

Table of Contents

0003	Study on Coordinated Control of Lateral and Roll Motion for Eight-wheeled Distributed Drive Electric Vehicles <i>Zili Liao; Lichun Cai; Yunyin Zhang; Qian Yang</i>	1
0004	Parameter Matching Method of LCC/S for Compensating Dynamic Wireless Power Transfer System <i>Feifan Xu; Shuguang Wei; Jiaqi Li; Dong Yuan</i>	6
0007	Universal Torque Estimation Applicable to Both Induction and Permanent Magnet Synchronous Motors without Torque and Speed Meters <i>Shu Yamamoto; Hideaki Hirahara; Keita Takehana</i>	11
0008	Research on key technologies of DC carrier chip applied in distributed photovoltaic scene <i>Hailong Zhang; Enguo Zhu; Yi Ren; Ran Li; Kuixi Chen; Mengdi Zhai</i>	17
0010	Design of Frequency Adaptive Sensorless Observer for Reduced DC-Link Capacitance IPMSM Drives <i>Lujie Huo; Wen Ding; Shuo Chen; Dexu Lv; Hui Yao; Min Wang</i>	23
0013	Speed Ripple Suppression Strategy for Space Vector Modulation Based Direct Torque Control of Permanent Magnet Compressors <i>Jiayi Zhao; Zhaoqing Fu; Nannan Zhao; Siqi Wang; Guoqiang Zhang; Gaolin Wang; Dianguo Xu</i>	29
0014	Efficiency Estimates of Integrated Two-Speed e- Powertrain System under WLTP Driving Cycle for Electric Vehicle <i>Shun Feng; Ronghai Qu</i>	35
0015	Design of Current and Back Electromotive Force Observers for Ironless-stator Permanent Magnet Brushless DC Motor Dual-Stage Drive <i>Haoyan Li; Haiping Xu; Xi Chen; Peng Zhou; Chen Gong; Yihong Qin</i>	41
0017	Improved Differential-Free Predictive Current Control for Three-Level Permanent Magnet Synchronous Linear Motor Drives <i>Mingna Ma; Yu Xia; Supeng Yuan; Hengyuan Dai</i>	47
0018	An Advanced Subdomain Model for Predicting Dynamic Demagnetization in a Surface-Mounted Permanent-Magnet Field-Modulated Motor <i>Bo Yan; Xianglin Li; Xiuhe Wang; Yubo Yang</i>	55
0019	Modeling and discharge characteristics analysis of eight-phase AC exciter air-core pulsed alternator <i>Yingjie Chen; Youlong Wang; Ying Zhang; Jialin Wei; Fan Xu</i>	61
0020	A Detection Method for Interturn Short-circuit Fault of Five-phase Surface Mounted PMSM <i>Puyi Fan; Yichen Zhang</i>	68
0022	Model Predictive Current Control Strategy for Medium-speed Maglev Train with Parameter Mismatch <i>Hang Zhang; Ruihua Zhang; Hongyun Sang; Zexi Liang</i>	74
0023	Reduction of Rotor Loss in High-Speed Electrical Machines With a Novel Composite Sleeve <i>Minyue Ding; Haiyang Fang; Ronghai Qu</i>	78

0024	Design and Multi-Physics Coupling Analysis of 100 kr/min High-Speed Permanent Magnet Synchronous Motor Considering Inverter Harmonics <i>Yingzhe Lin; Yunlu Du; Yunkai Huang</i>	82
0026	On-line Monitoring System For Water Content Based On The Principle of Calculable Cross Capacitor <i>Ming Pan; Wenze; Hao Gao; Bitong Chen</i>	86
0027	Transient Optimisation of Line-Start Permanent Magnet Linear Synchronous Motors <i>Huiying Chen; Jun Di; John Fletcher</i>	92
0028	Modular Permanent Magnet Vernier Machine Design and Optimization for Forging Servo Application <i>Rongxin Wang; Bo Wang; Ming Cheng; Jian Zhang; Wei Qian</i>	97
0029	Electromagnetic Field and Temperature Field Analysis of Coil Type Lead-Bismuth Electromagnetic Flowmeter <i>Sixian Zhu; Jien Ma; Lin Qiu; Qiyi Wu; Wenxiao Wu; Shuming Zhang; Chunyuan Liu; Jiantian Hu; Youtong Fang</i>	103
0030	Effect of Air Resistance in Electromagnetic Forming of Thin Sheet Based on S-ALE Method <i>Yao Chen; Zelin Wu; Pengxin Dong; Yifan Huang; Runze Liu; Xiaotao Han</i>	108
0031	Fault Tolerant Control for Doubly Salient Electromagnetic Generator Based on H-Bridge Boost Converter under Excitation Loss <i>Hongjun Shi; Bo Zhou; Lei Xiong; Xiaodong Yu; Yihao Li</i>	113
0032	A Step-up DC-DC Converter with Self-boost Charge-Pump-Type Switched capacitor <i>Zhuo Yang; Zhaohong Wang; Bihua Hu; Minghai Wu; Zhuohua Hou; Jie Zhang</i>	119
0033	Research on the Current Given Function of Doubly Salient Electro-magnetic Motor Based on H-bridge Converter <i>Yihao Li; Bo Zhou; Lei Xiong; Siyuan Jiang; Hongjun Shi</i>	124
0034	Analytical Investigation and Topology Evolution of Rotor Salient Pole Reluctance in the Flux-switching Permanent Magnet Machine <i>Zhengzhou Ma; Ming Cheng; Chenchen Zhao</i>	130
0035	Design and Research of a Linear Actuator for Electric Vehicle Active Suspension <i>Yunnan Feng; Qinfen Lu; Yanxin Li</i>	136
0036	Research on Single Power Switch Open Circuit Fault Diagnosis of Doubly Salient Electromagnetic Motor Based on Bus Current <i>Yijun Zhang; Bo Zhou; Wenjing Fang; Wenbo Zhou; Xiang Kuang</i>	142
0037	Comparison of Electromagnetic Characteristics between Two Dual-side-type Transverse Flux Linear Motors <i>Xiaobao Yang; Ke Liu; Yu Zhou; Hong Miao; Chengbi Zeng;</i>	147
0038	A Quantitative Analysis of a Double Side Flux Modulated Permanent Magnet Machine by the Permeance Magnetomotive Force Method <i>Kuang Yang; Jinming Hu; Fei Zhao; Jincheng Yu; Yi Wang</i>	153
0039	Dynamic Decoupling Compensation for Six Degrees of Freedom Maglev Planar Motor Based on Nonlinear Extended State Observer <i>Minghong Liu; Mingyi Wang; Junchi Li; Chengming Zhang; Liyi Li</i>	157

0040	Layout Optimization of Clustered Wind Farms Based on Potential Game Approach <i>Siyu Tao; Fuqing Jiang; Andrés E. Feijóo-Lorenzo</i>	163
0041	Measurement Noise Suppression Strategy for IPMSM Speed Control with Cascaded LESO <i>Feng Xinpeng; Xie Shirui; Gu Pingping; Lei Ziqi; Zhang Wei; Zhao Chaohui</i>	168
0042	Performance Improvement of High Order ESO-Based Speed Controller for PMSM Drives Using Pole-Zero-Placement Design <i>Shanfeng Zhu; Wenxin Huang; Zhe Sun</i>	174
0043	Optimization of Auxiliary Circuit Devices with Lowest Loss in Auxiliary Resonant Commutated Pole Inverter <i>Weichao Wang</i>	180
0044	Calculation of the Rotor Mechanical Stress of Bridgeless Interior Permanent-Magnet Synchronous Machines with a High-Strength Sleeve <i>Yu Wang; Haiyang Fang; Dawei Li; Ronghai Qu</i>	185
0046	A Multi-Objective Optimization Design Method of Surface Mounted Vernier Permanent Magnet Motor Based on Theoretical Analysis Model <i>Xiong Tao; Chen Yiguang; Sun Haotian</i>	191
0049	Comparison of Surface-mounted and Switched-flux PM Machines Accounting for Thermal Characteristics and Limits <i>Dawei Liang; Z. Q. Zhu; Ankan Dey; Zhitong Ran; Yinzhaoh Zheng</i>	197
0051	Comparative Research on the Characteristics of Long Primary Double-sided Linear Induction Motors with Different Windings <i>Yongxian Liu; Yumei Du; Ruihua Zhang; Xinyu Zhao; Liming Shi</i>	203
0053	A Single Current Regulator Method with Wider Operation Range for PMSM Operating under Square-Wave Mode <i>Ling Peng; Di Zhang; Minglei Zhou; Chenchen Wang</i>	209
0055	Five degrees of freedom magnetic suspension rotor support stiffness analysis of dual-stator bearingless flux-switching permanent magnet motor <i>Liang Tongwei; Zhou Yangzhong; Chen Dongyuan</i>	214
0056	Optimization Design of the Magnetron Injection Gun for the Gyrotron with a Pulsed Magnet <i>Pengbo Wang; Fan Yang; Shan Jiang; Xing Li; Xinheng Li</i>	220
0057	Improved Deadbeat Predictive Current Control for SPMSM based on Multi-Step Prediction <i>Longhao Shi; Chenwen Cheng; Mingjin Hu; Wei Hua</i>	224
0058	Tree Shaped Converter with High Modularity, High Power Density and High Extendability for the Second-Generation Vessel Integrated Power System <i>Peng Chen; Jianfeng Zhao; Kun Dong; Kangli Liu; Congyue Zhang; Fujin Deng</i>	230
0060	An Adaptive Current-Limiting Strategy for Grid-Forming Converters under Grid Faults <i>Shenguang Li; Panbao Wang; Wei Wang; Dianguo Xu</i>	236
0061	A SiC MOSFET-Based Auxiliary Resonant Commutated Pole Inverter with Simple Auxiliary Resonant Circuit and Improved Modulation Strategy <i>Tianyou Song; Ming Yang; Si Li; Dianguo Xu</i>	242

