allocation strategy for4-WID electric vehicles
P130	13571342	Chang Bo	Robust control design of active front wheel steering on low adhesion road surfaces
P131	13791396	Zhang Chengzhong	The Precise estimation for state-of-charge of NCM lithiumion batteries

POSTER PRESENTATIONS

Day 3 June 27 13:00-14:20			
Dialogue Session: Motor and Batteries **Session Chair: Jichao Hong**			
Booth ID	Paper ID	Author	Title
P132	3380308	Caijie Zhou	State of health estimation for lithium-ion battery based on the IC-LSTM framework
P133	14221498	Chen Deliang	An Online Control Method for a Voltage Fed Two Phase Dual Active Bridge Converter with Minimum RMS Current
P134	15141852	Li Yunzhe	Research on Strategy of energy storage participating in auxiliary frequency regulation of power system in spot market
P135	15952028	Zou Naipeng	Recognition and diagnosis method for accelerated aging of lithium-ion battery based on logistic regression
P136	9080695	Dai Xin	Incipient fault diagnosis of push-pull current source inverter system for Wireless Power Transfer system based on generalized state space averaging method
P137	5020440	Guo Qingbo	System Efficiency Improvement Adopting Permanent Magnet Synchronous Motor Direct Drive System for Electric Vehicles
P138	5450492	Yuanhang Pan	Two-layer scheduling strategy of orderly charging and discharging based on V2G for mutual benefit and win-win
P139	5630528	Wang Zhi	Multi sensor fusion and ultra wideband

			positioning technology (UWB) based on the complex scene of intelligent network call system
P140	14791747	Yan Bao	An Approach for Pricing of Charging Service Fees in an Electric Vehicle Public Charging Station
P141	14201495	XiaoyuLi	A multi-particle physics-based model of lithium-ion battery for fast-charging control application
P142	4061265	Wang Kai	An Intelligent Optimization for the Auxiliary Power Unit of the REEV Based on Performance Simulation
P143	2321017	Li Junfu	Parameter identification method of an electrochemical model for lithium-ion battery pack
P144	5020443	Guo Qingbo	Efficiency Optimization Control of Permanent-Magnet Synchronous Machines for Electric Vehicle Traction Systems
P145	3141667	Wei Jingwen	Reinforcement Learning-based Optimal Balancing Control for Lithium-Ion Battery Packs
P146	5770538	Yu Wei	Analysis of Ring-shaped Modular Permanent Magnetic Linear Motor and the Optimization Design
P147	9270712	Wei Tao	Research on Thrust Performance of Double-Sided Permanent Magnet Linear Synchronous Motor Considering Manufacturing Imperfections
P148	13961590	Xu Liang	A Consequent-pole Fault-Tolerant

			Permanent-Magnet Vernier Machine for Electric Vehicles
P149	7861733	Rao Zhonghao	Recycling of Anode Graphite from Waste Lithium-ion Batteries by Freeze-thaw Ultrasonic Assisted Circulation Method
P150	4290966	Li Xichen	Study On Super-High-Speed Motor Stator Current Optimal Control System For Fuel Cell Air Compressor Based On Dspace
P151	9690799	Yang si	RLS-based Adaptive Equivalent Circuit Model of Lithium Battery under Full Working Conditions
P152	9900816	Yin Hao	Study on Voltage Inconsistency Characteristic Parameters for Electric Vehicle Batteries

NOTE