0062	Research on Temperature Measuring System of Permanent Magnet Motor Rotor <i>Bin Xiong; Bingyan Bao; Gang Cui; Zhenguo Li</i>	248
0063	Design and Optimization of High-Speed Five-Phase Fault-Tolerant Permanent Magnet Motor for Aerospace Applications <i>Kai Ma; Yanchao Sun; Yufei Gao; Xinxi Tang; Xuefeng Jiang</i>	253
0064	A Novel dv/dt Filter for SiC-Based 2-Level DC-Fed Motor Drive with Long Cables <i>Kaiyuan Hu; Ming Yang; Donglin Xu; Qiyang Zeng; Dianguo Xu</i>	258
0065	Evaluating The Impact of Load Forecasting Error on Scheduling Performance of EV Smart Charging <i>Jiahao Zhong; Bingxuan Yu; Xiang Lei; Linni Jian</i>	263
0066	A Robust Misalignment Recognition Algorithm Using Multi-Domain Network Fusion Model for Wireless EV Charger <i>Haibiao Chen; Songyan Niu; Linni Jian</i>	269
0068	Temperature Rise Rapid Prediction for High-Power Linear Ultrasonic Motors in High Vacuum <i>Yuan Ding; Xiang Li; Chaohao Kan; Taian Ren</i>	275
0069	Robust Two-Degree-of-Freedom Sliding Mode Speed Control for Segmented Linear Motors <i>Shijiog Zhou; Yaohua Li; Liming Shi; Manyi Fan; Ganlin Kong; Jinhai Liu;</i>	280
0071	Design of a 1/3 pole-pair combination brushless doubly-fed machine with a two-phase rotor winding <i>Weidong Pan; Xi Chen; Kexun Yu</i>	286
0072	Torque Enhancement Scheme Based on Deadbeat Harmonic Current Control with Extended State Observer for Dual Three-Phase PMSM <i>Xuwei Lin; Xiaodong Sun; Zebin Yang; Gang Lei; Youguang Guo; Jianguo Zhu</i>	291
0073	Stator Shifting in Dual m-phase SPM Machines With Single-Layer Windings for Space Harmonic Cancellation <i>Isaac Rudden; Guang-Jin Li; Zi-Qiang Zhu; Alexander Duke; Ziad Azar; Arwyn Thomas</i>	296
0075	Comparison of Radial Electromagnetic Force in Rotor-PM and Stator-PM Machines by General Airgap Field Modulation Theory <i>Chenchen Zhao; Ming Cheng; Zhengzhou Ma; Jiawei Zhou</i>	302
0076	Study on PEEK/CF Composite Finite Element Model <i>Jing Yang; Weiguo Su; Dong Wang</i>	307
0077	Influences of Ferromagnetic Saturation on Traction Characteristics in Linear Induction Motors with Composite Secondary <i>Dihui Zeng; Qiongquan Ge; Ke Wang</i>	311
0078	Design and Analysis of a Non-Permanent-Magnet-Skewing Magnetic Screw <i>Zhijian Ling; Weiqi Xu; Meimei Xu; Wenxiang Zhao</i>	316
0079	An Improved Space Vector Modulation Strategy for Suppressing Common-Mode Voltage of Quasi-Z Source Indirect Four-bridges Matrix Converter <i>Yougui Guo; Fazheng Liu; Siqu Peng; Min Wu</i>	321
0081	A Simple but Effective Virtual Inertia Control for Dual Active Bridge in DC Microgrid to Suppress Voltage Fluctuation <i>Nan Yao; Tao Wang; Bowen Duan; Zhelin Li</i>	328

0084	Topological parameter design and reliability analysis of single-module 90KW resonant mediumvoltage DC converter for offshore DC wind turbine <i>Gesi Tang; Yibo Wang; Junlong Lu; Yubo Zhang; Huan Wang</i>	333
0085	Simplified Analysis Model of Axial Flux Permanent Magnet Synchronous Motor <i>Yu Zhou; Ke Liu; Xiaobao Yang; Chengbi Zeng; Bo Luo</i>	339
0086	Electrolytic Capacitorless Doubly Salient Electromagnetic Generator System with Power Compensation Circuit <i>Yi Lu; Bo Zhou; Yijun Zhang; Hanlu Xiao</i>	344
0088	Comparison Study of Different Five-Leg Drive Solutions for Dual Three Phase PMSM <i>Sheng Xu; Tao Wang; Kai Wang</i>	349
0089	An Improved Second-Order Linear Active Disturbance-Rejection Control for Permanent Magnet Synchronous Motor Servo System <i>Weiye Cai; Haozhe Liu</i>	355
0091	Comparison of Electrically Excited and Synchronous Reluctance Machines with Interior Permanent Magnet Machines for EVs/HEVs <i>Tianzheng Xiao; Zhitong Ran; Zi-Qiang Zhu</i>	360
0092	Torque Maximization of Electrically Excited Machines Considering Stator/Rotor Copper Loss Ratio <i>Tianzheng Xiao; Zhitong Ran; Zi-Qiang Zhu</i>	366
0093	A Novel Variable Impedance Design Concept of PM Fault Tolerant Machine <i>Runyu Wang; Dawei Li; Xinggang Fan; Ronghai Qu</i>	372
0094	Asymmetric and Symmetrical Rotor Core Shaping Techniques of IPMSMs for EVs <i>Furkan Tokgoz; Z.Q. Zhu; Xiao Chen; Chaohui Liu; Lianghui Yang; Yiqing Yuan; Han Yang; Yiming Huang</i>	377
0095	Comparative Study of Multiphase IPMSMs for EV Applications <i>Furkan Tokgoz; Z.Q. Zhu; Xiao Chen; Chaohui Liu; Lianghui Yang; Yiqing Yuan; Han Yang; Yiming Huang</i>	383
0098	Load Characteristics of a Switched Reluctance Motor using a Three-Dimensional Gap Structure <i>Iori Shimohama; Kazuhiro Ohyama; Hiroaki Fujii; Kazushi Uehara; Yasushi Hyakutake</i>	389
0099	Flanging and forming of pipe fittings with rectangular magnetic collector <i>Shao Zihao; Qiu Li</i>	394
0100	Effects of Unequal-tooth Stator on Electromagnetic Vibration of Fractional-slot Concentrated Winding Permanent Magnet Motors <i>Zhanchuan Wu; Ying Fan; Xu Wang</i>	400
0104	Compensation Topology Analysis of IPT System with Multiple Receivers <i>Jing Yin; Zhiliang Yang; Zhenjun Wu; Yafei Chen; Jie Wu; Pengfei Gao</i>	405
0105	Active Disturbance Rejection Control for Ship Rim Propulsion Motors Considering Immersion Depth of Propeller <i>Shuai Zhang; Tao Wang; Kai Wang</i>	410
0108	Thrust Fluctuation Suppression of PMSLM Considering Flux Linkage Harmonics and Cogging Force <i>Luda Qiao; Jinhua Du; Yao Wang; Zhe Yang</i>	416

0109	Dynamic Performance Improvement of MRAS Based Sensorless Control for Permanent Magnet Synchronous Machines <i>Lei Zhu; Zewei Song; Yingqin Zou</i>	421
0110	Analytical Model for Maximum Mechanical Stress Calculation of High-Speed Interior Permanent Magnet Synchronous Motors with Modified Rotor <i>Shiqi Li; Wenming Tong; Shengnan Wu; Renyuan Tang</i>	426
0111	Electrical Diagnosis of Gear Wear Fault in RV Reducer Based on Neural Networks <i>Duoxiao Hu; Ming Yang; Ziran Guo; Dianguo Xu</i>	431
0112	Analysis and Implementation of Modular Vector Control for Nine-phase Permanent Magnet Synchronous Generator System <i>Zhaoyun Xu; Shupen Duan; Jinfeng Liu; Lantian Liu</i>	436
0113	Comparative Study on DC Winding Induced Voltage Pulsation of Wound Field Flux Modulation Machines Having Different Iron Core Structures <i>Lai Jin; Wei Hua; Udochukwu Akuru; Zhongze Wu; Wentao Zhang; Ming Cheng</i>	442
0114	Position controller design based on the extended state observer for servomechanism with elasticity <i>Zenong Niu; Wenxin Huang; Shanfeng Zhu; Borui Jia; Qiyao Zhu; Xingquan Lu</i>	448
0115	Square Wave Control System for Dual-sided Long-stator Permanent Magnet Synchronous Linear Motors with Sensorless Control <i>Qiyao Zhu; Wenxin Huang; Shanfeng Zhu</i>	453
0116	A Novel Model to Accurately Acquire Hot Spot Location in Hairpin End Winding of Oil-Cooled PMSM <i>Chen Yang; Wei Cai; Ying Xie; Baicheng Shao; Yue Tang</i>	459
0117	Design of a Novel Rib for Improving the Mechanical and Electromagnetic Performance of IPMSMs <i>Baicheng Shao; Wei Cai; Ying Xie; Chen Yang; Guanning Guo; Yue Tang</i>	464
0118	Design of High Power Density Electronic Ballast for DBD UV Lamps with 222nm UVC Irradiance <i>Junjie Jiang; Liquan He; Mingdi Fan; Chudi Lin</i>	468
0119	A New Permanent Magnet Brushless Double-Rotor Induction Machine <i>Yu Zeng; Wenxiang Zhao; Jinghua Ji</i>	473
0120	Dynamic Performance Enhancement of DC-link voltage for Aircraft Permanent Magnet Generator System with Two-Degrees-of-Freedom control <i>Lin Xu; Jian Huang; Lei Chen</i>	479
0122	DC-Link Voltage Control for Series-Parallel Wireless Motor without Communication Considering System Nonlinearity <i>Yu Chen; Chun Gan; Haochen Shi; Kai Ni; Ronghai Qu</i>	485
0124	Sensorless Control of Five-Phase Flux-Intensifying Permanent Magnet Motor Based on Gradient Descent Adaptive Filter SMO <i>Ming Zhang; Li Zhang; Xiaoyong Zhu; Zifeng Pei; Konghao Xu</i>	491
0126	Beat Phenomenon Suppression Method Based on Quasi-Resonant Extended State Observer for PMSM Drives in Railway Traction Applications <i>Jinquan Zhu; Lu Zhao; Qiongquan Ge; Ke Wang</i>	496
0127	A New Structure of Reciprocal Power-Fed AC Drive Test Platform Using DFIG <i>Xingquan Lu; Wenxin Huang; Zenong Niu</i>	502

0128	Research on the Flux-weakening Capability of the Reverse-salient Permanent Magnet Synchronous Motor <i>Xiaokun Zhao; Cheng Zhang; Weinan Wang; Baoquan Kou; Liangkuan Zhu</i>	507
0132	Analytical model of PMSM fed by SVPWM inverter based on magnetic equivalent circuit <i>Xintong Zhang; Chengming Zhang; Liyi Li; Pengrui Fu</i>	511
0133	Low-Speed Position-Sensorless Control of SRM Drives Using Random Frequency Pulse Injection for Noise Reduction <i>Dexu Lv; Wen Ding; Lujie Huo; Ke Li; Changle Du</i>	517
0135	Active Damping Method of Third-Harmonic Injection Two-Stage Matrix Converter Based on Feedforward of Input Voltage Harmonic Components <i>Fanshang Meng; Bo Zhou; Chengjia Lu; Qingyun Chang</i>	523
0139	Research on Intelligent Test System for Motor and Controller of Electrical Vehicle <i>Qi Huang; Yao Guo; QiuHong Huang; Lei Diao</i>	529
0141	Influence of Finite Element Spatial Discrete Strategy on Large Disturbance Characteristic of Synchronous Generator <i>Dandan Li; Aijun Zhang; Huadong Xing; Siyu Ren; Guorui Xu</i>	535
0142	Reliability Evaluation Method for Power Converters of Speed Synchronous Dual-SRM Drive <i>Guoqiang Han; Bingnan Chen; Jingwei Hong; Zhicong Dong; Shuai Xu</i>	540
0143	Analysis of Dynamic and Economic Performance for Electric Vehicles with Torque Coordinated Control Strategy in CLTC <i>Dacheng Lu; Jianzhong Zhang; Shaoshuai Wang; Zhengxi Yuan; Yongbin Wu</i>	544
0144	Determination of electrical aging test voltage level under a low-pressure environment for accurate lifetime prediction <i>Yatai Ji; Paolo Giangrande; Weiduo Zhao; Vincenzo Madonna; He Zhang; Michael Galea</i>	550
0145	Rotor Spherical Region Location of Permanent Magnet Spherical Motor Based on Improved Random Forest <i>Hongfeng Li; Xinyuan Zhang; Shidong Zhao</i>	555
0146	Analysis and Optimization of Permanent Magnet Assisted Synchronous Reluctance Machine Based on Neural Network Fitting <i>Jin-Ping Lu; Wen-Jie Wan; Yu-Hua Lan; Yun-Chong Wang; Jian-Xin Shen</i>	561
0147	Analysis of Leakage Flux in Fractional-slot Axial Flux Permanent Magnet Machine with Different Slots and Poles <i>Yunpeng Liu; Chen Wang; D Jian Huang</i>	567
0148	Model Predictive Direct Speed Control Based on Synergy of Electromagnetic and Mechanical Time Constant <i>Lixiao Gao; Mingkai Cui; Tanci Chen; Feng Chai</i>	573
0149	Multi-Objective Optimization of Concentrated Flux Interior Permanent Magnet In-wheel Motor with Distributed Winding <i>Kai Li; Chen Wang; Jian Huang</i>	579
0150	A Double-layer Flux-Concentrating Permanent Magnet In-wheel Motor for Special Electric Vehicle <i>Jie Liu; Chen Wang; Jian Huang</i>	585

0151	A Signal-End Data Augmentation Method for Mechanical Fault Diagnosis Based on Self-Sensing Motor Driver <i>Yuan Yao; Bin Xie; Yu Hao; Bing Li; Binqun Li; Yesong Li</i>	591
0154	Isolated AC-DC Matrix Converter based on Virtual Inductance Control <i>Wenlang Deng; Yingjie Hu; Minghai Wu; Haipeng Xie</i>	596
0155	Sampling Methods in Multi-objective Optimization Algorithm of Electric Motors Based on Approximate Metamodel <i>Maixia Shang; Jinglin Liu</i>	602
0156	Multiobjective Design Optimization of Dual-Stator Unequal-Slot Permanent Magnet Synchronous Motor <i>Zhangxian Huang; Wenxin Huang; Shanfeng Zhu; Xiaoting Yang</i>	607
0158	Hysteresis Injection Current Control with Constant Frequency for the Third-Harmonic Current Injection Two-Stage Matrix Converter <i>Qingyun Chan; Bo Zhou; Chengjia Lu; Fanshang Meng; Hanlu Xiao</i>	613
0160	Thermal; Rotor Stress and Dynamics research for a Surface-mounted High-speed Permanent Magnet Motor <i>Zhenning Qi; Yue Zang</i>	618
0161	Vibration Suppression for Bearingless Motor System with the Ampliative Band Repetitive Controller <i>Ya Ning; Xiaolin Wang; Xucong Bao; Zhenglong Li; Tengrui Shi</i>	623
0162	Transient Thermal Performance Analysis of Thrust Bearing in Pumped Storage Power Station <i>Zhiwei Wen; Yunfei Bai; Jianwei Gao; Yong Chen; Lei Zhang; Qiang Chen</i>	629
0164	Anti-Parallel SBDs Optimization for Loss Minimization of SiC Motor Drive Converters <i>Yuzhi Chen; Chi Li; Zedong Zheng; Zicheng Liu</i>	634
0165	Research on the Combination of IE3-IE5 Series Energy-efficient Three-phase Induction Motor <i>Huoda Hu; Wendongc Zhang; Chaohui Zhao</i>	640
0166	Research on Air Gap Magnetic Field Model of Permanent Magnet Spherical Motor with Armature Reaction <i>Menglai Mi; Yanbo Che; Hongfeng Li</i>	646
0167	Nonlinear Model Predictive Control for Power Management in Hybrid Distributed Electric Propulsion Aircraft <i>Rui Guo; Peng Kou; Xuanyu Yao; Yunkun Man</i>	652
0168	Structural Optimization of Air Cooler in Evaporative Cooling Vertical Salient Pole Synchronous Machine <i>Jinxiu Chen; Jie Liu; Zhangbin Yang; Hua Zhao; Liang Yao; Daixiao Peng; Haijun Li</i>	658
0169	An Inverter Nonlinearity Compensation Method for PMSM Drives Based on Dead-Time Elimination <i>Guoxiang Zhou; Bangji Wang; Kunhui Xu; Qingxiang Liu</i>	662
0170	A Compound Control Strategy of Micro-DC Motor Based on Trapezoidal Velocity Profile and Feedforward Control <i>Zhe Yang; Bangji Wang; Mingrui Gou; Song Qiu</i>	668

0171	Vibration Study of Axial Flux Permanent Magnet Motor Base on Static Eccentricity Model <i>Changchuang Huang; Baoquan Kou; Xiaokun Zhao; Xu Niu</i>	673
0172	Split Spoke Series Hybrid PM Delta-shape IPMSM with Improved Performance <i>Seyedmilad Kazemisangdehi; Zi Qiang Zhu; Yanjian Zhou</i>	678
0173	Comparative Study of Performance Improvement Methods in a Series Hybrid PM Delta-shape IPMSM <i>Seyedmilad Kazemisangdehi; Zi Qiang Zhu; Yanjian Zhou</i>	684
0174	Research on LCLC Resonant Converter with Wide Output Voltage Range <i>Dan Yang; Caixue Chen; Zhuohua Hou; Yikun Liu</i>	690
0175	Influence of Magnet Layer Numbers on Electromagnetic Performance of Interior Permanent Magnet Machines <i>Martin Philip Koroma; Wei Hua; Zhongze Wu; Lai Jin; Wentao Zhang</i>	696
0176	Analysis of Current Harmonic Sources in Mutually Coupled Switched Reluctance Machine and Reduction Method Based on Improved PCI <i>Xiaoqiang Guo; Rui Zhong; Wei Hua; Ye Han</i>	701
0177	A Full-bridge LLC Resonant Converters with Auxiliary Switches for Hold-up Operation <i>Zhuohua Hou; Caixue Chen; Dan Yang; Zhuo Yang</i>	706
0178	Research on Control Strategy for Flexible Neutral Section Passing System during Grid Frequency Fluctuations <i>Qian Ma; Qiren Wang; Yufeng Yang; Jian Zhang; Zhiwei Xiao; Mengjie Liu</i>	711
0179	Toughness Analysis and Evaluation of Traction Power Supply System under Extreme Heavy Load <i>Pei Luo; Mengjie Liu; Qiren Wang; Zhiwei Xiao; Yufeng Yang; Jian Zhang</i>	716
0180	A Method for Calculating Current Harmonics and RMS of DC-Link Capacitor Considering AC Output Current Harmonics <i>Yifei Shao; Yongjun Cheng; Wenjing Zheng; Haifeng Guo; Dawei Li; Wubin Kong</i>	722
0181	Investigation of Losses in Regenerative Testing for a 240-kW Sectorial Dual-Three-Phase PMSM <i>Haifeng Guo; Yongjun Cheng; Yifei Shao; Xinggang Fan; Dawei Li; Wubin Kong</i>	727
0182	A New High Gain Low Current Ripple Soft-switching DC/DC Converter <i>Yikun Liu; Caixue Chen; Dan Yang; Sihong Li; Zhuohua Hou</i>	732
0183	Singularity Analysis and Structural Optimization of Permanent Magnet Spherical Motor <i>Ming Yang; Qunjing Wang; Rui Zhou; Guoli Li; Yan Wen</i>	737
0184	Design and Analysis of 12/14 Hybrid Rotor Type Bearingless Switched Reluctance Motor <i>Zhenyao Xu; Jindong Chen; Fengge Zhang; Huijun Wang; Dong-Hee Lee; Jin-Woo Ahn</i>	743
0185	Construction and Commissioning of New generation Renewable Energy Power System Based on Multi-port Energy Router <i>Ping Xiong; Yiqun Kang; Dan Liu; Fan Xiao; Kezheng Jiang; Bingjian Yang</i>	749
0187	Robustness Analysis and Enhancement of Deadbeat Predictive Control for Permanent Magnet Linear Synchronous Machines with Asymmetric Model <i>Ziyu Zou; Mengfei Zheng; Yanxin Li; Qinfen Lu; Jingjun Cui</i>	755

0188	Structural Design of Permanent Magnet Momentum Sphere for Attitude Control of a Small-sized Spacecraft <i>Zhaowei Fang; Xiwen Guo; Rui Zhou; Qunjing Wang; Ronglin Zhang</i>	761
0189	Back-EMF Optimization of a Rotor Permanent Magnet Flux-Switching Machine Through Air-gap Harmonic Design <i>Jihong Liao; Qian Chen; Gaohong Xu</i>	767
0190	Analysis and Integrated Design of a Series Dual Axial Flux Permanent Magnet Machine with Inner Rotor <i>Zhenxing Guo; Bing Peng; Haiying Wu; Dongfang Zhen</i>	773
0191	Torque Ripple Suppression Strategy for Doubly Salient Electro-magnetic Motor Based on Overlap-time Self-compensation Scheme <i>Xiaocong Zhao; Jiadan Wei; Wenzhi Hu; Ping Liu; Xiangyu Zhai</i>	779
0192	Design and Optimization of a Slotless PMSM with Hexagon Distributed FPC Winding <i>Jing Zhao; You Wang; Lufan Deng; Lei Yang; Xiangdong Liu; Wei He</i>	785
0193	Wind power output scenario generation based on Importance weighted autoencoder <i>Siyuan Xiao; Zheng Liu; Xiang He; Jiaquan Zhang; Hongliang Liu</i>	791
0194	Modeling and Analysis of Long Cables in the Subsea AC Power Supply System <i>Junzhao Zhang; Yongtao Liang; Dong Jiang; Shuangcheng Wang; Hong Guo; Xin Peng</i>	797
0195	Design and Analysis of Core Reactor Based on Magnetic Powder Material <i>Yang Liu; Fuyao Yang; Yu Han; Jie Gao; Hao Sun; Cong Wang</i>	801
0196	Normalized Rotor Position Estimation Method for Three-stage Synchronous Machine in a Wide-speed Range <i>Ping Liu; Jiadan Wei; Wenzhi Hu; Xiaocong Zhao; Le Zhang</i>	807
0197	Design and Analysis of a Novel Double Stator Linear Rotary Permanent Magnet Actuator <i>Guangyao Jiang; Huawei Zhou; Chenchen Wang; Qian Chen</i>	813
0198	The Study on the Effect of Strand Transposition on Temperature Distribution in Cross Section of Evaporative Inner Cooled State Bar <i>Weifu Lu; Zhonghua Gui; Jiaxin Huang; Fei Zhang; Jinxiu Chen; Hua Zhao</i>	818
0200	A Fault Tolerant Control Strategy of Open-end winding DC-biased Vernier Reluctance Machine based on Inverter Topology Reconstruction <i>Zixiang Yu; Xiang Zhang; Jiwen Zhao; Zhenbao Pan</i>	822
0203	Power Quality Optimization Strategy Based on Current Sensorless Control of Energy Storage Railway Power Conditioner <i>Pei Luo; Yufeng Yang; Qiren Wang; Jian Zhang; Zhiwei Xiao; Leiyu Zhao</i>	827
0204	A Novel Finite-Control-Set Model-Free Predictive Current Control for PMSM Drives with Event Triggering Mechanism <i>Xing Liu; Hui Yang; Heyun Lin</i>	833
0205	Performance of Hybrid Excitation Synchronous Generator Based on the 3rd Harmonic Magnetic Field <i>Yonghong Xia; Zhichao Zhu; Jinhui Hu; Jianxin Xu; Zhen Huang; Jingming Zhang</i>	839

0206	Dynamic Performance Optimization Strategy for Doubly Salient Electromagnetic Generator Based on Composite Control <i>Xiang Kuang; Bo Zhou; Lei Xiong; Hongjun Shi; Yijun Zhang</i>	844
0207	Research on Suppression of DC Bus Voltage Fluctuation Based on Virtual Inertial Control <i>Qile Zheng; Qunjing Wang; Quan Chen; Bin Xu; Rujia Qiu</i>	850
0208	Characteristics Analysis of a Novel Three-Phase Tubular Linear Switched Reluctance Motor <i>Zhenyao Xu; Zhuangzhuang Zhang; Fengge Zhang; Yue Zhang; Dong-Hee Lee; Jin-Woo Ahn</i>	856
0209	Modeling and Simulation of Aircraft Electric Cargo Door Based on Energy Method <i>Suying Zhou; Zekun Wang</i>	861
0214	Point to Point Trajectory Planning of Permanent Magnet Spherical Motor Based on Quintic Polynomial Interpolation <i>Ao Tan; Xiwen Guo; Qunjing Wang; Yuming Sun; Qiyong Yang; Ronglin Zhang</i>	865
0215	Optimal Configuration of Photovoltaic and Energy Storage in Traction Power Supply System Considering Uncertainties of Photovoltaic and Traction Load <i>Qian Ma; Jian Zhang; Jiaqi Mo; Zhiwei Xiao; Leiyu Zhao; Yufeng Yang</i>	870
0217	A Sensorless Control Strategy of Permanent Magnet Starter/Generator under All Working Conditions <i>Meng Wang; Liyi Li; Jiayi Liu; Aiguo Zhang; Yongjie Guo</i>	876
0218	Optimal Configuration of Dual-Battery Energy Storage Capacity for Traction Power Supply System Based on Life Cycle Cost <i>Qian Ma; Jiaqi Mo; Xinpui Fang; Jian Zhang; Leiyu Zhao; Zhiwei Xiao</i>	882
0219	Modeling and Analysis of Rotor Current of DFIG with Rotor Chopper Circuit Operative Condition During Three-Phase Symmetric Faults <i>Kaidong Lu; Guodong Xu; Feng Xiang; Xiao Jin; Heng Nian</i>	888
0220	Fault-tolerant control of DTP-PMSM based on Voltage Compensation <i>Boyuan Zheng; Yongxiang Xu; Jibin Zou; Bingjun Li</i>	893
0221	Improved Parameter adaptive Method for Virtual Synchronous Generator Control <i>Hongwei Fang; Mingbo Sun</i>	898
0222	Hybrid Analytical-Numerical Calculation of Equivalent Circuit Parameters and Steady-State Performance of DFIG <i>Xi Zhu; Bernd Ponick</i>	903
0223	A model-free predictive control of an isolated AC/DC matrix converter <i>Wenlang Deng; Haipeng Xie; Minghai Wu; Yingjie Hu</i>	911
0225	Quadruped Robot Calf Joint Actuator Modeling and Design Based on Dynamic Similarity Hypothesis <i>Guanbao Zeng; Lijian Wu; Yu Haoyong; Dianhe Zhao</i>	916
0226	Parameter Identification Considering Inverter Nonlinearity and Iron Loss for PMSM <i>Peng Chen; Rui Qing Ma</i>	922
0229	Suppression Method of Harmonic Disturbance Caused by Misalignment in MLRMS Using Improved Fractional-Order Repetitive Controller <i>Jun Liu; Jinxiang Zhou; Peng Tan; Xiuqi Zhao</i>	927

0230	Reduction of Cogging Torque for Segmented Stators PM machine by Tooth Tip Step skewed <i>Shumin Liang; Leilei Wu</i>	932
0231	A Model Predictive Torque Control Method of Switched Reluctance Motor based on Deep Neural Network Torque Estimator and Torque Error Pulse Modulation <i>Changle Du; Wen Ding; Dexu Lv</i>	936
0233	Servo Motor Electrical Fault Diagnosis of Misalignment Based on GRU Neural Network <i>Duoxiao Hu; Ming Yang; Ziran Guo; Dianguo Xu</i>	941
0236	Test Method of Electrical Steel Magnetic Properties and Influence on PMSM Performance <i>Bin Wang; Yunjiao Li; Guanglin Li; Jing Zhao; Kai Zhao; Baolei Zhao</i>	946
0238	Effect of Load on Impedance Characteristics of High Frequency Circulating Bearing Current Path in Stator Laminations for an Inverter Fed AC Machine <i>Wenjun Zhu; D. De Gaetano; Xiangyu Sun; Huanyu Li; Xiao Chen; A. Griffo; G. W. Jewell; Z. Q. Zhu; Chaohui Liu; Lianghai Yang; Yiqing Yuan; Han Yang; Yiming Huang</i>	952
0241	Topology Reconstruction Control of IGBT Open-Switch Fault for Dual PMSMs Drive System <i>Zhongchen Li; Zhanqing Zhou; Wenhao Du; Huimin Wang; Qiang Geng</i>	958
0242	A Dual-Level Control Architecture of Distribution Networks Flexible DC Interconnection Based on Adaptive Energy Recovery Hybrid Energy Storage <i>Wei Wang; Yingshu Liu; Yiwei Yan; Kun Lv</i>	963
0243	A Commutation Error Correction Method for the Ironless-stator Permanent Magnet Brushless DC Motor Dual-stage Drive <i>Haoyan Li; Haiping Xu; Xi Chen; Chen Gong; Shu Liu</i>	969
0244	A Novel Method Based on Stacking Model for Remaining Useful Life Prediction of Lithium-ion Batteries <i>Zhuohao Li; Qionglin Shi; Junyi Xia; Kangli Wang; Kai Jiang</i>	974
0245	Fault Tolerant Control Method for Double-phase Open-circuit Fault with Current and Voltage Reconfiguration in Five-phase SPMSM <i>Huanran Wang; Chunyang Gu; Giampaolo Buticchi; Han Zhao; Shuo Wang</i>	979
0246	Efficiency Characteristics Comparison of Surface and Interior Permanent Magnet Synchronous Machines in Electric Vehicle <i>Yong Kong; Yu Pan; Jingxiu Wu; Lei Zhang; Qiang Liu; Yong Zhao</i>	984
0247	Comparative Study of Stator Partitioned Doubly Salient Permanent Magnet Machines Having Different Numbers of Permanent Magnets and Rotor Iron Pieces <i>Guangqiang Ming; Wenjin Zheng; Shihao Ma</i>	988
0248	Torque and Power Improvement of Integrated Starter Generator Motor with Radially Thin Rotor Core <i>Yoshihiro Miyama; Naoki Ohashi; Fumitaka Totsuka; Naomichi Ota; Kengo Kumagai</i>	993
0249	Design and Optimization of Permanent Magnet Brushless Machine for Integrated Starter/Generator Applications <i>Huixin Li; Yanliang Xu; Gensheng Li; Peng Zhou; Jinshuai Zhen</i>	999
0250	Multi-Physical Field Analysis of Permanent Magnet Synchronous Motor for Servo Press <i>Changhu Wang; Yanliang Xu; Fei Yu; Peng Zhou</i>	1005

0251	Analysis and Reduction of Cogging Torque in Double-Stator Axial-Flux Permanent-Magnet Disk Synchronous Generator With Soft Magnetic Composite Core <i>Qian Wang; Yanliang Xu; Fei Yu; Mingxin Sun</i>	1011
0252	Influence of End Region Structure on the Equivalent Circuit Based on Frozen Permeability for Induction Machines <i>Jingwen Yan; Chong Di; Xiaohua Bao</i>	1016
0253	Research on the investment strategy of hydrogen refueling stations based on Monte Carlo simulation <i>Xungang Chen; Jinxun Yao</i>	1021
0255	Speed Fluctuation Suppression of Current Scaling Errors Based on Improved Iterative Learning Control Method <i>Haoyi Mu; Guodong Yu; Shaobin Li; Pengcheng Zhu; Yongxiang Xu</i>	1026
0256	A High Power Density Partitioned Stator Compound Modulation Hybrid Excitation Generator for Special Vehicles <i>Kai Chen; Yu Wang; Yuhang Xia</i>	1032
0257	Radial displacement tolerance detection of bearingless permanent magnet slice motors under adjacent double Hall faults <i>Pan Zhao; Yu Wang; Yi Zhang; Xiang Guan; Qingguo Li; Suo Wang</i>	1038
0260	A Strategy for Reducing the Switching and Conduction Loss in FS-MPC System of PMSM based on Dynamic Voronoi Diagram <i>Xu Shu; Wei Xu</i>	1043
0261	Improved Space Vector Modulation Strategy for Dual-Channel Permanent Magnet Synchronous Motor <i>Zinuo Wang; Feng Yu; Yueyue Ji; Yao Wang</i>	1049
0262	Performance optimization strategy for built-in V-shaped permanent magnet synchronous motor <i>Jianwei Liang; Peiyao Guo; Xiubin Zhu</i>	1055
0264	Heat dissipation investigation of a high torque hub motor <i>Wei Liang; Lei Mei; Jun Deng; Shouyan Ju; Yongnan Chen</i>	1061
0266	Enhanced Ventilation and Thermal Performance by Skewed Through Holes on Rotor Yoke in Forced Air-Cooled Permanent Magnet Wind Generators <i>Lijian Wu; Haoyu Zhou; Yang Shi; Jiawen Zhang; Wenting Wang; Fangwei Zhao</i>	1067
0267	Speed fluctuation Suppression of PMSM Based on Repetitive Active Disturbance Rejection Control <i>Kaining Qu; Chenwen Cheng; Wei Hua</i>	1073
0269	Improved Three-dimensional Harmonic Suppression Strategy for DC-biased Vernier Reluctance Machine based on Deadbeat Predictive Current Control <i>Xiang Zhang; Zixiang Yu; Jiwen Zhao; Zhenbao Pan; Rui Xu</i>	1078
0270	Research on Self-bearing Homopolar Doubly Salient Motor: Principle and Analysis <i>Yihao Liao; Lei Mei</i>	1083
0271	Research on Model Predictive Control for PMSM Drives in Stratosphere Propulsion Application <i>Xi Chen; Haiping Xu; Shu Liu; Chen Gong; Haoyan Li</i>	1088

0272	LuGre model based linear active disturbance rejection controller for high precision airborne optoelectronic stabilization platform <i>Yukai Lian; Jinlong Huang; Xin Li; Kun Xie</i>	1093
0273	A Novel Hybrid Reluctance Machine using Synthetic Slot PMs and Zero-Sequence Current Excitation <i>Jifu Jiang; Shuangxia Niu</i>	1099
0274	Pulse-Sine Voltage Injection Based D-Q Axis PMSM Parameter Identification Strategy <i>Pengcheng Lan; Ming Yang; Jiahua You; Chaoyi Shang</i>	1104
0275	Damping Region Analysis and Extension for Gridconnected LCL-type Inverter Based on Active Damping Strategy <i>Jinhong Liu; Xiaobing Zhang; Tao Wang</i>	1110
0278	Influence of Stator Core Materials on Electromagnetic Performance of YASA Type Axial Flux Permanent Magnet Machines <i>Yuan Cheng; Wei Pang; Hanbing Ren; Yong Xue; Shumei Cui</i>	1116
0279	Starting Research of Brushless Doubly-fed Motor with Different Turn Ratio of Compound Coil Structure Rotor <i>Zhixu Yang; Kexun Yu; Xi Chen; Jiahao Liang</i>	1122
0280	Analysis of Loss and Temperature of a High Speed Motor with Composite Magnetic Fiber Rotor <i>Guanghui Du; Lin Li; Cunlong Cui; Niumei Li; Qizheng Zhang; Lijun Liang</i>	1127
0281	A DC-Link Current Estimation Method for VSI-Fed IPMSM Drive System Considering Dead-Time Effect <i>Bowen Yuan; Shuanghong Wang</i>	1133
0283	A Current Sharing Method to Balance Transmission Power of Dual-channel Wireless Power Transfer System <i>Chengxuan Tao; Lifang Wang; Yuwang Zhang; Chaolai Da</i>	1139
0284	Research on New Coreless Axial Flux High Speed Permanent Magnet Synchronous Motor for Flywheel Energy Storage <i>Kexin Yao; Caiyong Ye; Shanming Wan; Kaifeng Liu; Caiyi Ye; Dongjie Zhu</i>	1143
0286	Electromagnetic Design of Low Speed Inner Rotor Permanent Magnet Motor for Mine Direct Drive System <i>Guanghui Du; Hui Li; Guiyuan Zhang; Chengshuai Hu; Qizheng Zhang; Lijun Liang</i>	1149
0287	Direct Flux Control for Rotor Displacement of Single-Wingding Bearingless Flux-Switching Permanent Magnet Motor <i>Chen Yao; Huang Zhengkai; Fan Yankun</i>	1155
0291	Analysis of Stator/Rotor Pole Combinations in Variable Flux Reluctance Starter Generator with Flux gaps <i>Zhangqi Liu; K. Wang; Bo Zhou; Xiping Liu</i>	1161
0293	Analysis and Design of High Efficiency LED Driver with Variable Load <i>Yingchao Chi; Zhan Sun; Yijie Wang</i>	1167
0295	Modeling and Calculation of Temperature Field in Slotless Motor Based on a New Lumped Parameter Thermal Network Method <i>Jing Zhao; Penglei Guo; Yun Zheng; You Wang; Lei Yang</i>	1172

0296	A Novel Direct Instantaneous Torque Control for Bearingless Switched Reluctance Generator <i>Sirui Chen; Zelin Wang; Zhiquan Deng; Xin Cao</i>	1178
0297	Fast Calculation of Electromagnetic Force and Vibration for Surface Mounted PMSM Considering Spatial Harmonic Suppression <i>Shihao Zhao; Jinhua Chen; Yunpeng Gao; Chi Zhang</i>	1184
0299	Low-Frequency Electromagnetic Vibration of A Dual Three-Phase PMSM Considering Current Harmonics and Winding Operating Modes <i>Shihao Zhao; Jinhua Chen; Yunpeng Gao; Chi Zhang</i>	1190
0301	A Novel Expandable Reverse Polarity Buck Converter With Zero Voltage Switching <i>Zhenshuai Rong; Yijie Wang; Zhan Sun; Yueshi Guan; Dainguo Xu</i>	1196
0304	Open-circuit fault diagnosis in voltage source inverter by using neighbourhood component analysis <i>Tao Chen; Xuchen Wang; Dongdong Kong; Qinyao Liu</i>	1201
0305	Adaptive Inertia Observer-based Model-free Predictive Current Control for PMSM Driving System of Electrical Vehicle <i>Yao Wei; Dongliang Ke; Xinhong Yu; Fengxiang Wang; Jose Rodriguez</i>	1206
0307	Angle optimization design and LADRC control using cascaded LESO for dual three-phase permanent magnet synchronous motor with double layer V-shaped rotor topolog <i>Dongsheng Yua; Lingfei Gao; Zhonggang Yi; Junwei Yang; Feng Li; Xinyi Zhang</i>	1212
0308	Comparative Study of Thermal Characteristic in Permanent Magnet Synchronous Machine and Vernier Machine for In-Wheel Drive <i>Yu Yanlei; Chai Feng; Pei Yulong; Zhang Xi; Christopher H. T. Lee</i>	1218
0309	Influence of the End-Effect in Wound Field Switched Flux Machine <i>Wentao Zhang; Zhongze Wu; Wei Hua; Ying Fan; Ming Cheng</i>	1223
0310	A Resolver-to-Digital Conversion Method Based on Third-Order Generalized Integrator <i>Zhe Liu; Deyi Li; Tianyi Zhao; Xianguo Gui</i>	1228
0311	Fast Semi-analytical Calculation of AC Copper Loss in Flat Wire Winding of YASA AFPM Motors <i>Jianying Chen; Xinggang Fan; Ronghai Qu</i>	1233
0313	Comparative Analysis of Loss Distribution in Permanent Magnet Synchronous Machine and Vernier machine <i>Yu Yanlei; Xie Shuangchun; Chai Feng; Pei Yulong; Zhang Xi; Christopher H. T. Lee</i>	1238
0314	Particle Filter-based Spherical Rotor Attitude Visual Estimation <i>Sili Zhou; Jiachuan Lou; Mingsan Ouyang; Ao Yang; Wenping Cao; Qunjing Wang</i>	1244
0316	Design of Three Phase Vienna Rectifier Based on PI Resonant Controller <i>Yonghui Shang; Keyuan Huang; Zirui Peng; Shuangquan Fang</i>	1248
0318	Investigation of Efficiency Enhancement of a Wound-Field Flux Switching Motor by the Synchronous Reluctance Motor Drive <i>Lori Kokubo; Kyohei Kiyota</i>	1254
0320	Speed Enhancement of Vector-Controlled Axial Gap Type Single-Drive Bearingless Reluctance Motor by Adjustment of Rotor Suspension Position <i>Akihiro Shiratsuki; Kyohei Kiyota</i>	1260

0321	Design and Optimization of a Single-Phase Tubular Linear Oscillating Permanent Magnet Machine for Stirling Generator <i>Yulong Shao; Honghui Wen; Dingbang Long</i>	1266
0322	Configuration Analysis of Grid-forming Converter Under 100% Renewable Electricity Systems <i>Kezheng Jiang; Dan Liu; Pan Hu; Cao Kan</i>	1272
0323	Rotor Mechanics Behavior Characteristics for Diagnosis SAGE Fault in PMSG with Load Change <i>Wen Zhang; Yu-Ling He; Yi-Fan Bai; Yong Li; De-Rui Dai; Ming-Xing Xu</i>	1277
0324	Comparative Study of Different Surrogate Models in the Multi-physics Optimization of Synchronous Reluctance Machine <i>Yuancong Gong; Andreas Gneiting; Chongshen Zhao; Nejila Parspour</i>	1284
0325	An optimal vibration control strategy of AMB-flexible rotor syxstem <i>Jiayu Tang; Changsheng Zhu</i>	1291
0326	Design of the Double-Sided Flat Permanent Magnet Linear Synchronous Motor with the Same Number of Poles and Slots <i>Jiutong Yang; Jinhua Chen; Jijun Qiao; Guilin Yang; Chi Zhang</i>	1297
0327	Dual-plane Flux-weakening Control for Five-phase Interior Permanent Magnet Synchronous Motor <i>Peng Zhou; Yihong Qin; Haoyan Li; Haiping Xu</i>	1302
0328	Sensorless Control of Switched Reluctance Motor Based on Sliding Mode Observer Using Nonlinear Flux Linkage Model <i>Fanyan Zeng; Shuanghong Wang; Zixin Li;</i>	1307
0329	Torque Ripple Suppression Method for Segmental Rotor Switch Reluctance Motor Based on Current Profile Optimization <i>Yang Yang; Jianbo Sun; Chun Gan; Shuanghong Wang; Ziqi Zhao; Zhiyue Yu; Ronghai Qu; Huangyuan Wu</i>	1313
0330	Data-driven Oscillation Mode Prediction Model based on Eigensystem Realization Algorithm and Extreme Learning Machine <i>Jiong Ding; Jiebei Zhu; Xiaorui Cui; Lujie Yu</i>	1319
0331	Torque Density Improvement of Axial Gap Type Single-Drive Bearingless Reluctance Motor by Reducing the Number of Stator Poles <i>Keisuke Sato; Kyohei Kiyota</i>	1324
0332	Experimental Study on Dielectric Properties of Oil-Paper Insulation in Low-Frequency Transf <i>Yong Tang; Zuoxian Wang; Yikun Zh; Zhengyu Xu; Yilin Wang; Xiaoyu Zhao</i>	1330
0334	A Statistical Prediction Method of AC Copper Loss in Random Wound Windings of Electrical Machines <i>Lei Li; Xinggang Fan; Dawei Li; Ronghai Qu</i>	1334
0335	Full-Speed Domain Performance Comparison of Traditional and Segmented-Rotor Switched Reluctance Motors <i>Ziqi Zhao; Jianbo Sun; Chun Gan; Shuanghong Wang; Yang Yang; Zhiyue Yu; Huangli Wei; Ronghai Qu</i>	1339
0336	Investigation of Deep Bar Effect on Rotor Bar Design in Cryogenic Induction Motor <i>Young Hyun Song; Seung Ahn Chae; Dae Yong Um; Gwan Soo Park</i>	1345

0337	Comparison of Rotor Structures of PMASynRMs with Tooth-coil Winding <i>Jun Deng; Zichong Zhu; Lei Mei; Huimin Ouyang; Yunlu Du</i>	1349
0338	Disturbance Analysis of an Interconnected Power Systems <i>Linxin Yu; Fuhong Min; Yizi Cheng; Yanwu Xu</i>	1353
0340	Activation Analysis of DFIG-based WT's Rotor and Rotor Speed Control for WT Model Simplification <i>Rui Zhang; Xiaoming Yuan; Jiabing Hu</i>	1358
0341	A New Analytical Model for Voltage Stress Analysis at Neutral Point of Stator Windings <i>Huanyu Li; Wenjun Zhu; Chaohui Liu; Xiangyu Sun; Daniele De Gaetano; Xiao Chen; Antonio Griffo; Z. Q. Zhu; Geraint W. Jewell; Lianghui Yang; Yiqing Yuan; Han Yang; Yiming Huang</i>	1364
0344	Optimization of WFSM for EV Propulsion considering Regenerative Braking based on Driving Conditions <i>Ho-Jin Oh; Jae-Hoon Cho; Young-Ho Hwang; Yongmin Kim; Yong-Jae Kim; Sang-Yong Jung</i>	1370
0347	Accurate FEA Modeling Approach for Calculating AC Copper Loss for Random Windings <i>Nisarg Dave; David Gerada; Paul Langlois; Andrew Lawton; Rupesh Patel; Chris Gerada</i>	1374
0349	Improvement Design of Outer-Rotor PMSM with Additive Manufactured Heat Exchanger <i>Zhenyu Wang; Xuzhen Huang; Yansong Liu</i>	1379
0350	Design and Performance Analysis of Additively Manufactured Windings with High Slot Fill Factor for Permanent Magnet Synchronous Motors <i>Yue Yang; Xuzhen Huang; Jie Fu</i>	1384
0351	Acceleration of the Steady-State Computation of Dry Submersible Induction Machines in the TimeStepping Finite Element Analysis <i>Jie Liu; Chong Di; Xiaohua Bao</i>	1390
0352	Multi-Coil Torque Superposition Error Analysis and Estimation for Spherical Reluctance Motor <i>Mingfeng Shi; Qunjing Wang; Guoli Li; Rui Zhou; Qiyue Han</i>	1396
0353	Topology Design and Performance Analysis of a New Dual-PM Excited Permanent Magnet Arc Motor <i>Kaiwei Wei; Zhenbao Pan; Jiwen Zhao; Zixiang Yu; Pingjian Xu; Rui Xu</i>	1400
0354	Detent Force Suppression of Permanent Magnet Linear Motors for Auxiliary Teeth Optimization using Adaptive Single-Objective Optimization Algorithm <i>Junren Mu; Baoquan Kou; He Zhang</i>	1404
0356	A Novel Dual Permanent Magnet Fault-Tolerant Vernier Machine With Hybrid Stator Configuration <i>Guanghui Yang; You Zhou; Xuhui Zhu; Shuangchun Xie; Yaojie He; Jiaqiang Yang; Christopher H.T. Lee</i>	1409
0357	Modeling and Simulation of a New Electromagnetic-driven Microgravity Experiment System <i>Mingzhong Ma; Weichao Li; Chen Deng; Ming Yan; Shuai Chen; Tao Yuan</i>	1414

0359	Analysis of cooling structure and air-cooling effect of large-capacity submersible permanent magnet synchronous motor <i>Tengchao Qu; Shuye Ding; Yuanbin Li; Zhi Yang</i>	1421
0360	A Commutation Error Compensation Method for Sensorless High-Speed Brushless DC Motor Drives Considering Nonideal Back-EMF <i>Yanfei Cao; Wen Zhou; Zhichen Lin; Peng Song; Qiang Geng</i>	1427
0361	Experiment and analysis of electrostatic motor model based on needle plate discharge <i>Hao Luan; Shuye Ding; Xiaoming Yan; Shoucheng Li</i>	1433
0363	Improved DB-DTFC System for the Segmented Outer-stator Consequent-Pole Permanent Magnet Motor with a Closed-loop Current Observer <i>Chen Jin Yu; Fan Ying</i>	1437
0364	Thermal Analysis of High Torque Density Axial Radial Flux Permanent Magnet Machine Based on Lumped Parameter Thermal Network <i>Yuhang Long; Zhanfeng Song</i>	1443
0365	Single Current Sensor Fault-Tolerant Control and Harmonic Suppression Method for Dual Three Phase PMSM Based on Axes Transformation <i>Ruize Han; Zhanfeng Song; Chaohui Liu; Zhaohe Meng; Yongzhi Ma; Shanjun Yang</i>	1449
0366	Thermal Analysis of a High Speed Permanent Magnet Synchronous Motor <i>Fei Zhao; Jun Che; Bin Chen; Minpeng Xu; Shuting Ni; Jiwei Cao</i>	1455
0367	Torque Performance Optimization Design for a Dual-Stator Low-Speed High-Torque Permanent Magnet Synchronous Machine <i>Lei He; Yue Zhang; Siyang Yu; Zhenyao Xu; Yubo Yang; Zhenning Qi</i>	1461
0368	Optimal Design of No-load Characteristics of AFPM Machines Based on Improved Exact Subdomain Model <i>Wenming Tong; Deyi Cai; Shengnan Wu</i>	1466
0372	Active Power Decoupling for Open-Phase Fault Tolerant Motor Drive System Based on Third Harmonic Injection Two-Stage Matrix Converter <i>Hanlu Xiao; Bo Zhou; Qingyun Chang; Chengjia Lu; Yi Lui</i>	1472
0373	A PENTACLE MODE VECTORIAL CONTROL for FIVE-PHASE PMSMs; <i>Yameng Zhou; Bing Tian; Zeyu Bian</i>	1477
0374	Design Considerations of Spoke-Array PM Vernier Machine for Different Power Levels <i>Yu Zhao; Dawei Li; Ronghai Qu</i>	1482
0376	Design and Regulated Voltage Control of A Doubly Salient Electro-Magnetic Linear Motor <i>Yongnan Chen; Lei Mei; Jun Deng; Shouyan Ju; Wei Liang;</i>	1488
0377	A Neutral-Point Voltage Balancing Algorithm for Six-phase H-Bridge Neutral-Point-Clamped Converter <i>Zhiling Ren; Huiping Li; Zedong Zheng</i>	1493
0378	Model-Free Predictive Control of Open-End Winding Permanent Magnet Synchronous Moter <i>Wenqing Zhang; Xinzhen Wu; Haifeng Wang</i>	1498

0380	Thermal Analysis of Permanent Magnet Synchronous Motor under Different Working Conditions Based on Thermal Network <i>Yinxin Long; Jian Zhang; Kangwen Wu; Youtong Fang; Yafeng Liu; Yutian Zhao</i>	1503
0382	Modeling and Analysis of Thermal-mechanical Stress in Motor Insulation <i>Rui Shen; Rui Wang; Jian Zhang; Youtong Fang; Yong Yang; Jie Tian</i>	1508
0383	Speed-Adaptive Field-Weakening Controller for Permanent Magnet Synchronous Motor Drives in the High-Speed Region <i>Kaiwen Liu; Bo Wang; Linzhi Wang; Dianguo Xu</i>	1514
0384	Comparison of High Power Density Permanent Magnet Machines with Different Slot/Pole Number Combinations <i>Dalin Li; Hao Hua; Xiang Luo; Lixin Zhou; Li Zhu</i>	1519
0385	A Novel Counter-rotating Axial-field Hybridexcitation Flux-switching Machine with Dual-rotor <i>Yuan Gao; Yaojing Feng; Chenxi Xia; Shoudao Huang</i>	1525
0386	A Velocity Contorl Strategy for Dual Modular Permanent Magnet Linear Synchronous Motor with Low Resolusion Hall Sensors <i>Jing Feng; Xuzhen Huang; Anpeng Wang; Yiwei Zhang; Jian Xu; Qiang Tan</i>	1531
0388	Comparison Between Π-shaped and T-shaped Doubly Salient Permanent Magnet Machines with High-order-harmonic Armature Winding <i>Feifan Ni; Shuangxia Niu; Shiyue Zheng; Zhenghao Li</i>	1537
0390	Investigation of Dual Three-Phase Permanent Magnet Machines with Different Modular Windings <i>Haoyu Chen; Hao Hua; Shaolun Xu; Wenjuan Qi</i>	1543
0392	Comparison and Analysis of Unbalanced Magnetic Torque and Electromagnetic Characteristics of Axial-flux Permanent Magnet Machines <i>Bo Long; Yaojing Feng; Chenxi Xia; Shoudao Huang</i>	1549
0394	Fault Tolerant Control of Dual Three Phase Permanent Magnet Synchronous Machine under Open Phase Fault <i>Ziyi Tai; Wei Zhang; Huayang Jin; Jishuang Zhang</i>	1555
0399	Investigation on the influence of slot dimensions of SPMSM on electromagnetic force <i>Jiahua Chen; Shuye Ding</i>	1561
0400	Research on slit dimensions of axially slotted solid rotor induction motor <i>Ziyi Xiao; Zhiquan Deng</i>	1566
0402	Transmission characteristic analysis of the radical magnetic coupling <i>Shengxi Weng; Meng Lu; Xiao Liu; Pingting Lin</i>	1570
0403	Accurate Calculation of Iron Loss Based on Frequency Division and Piecewise Variable Coefficient for Magnetic Field Modulation Permanent Magnet Machine <i>Jishuang Zhang; Wei Zhang; Jianwei Zhao</i>	1575
0404	Research on Fault Tolerant Control Method of Three-Level TNPC Inverter <i>Limin Hou; Zunmin Ma; Hongbiao Li; Changqing Qiu; Kui Wang; Zedong Zheng</i>	1581
0406	FPGA Implementation of High-Bandwidth Vector Control for PMSM Based on Parallel Processing Technology <i>Jiqiang Shi; Bo Wang; Pengcheng Du; Dianguo Xu</i>	1587

0407	Analysis of flow field and heat transfer in the air gap of high-speed permanent magnet synchronous motor <i>Tengchao Qu; Shuye Ding; Guangzhi Li; Hao Luan</i>	1592
0409	Research on Precision Positioning Method of Macro-micro Composite motion platform <i>Tianrun Kang;Mingyi Wang;Liyi Li</i>	1597
0410	A Method for Magnetic Polarity Detection of Sinusoidal Doubly Salient Electromagnetic Machine in Initial Position Estimation <i>Yurong Huang; Bo Zhou; Xiaodong Yu; Siyuan Jiang</i>	1602
0413	Study on Field-Regulating Characteristic of CPHES Machine <i>Baixing Zhuang; Kang Wang; Jie Wu; Zhenjun Wu; Leilei Guo; Yongpeng Shen</i>	1607
0414	Research on the Structure of a New Integrated Cooling Channel for Electric Motor and Reducer <i>Aihua.Wu; Ting.Li; Xiaojiao.Chen; Mengnan.Zhu; Wenjie.Yang</i>	1612
0415	Slot/Pole Number Combination Research of Permanent Magnet Synchronous Linear Motors for Flexible Conveyor Systems <i>Tianhu Wei; Yanliang Xu; Fei Yu; Peng Zhou; Gen Sheng Li;</i>	1616
0416	Working principle and magnetic circuit analysis of new modular permanent magnet biased magnetic bearing <i>Zhuo Fan Ge; Lei Mei</i>	1622
0417	A Novel Rotor Flux Estimator with Offset Compensation for Sensorless-Drives Induction Motor <i>Kun Zhao; Bao Song; Xiangdong Zhou; Xiaoqi Tang</i>	1628
0419	The Mid-Frequency Magnetic Property Modeling of an Electrical Steel Sheet Using a Dynamic JA model Considering Magnetic Domain Energy and Fractional Derivative Operator <i>Xin Lu; Yanli Zhang; Zhenwang; Dianhai Zhang</i>	1633
0420	Torque ripple suppression of doubly salient reluctance motor by injecting harmonics into zerosequence current <i>Jianping Zhou;He Cheng;Qin Hu</i>	1637
0421	A Novel Sensorless Loss Minimization Control Method for High-speed SPMSM <i>Zhuang Liu; Jianhua Qu; Fei Gao; Kun Mao; Shiqiang Zheng; Xusheng Lei</i>	1643
0423	Field-Harmonic-Oriented Design of Vernier Permanent Magnet Machine Towards High Torque Density and Low Torque Ripple <i>Li Fang;Dawei Li;Yuanzhi Zhang;Jiewen Wu</i>	1648
0424	High Order Time-Discretizaion Method for Finite Element Analysis of 2D and 3D Transient Magnetic Fields <i>Xingxiong Yang; Yanpu Zhao; Shucan Cheng</i>	1654
0427	Optimized Multi-vector Model Predictive Current Control of Dual Threephase PMSM with Reduced Switching Frequency <i>Yawen Duan; Xianran Ma; Xinzhen Wu</i>	1658
0430	Improved Linear Active Disturbances Rejection Control with Average Back-EMF Compensation for High-Speed Switched Reluctance Motor; <i>Cunjiang Gu; Yanfang Hu; Zong Zhang; Lidong Cai; Haonan Wang; Peng Su</i>	1663

0431	Study on Core loss of Switched Reluctance Motor by Considering Stator Polarity Arrangements <i>Zong Zhang; Yanfang Hu; Cunjiang Gu; Haonan Wang; Lidong Cai; Peng Su</i>	1669
0432	Deadbeat Model Predictive Current Control with Voltage Limits for Five-Phase SPMSMs <i>Zhenfei Ling; Tong Li; Xinling Chen; Hao Liu; Fengqi Zhou; Xiaoping Ouyang</i>	1674
0433	Optimization of Tethered Power Supply System Based on High Frequency and High Voltage AC Transmission <i>Xiaoting Yang; Wenxin Huang; Zhangxian Huang</i>	1680
0434	Decoupled Current Sharing Control Method of Interleaved Buck Converter for Micro Gas Turbine Power Generation System <i>Borui Jia; Wenxin Huang; Shanfeng Zhu; Zenong Niu; Zhangxian Huang; Xiaoting Yang</i>	1685
0436	Optimization of Secondary Segmented Flux Switching Linear Motor Designed for Urban Rail Transit <i>Zhiwei Jiang; Lihan Qiu; Ruiwu Cao</i>	1691
0439	Research on a Multi-Layer Field Shapper for Electromagnetic Bulging of Tube Fittings <i>Lingran Xi; Qingshan Li; Xiang Zhao; Qi Xiong; Nuo Yan; Shuang Qiu</i>	1697
0441	Research on Topology of Main Power Converter and Control Strategy for Loss-of-excitation Fault-tolerant DSEM <i>Siyuan Jiang; Mengzhen Gao; Chengbo Ren; Xue Wang; Haichao Feng; Xiaozhuo Xu</i>	1701
0448	A Novel Structural Optimization Design of Dual-stator Permanent Magnet Motor Using Meshless Technology <i>Size Li; Tao Xu; Wei Xu</i>	1707
0451	Interturn Short-Circuit Fault Diagnosis of Dual-Redundancy Permanent Magnet Assisted Synchronous Reluctance Motor for Aviation Application Based on Search Coil <i>Shengqiao Hao; Yi Cheng; Dawei Li; Ronghai Qu; Lihao Huang</i>	1712
0453	Numerical Simulation Study on Braking Performance of Torque Adjustable Permanent Magnet Retarder <i>Wenguang Guo; Fei Wang; Shangzhi Zhao</i>	1718
0456	The development of a general purpose embedded board for driving the mobile robot supporting various communication and various sensors <i>Jisu Kim; Minsung Ahn; Jeakweon Han</i>	1722
0457	Average Model of Hybrid Modular Multilevel Converter Considering Overmodulation <i>Shuailei Pang; Wangqianyun Tang; Junbo Zhang; Ye Zhang; Ziqian Yang</i>	1729
0458	Maximum Torque per Ampere Control of PMa-synRM Based on Online Parameter Identification <i>Hui Yao; Wen Ding; Ruiming Hu; Lujie Huo; Min Wang</i>	1735
0460	A Method for Measuring Saturated B-H Curves of Silicon Steel Sheets <i>Sa Zhu; Jianbo Lu; Feng Zeng; Ziqing Chu</i>	1740
0461	A Novel High Torque Density Spoke-Array Permanent Magnets Vernier Machine with Magnets Bridge <i>Yuwei Zhang; Yu Zhao; Dawei Li; Ronghai Qu</i>	1746

0464	Droop Control Strategy of Permanent Magnet Generator and Battery Parallel Power Supply in Aircraft Power System <i>Meng Wang; Liyi Li; Jiayi Liu; Aiguo Zhang; Yongjie Guo</i>	1752
0466	Study of an Improved STPMSM for Improving Linearity of Torque/Current <i>Yusheng Hu; Bin Chen; Yong Xiao; Xia Li; Xueqiu Han; Liyi Li</i>	1757
0467	Fault Diagnosis of High Voltage Circuit Breaker Using Gaussian Prototypical Networks <i>Zhengxi Yuan; Jianzhong Zhang; Yongbin Wu; Shaoshuai Wang; Dacheng Lu; Fujin Deng</i>	1762
0468	Torque Ripple Minimization on Dual Three-phase PMSMs with Auxiliary PWM Converter <i>Yunfei Xie; Xuchen Wang; Tianru Zhang; Giampaolo Buticchi</i>	1768
0469	Fault-Tolerant Control Strategy Considering the Insulation Reliability of Windings for Five-Phase Induction Motors <i>Ying Lin; Jian Zhang; Youtong Fang; Wen Liu; Feng Leng</i>	1772
0470	Design and Analysis of a Novel Segmented PM Variable Leakage Flux Machine Considering Variable Flux Range <i>Dabin Liu; Hui Yang; Rui Tu; Xing Liu; Xiping Liu; Heyun Lin; Ya Li; Wei Liu</i>	1778
0471	Parameter Identification Scheme Based on Harmonic Coupling Model for Permanent Magnet Synchronous Motor <i>Dongliang Zhang; Peng Yi; Wenzhi Zheng; Xianglin Li; Wen Jiang</i>	1785
0472	Finite Element Method-Based Simulation Study on Performance of Tesla Transformers <i>Linsen Jiang; Xiao Zhou; Jiaquan Wang; Jiajun Song; Fang Xiao; Qiming Ma</i>	1791
0473	Periodic Frequency Modulation Strategy for Permanent Magnet Synchronous Motor Considering Dead-band <i>Kai Guo; Depeng Zeng; Zunheng Wang; Pengyu Gao; Hanzhe Jiang</i>	1797
0477	Analysis of the Position error in Resolver-to-Digital Converter and Position Error Compensation in the Piston power generation system <i>Zhang Hanxin; Qian Hao; Wu Zhiyong; Jiang Xu</i>	1802
0478	Fault-tolerant Control of PMSM Based on Double Quasi-Z-Source Four-Leg Indirect Matrix Converter <i>Yongui Guo; Min Wu; Siqi Peng; Fazheng Liu</i>	1807
0480	Prototype Machine Design for Accurate Core Loss Measurement of High-Speed Machines <i>Liu Zhang; Zhanpeng Cui; Yun Le; Xikai Liu; Kun Wang; Shiqiang Zheng</i>	1813
0481	Research on Underwater Inverter Technology based on MMC <i>Yongtao Liang; Dong Jiang; Junzhao Zhang; Jiangyan Guo; Xin Li; Hui Ouyang</i>	1818
0483	Evaluation and Suppression of Windage Loss for High-speed Flux-switching Permanent Magnet Machine <i>Wenfei Yu; Zhongze Wu; Wei Hua</i>	1822
0484	Research on State of Charge Estimation of Lithium Ion Battery Based on Improved Particle Swarm Optimization and Unscented Kalman Filter <i>Wu Zhixiong; Qian Hao; Zhang Qinling</i>	1828

0485	An Improved Cascade Extended State Observer with CVGI Based SMESO for PMSM Sensorless Control <i>Siyuan Liu; Ling Liu; Baoling Shao; Deliang Liang</i>	1834
0487	Multi-objective Decoupling MPC Strategy for Bidirectional Neutral Point Clamped DC/DC Converter Applied in Energy Storage System <i>Cheng Xu; Kaitao Bi; Jian Ai; Qigao Fan</i>	1840
0488	A novel initial position identification of IPMSM based on pulse injection <i>Mengqi Li; Jinglin Liu; En Xie; Ruizhi Guan; Lanlan Zheng</i>	1846
0490	DFIG-VSG Based on Predictive Back-EMF Control for Improved Voltage Source Characteristic and Overcurrent Suppression <i>Peinan Jiang; Tao Wang; Xingwei Mu;</i>	1851
0491	Dynamic Inertia Modeling and Evaluation of PMSG-Based Wind Turbine with df/dt Inertia Control <i>Bo Hu; Donghai Zhu; Jiawei Yu; Yihua Zhu; Chengxiang Li; Le Li; Xudong Zou; Yong Kang</i>	1857
0492	Design and Comparison of Multi-unit Primary Permanent Magnet Wave Generator <i>Zhiquan Kong; Mei Zhao; Jun Zhao; Pingpeng Tang; Tong Yao; Huaqiang Zhang</i>	1863
0493	Efficient Variable Switching Frequency Drive Control Method for Propulsion Motors <i>Xin Tian; Hao Qian; Qinling Zhang</i>	1868
0494	Active Damping Control Used for Servo System of Satellite Payload with Deteriorating Friction <i>Jialin Li; Zhen Chen; Hengzai Hu; Xiangdong Liu</i>	1875
0495	A MRAS Based Identification Method of Stator Resistance Considering Iron Loss for Main Machine in Wound-Rotor Synchronous Starter-Generator <i>Xu Han; Weiguo Liu; Ningfei Jiao; Pu Yao; Zijie Li; Shuai Mao</i>	1880
0498	Multiphysics Research and Loss Calculation Considering the Fluid Regime of the Airgap Based on High-Speed PMSM <i>Xiangdong Su; Hang Zhao; Fang Li</i>	1885
0499	Performance Evaluation of Consequent-pole Permanent Magnet Machine with Halbach Array Arrangement <i>Ya Li; Qinglin Zhou; Shichuan Ding; Jun Hang; Gongping Wu; Junhui Cheng</i>	1889
0500	A Review on the Control Strategies for Differential Boost Inverter <i>Mengyuan Li; Jin Wang; Hu Wang; Youlun Dai; Libing Zhou</i>	1895
0502	Modified Nine-Switches High Step-up Ratio Boost-Only Y-inverter with Common Ground <i>Youlun Dai; Jin Wang; Hu Wang; Mengyuan Li; Libing Zhou</i>	1900
0504	Maximum Efficiency Per Ampere Control of Synchronous Reluctance Motor Sensorless Drives <i>Chengrui Li; Jiaxiao Shi; Lu Wang; Dianxun Xiao; Gaolin Wang; Dianguo Xu</i>	1906
0505	Research on the Control of Propeller Hub Top Mounted Vibration Damping Actuator System Based on Position Loop Decoupling Control <i>Jiawen Zhang; Zhenyang Hao; Ya Zhang</i>	1911

0506	Design and Research of Automatic Generation Control Code for Dual Three-Phase PMSM Based on FPGA <i>Fangzheng Song; Wei Xu; Jiyao Wang</i>	1917
0509	Sensorless Starting Method for High-Speed Brushless DC Motor Based on Quasi-Current Source Inverter <i>Tingna Shi; Jiawei Li; Shenxiao Zheng; Yanfei Cao; Wei Chen</i>	1922
0510	Passive Magnetic Shielding Study for Wireless Power Transfer System <i>Jinxue Meng; Haijiang Lan; Shaoqun Lu; Rong Cheng; Rongchang Wei; Yao Wang</i>	1928
0511	A Novel Sliding Mode Control Method for Permanent Magnet Synchronous Motor <i>Haohan Zhou; Guangzhong Cao; Hongjin Hu; Haotian Wang</i>	1933
0512	Modeling for Clamping Force And Hierarchical PI Control with ADRC for EMB System <i>Haitao Yang; Zibo Li; Jin Wang; Lingyu Tao; Libing Zhou</i>	1938
0514	System Identification of Five-axis Active Magnetic Bearing System in Frequency Domain Using Adaptive Filters <i>Tianci Sun; Dong Jiang; Feng Hu</i>	1944
0515	Analysis and test of capacitor-battery cooperative pulsed power supply for highly inductive load <i>Shaozhe Zhang; Chunhui Yang; Jianfeng Xie; Zhang Song; Tonghai Ding; Xiaotao Han</i>	1949
0517	Experimental Study of the Relationship Between Epstein Frame Physical Parameters and its Magductance Value <i>Xiang Ma; Ming Cheng; Wei Qin; Zheng Wang; Xinkai Zhu</i>	1954
0519	Separate fractional-order PI controller of current loop based on Sigma-delta ADC <i>Deyi Li; Zhe Liu; Tianyi Zhao; Xianguo Gui</i>	1960
0521	Research on High-Efficiency Control Strategy for Aircraft Electric Propulsion Motor System <i>Hong Gu; Wanyi Wang; Jinquan Xu; Huapeng Li</i>	1966
0523	A New Decoupling Control Method for Threedegree-of-freedom Moving-magnetic Planar Motor <i>Zijian Xie; Mingyi Wang; Liyi Li</i>	1972
0525	Coordinated Frequency Control Strategy of Offshore Wind Farm via MMC-HVDC Considering Secondary Frequency Drop <i>Zhiting Zhou; Hui Li; Hongtao Tan</i>	1977
0526	Cooperative optimization of capacity and energy management of hybrid energy storage system in rail transit system based on non-dominated sorting genetic algorithm-II and mixed-integer linear programming <i>Deshi Kong; Mingyu Lyu; Masafumi Miyatake</i>	1981
0527	Design and Analysis of a Five Phase Dual Stator Hybrid Excitation Machine with Spoke-type Permanent Magnet Rotor <i>Wang Xu; Fan Ying; Yanlei Yu; Guanghui Yang; Christopher H. T. Lee</i>	1987
0528	Influence of Rotor Topology on the Performance of Permanent Magnet Starter-Generators <i>Haoquan Zhang; Baoquan Kou; He Zhang</i>	1993

0530	Analytical Calculation and Improvement Method for Short-Circuit Torque of Permanent Magnet Synchronous Motor <i>Peng Jiang; Hui Li; Xuwei Xiang; Yonggang Li; Xiufeng Zhang</i>	1998
0531	A Novel Axial-Radial Hybrid Flux Vernier Permanent Magnet Machine <i>Mengfan Jia; Yaojing Feng; Chenxi Xia; Tan Wang; Shaoyu Ke; Shoudao Huang</i>	2004
0532	Thermal Modeling and Analysis of a Wet-type Fault-tolerant Permanent Magnet Synchronous Motor <i>Wenbo Jin; Jinqian Xu; Hong Guo</i>	2010
0533	An Efficient Model Predictive Control Strategy for Five-Phase Permanent Magnet Synchronous Motor Based on Discrete Control Set <i>Pengbo Ruan; Xiaozhong Liao; Zhen Chen; Chao Chen</i>	2016
0534	A High-Frequency Injection Sensorless Method for SynRM with Online Inductance Identification <i>Jianyong Su; He Li; Guijie Yang</i>	2022
0536	Impedance Reconstruction Based Damping Control Strategy for Variable Speed Pumped Storage Unit <i>Kaihsun Chuang; Yifang Jin; Yuanzhi Zhang; Renzhi Hu; Yihang Luan; Jianjun Sun</i>	2028
0537	Friction Loss Analysis of Air Gap Fluid in Rim-design parameters Driven Generator <i>Xian Cao; Yuze Wang; Haifeng Wang</i>	2034
0538	Research on High-speed Permanent Magnet Synchronous Motor Drive Based on PAM Method <i>Ziye Wang; Jiayi Liu; Jiwei Cao; Liyi Li; Aiguo Zhang; Yongjie Guo</i>	2038
0540	Thrust Ripple Analysis and Suppression of Minimum Unit Coil Segmented Moving-magnet Linear Motor <i>Jianxin Cui; Mingyi Wang; Jixu Sun; Liyi Li</i>	2043
0546	Weightless Model Predictive Direct Speed Control Method Based on the PMSM <i>Xun Bai; Jiayi Liu; Jiwei Cao; Liyi Li</i>	2048
0547	Position Sensorless Control of PMSM Based on Frequency Decoupled Complex Coefficient Filter with Frequency Locked Loop <i>Lingyu Tao; Jin Wang; Xinchu Ma; Dongdong Chen; Libing Zhou</i>	2053
0548	Research on Parallel Power Conversion Systems Based on Virtual Synchronous Generator Phase Coordination Control <i>Jiawen Zhang; Zhenyang Hao</i>	2058
0549	Optimization of Variable Speed Pumped Storage Unit Based on Magnetic Gear Flexible Transmission Structure <i>Yihang Luan; Yuanzhi Zhang; Yifang Jin; Kaihsun Chuang; Renzhi Hu; Jianjun Sun</i>	2064
0551	Model-free predictive fault-tolerant control of MPPMSM based on ultra-local model <i>Jiali Qu; Jinqian Xu</i>	2070
0552	A Novel Flux Switching Permanent Magnet Machine Based on Quantitative Air-Gap Construction Method <i>Shuangshuang Luo; Dawei Li; Ziyi Liang; Ronghai Qu</i>	2076

0554	Eccentricity Fault Detection of Permanent Magnet Synchronous Linear Motor Based on Rainbow Texture Transition and ResNet18 Classification <i>Long Qian; Juncai Song; Xianhong Wu; Wei Ding; Siliang Lu</i>	2081
0555	A Cooperative Control Strategy of Machine Side and Grid Side for The Rotor Converter of Pumped Storage Doubly-fed Induction Machine <i>Zexi Liang; Ruihua Zhang; Bo Zhang; Qiongquan Ge</i>	2086
0556	Impact of a Synchronous Condenser Converted from a Thermal Power Generating Unit on the Voltage Stability of Power System <i>Gang Han; Jiaze Li; Defu Cai; Binxin Yin; Tao Wang; Guanqun Sun; Jin Wang; Libing Zhou</i>	2092
0558	A Current Reconstruction Method of Odd-phase High-speed Fault-tolerant Permanent Magnet Motor for Aviation <i>Zhibai Gao; Jiayi Liu; Jiwei Cao; Liyi Li</i>	2097
0560	Electromagnetic Design of High Torque Density 3D Magnetic Circuit Motor for Aviation Propulsion <i>Xiao Li; Hong Guo; Jinquan Xu</i>	2102
0561	Research on Modular Stator Core Structure of Low-Speed Direct-Drive Permanent Magnet Synchronous Machines <i>Yan Li; Yongda Song; Fengge Zhang</i>	2107
0562	Efficiency Optimal Predictive Control of Induction Motor Based on Loss Model Method <i>Long He; Hongbin He; Kunkun Zuo; D.A.Davronbekov; Fengxiang Wang</i>	2113
0563	An Improved Circulating Current Injection Method for Modular Multilevel Converters in PMSM Drives <i>Dingkuan Xu; Fei Peng; Yunkai Huang</i>	2119
0567	A Novel Modified PLL-based Position Estimator in SynRMs Injection-based Sensorless Control <i>Yan Li; Zhen Chen; Xiaoyong Sun; Xiangdong Liu</i>	2123
0568	Multivariable Modelling and Coupling Analysis for the Levitation System of an Iron-Core Permanent Magnet Maglev Synchronous Linear Motor <i>Yueying Yang; Wataru Ohnishi; Takafumi Koseki</i>	2129
0569	A Novel Simplified Torque Ripple Reduction Strategy in Synchronous Reluctance Machines Based on the Torque Function <i>Yan Li; Zhen Chen; Xiaoyong Sun; Xiangdong Liu</i>	2135
0570	Diagnosis Method for Power Switch Open-Circuit Fault of Triple Three-phase PMSM System in complex Operations <i>Xinlei Tian; Jinquan Xu; Hong Guo</i>	2141
0571	Design of Magnetic Coupling Mechanism for Bidirectional Motion Wireless DC Motor System <i>Lurenhang Wang; Bolong Wei; Yuebo Chen; Huibao Li; Shuai Dong</i>	2147
0575	High speed Interior Permanent magnet Rotor Made of Dual phase Magnetic Materials <i>Jing Ou; Jingbo Lin; Tao Liu; Yanyun Liu; Dianguo Xu</i>	2153

0576	Iron Loss Calculation and Thermal Analysis of High-Speed Permanent Magnet Synchronous Motors Under Various Load Conditions <i>Cunhao Rong; Qipu Zhang; Zhihao Zhu; Haolin Li; Zisen Huang; Dongdong Zhang; Thomas Wu</i>	2158
0577	Detection of Inter-turn Short Circuit Fault in Permanent Magnet Synchronous Machine under Phase Current Reconstruction Control <i>Dong Wei; Kan Liu; Jianbo Wang; Shichao Zhou; Huaqiang Cai; Jinya Chen</i>	2164
0580	A Taguchi-LHS-RSM Double-Staged Approach for Design Optimization of Self-Ventilated Cooling Systems Utilized in PMSMs <i>Gaojia Zhu; Zeyuan Xu; Fengyu Zhang; Chris Gerada; David Gerada</i>	2169
0582	An Optimization Design System of Medium Frequency Transformer with Non-Ideal Geometry Structure <i>Yunhao Xiao; Chi Li; Zedong Zheng; Xuan Guo</i>	2175
0583	Analysis and Optimization for Winding Topology of Multiphase High Power DC Generator in Future Hybrid Electric Propulsion Aircraft <i>Weixiao Bian; Zhuoran Zhang; Liqiang Li; Jincal Li; Yanhui Li</i>	2181
0584	Thermal Modeling Considering Anisotropy of the 280Ah Lithium Iron Phosphate Battery <i>Hejie Lin; Liubin Hou; Yelin Deng</i>	2187
0585	Non-Zero-Pole Cancellation Gain Scheduling of General Servo Drives Based on Quantitative Feedback Theory <i>Chaoyi Shang; Ming Yang; Jiahua You</i>	2193
0586	Open-circuit Fault Diagnosis Strategy for Five-phase Permanent Magnet Fault-tolerant Servo Motor Drive Systems Based on Phase Voltage <i>Jiazheng Liu; Yanchao Sun; Xinxu Tang; Yufei Gao; Shirui Yang; Zhijian Wei; Xuefeng Jiang</i>	2199
0587	Effect of the Number of Rotor Virtual Slots on Electromagnetic Force in Interior PMSMs for EVs <i>Xiaoyuan Wang; Lixin Wang</i>	2205
0588	Fault-Tolerant Control Strategy Based on Quasi-Proportional Complex Integration Controller for Five-Phase PMSM Under Coil Inter-Turn Short Circuit Fault Condition <i>Haoran Li; Chuanyou Wan; Yanhua Liu; Debin Zhang</i>	2210
0589	Optimal PM Numbers and Stator/Rotor Pole Number Combinations in Asymmetric Consequent-Pole Hybrid Excited Flux-Reversal Machines <i>Fangrui Wei; Zi-Qiang Zhu; Jianhui Hu</i>	2216
0590	A Super-Twisting Extend State Observer with High Frequency Signal Injection for Low Speed Sensorless Control of IPMSM <i>Tianru Zhang; Linxuan Cheng; Caiwei Li; Bowen Jia; Qinglei Bu; Xuchen Wang; Zhuang Xu; Jing Li</i>	2221
0591	Electromagnetic Torque Generation Mechanism of Hybrid Excited Double Salient Machine <i>Chen Cao; Wei Xu; Yishu Zhang; Jiangming Deng</i>	2227
0592	High-Accuracy Resolver-to-Digital Conversion Based on Active Disturbance Rejection PLL <i>Xiaoqian Zhang; Xiangdong Liu; Hengzai Hu; Xin Teng</i>	2232

0595	Design of Reduced-Order Observer for Permanent Magnet Coupling Transmission Systems based on Stiffness Coefficient Adaptive Calculation <i>Qianni Li; Wentao Zhang; Yongxiang Xu; Guodong Yu; Jibin Zou</i>	2237
0596	High-efficiency modulation strategy design method of the driving motor system under full working conditions for aviation applications <i>Jinquan Xu; Huapeng Lin; Hong Guo; Boyi Zhang; Wanyi Wang; Ren Boyang; Ming Yang; Na Chai; Yunsong Li; Dianguo Xu</i>	2241
0597	Simulation of Dynamic Hysteresis and Loss Characteristics of Nanocrystals under High Frequency Triangular Wave Excitation <i>Yongsheng Xu; Mingli Fu; Lei Liu; Xiaojun Zhao; Xinyi Wu</i>	2246
0601	An Electromagnetic Design of a Double-sided Coreless Linear Motor with Superconducting AC Coils and Permanent Magnets <i>Haida Xue; Yingzhen Liu; Liyi Li</i>	2251
0605	Research on Performance of Low-Voltage HighCurrent BLDC Motors with Different Winding Configurations Used in Aviation Starting System <i>Wenqi Fu; Wu Ren; Tong Yang; Yongqin Hao; Yun Zheng; Quanwu Li</i>	2257
0606	A Two-term Analytical Iron Loss Model of High-Speed Motor Considering Abnormal Eddy Current Loss <i>Jiawei Yi; Jiawen Zhan; Haolin Li; Qipu Zhan; Dongdong Zhang; Xinzhang W</i>	2261
0610	Fault-tolerant Control Strategy for Modular Multi Unit PMSM Based on Vector Decoupling and Minimum Copper Loss <i>Zheng Yang; Fan Ying; Wang Moyang</i>	2266
0611	Dynamic Current Trajectory Tracking Strategy with Optimized Overmodulation Method for Permanent Magnet Synchronous Motor Drives <i>Zhen Jin; Wei Xu; Jiayao Wang; Tao Xu</i>	2272
0612	Homogenization Technique of Magnetostriction Calculation in Laminated Iron Core <i>Yanhui Gao; Hiroki Fujita; Weimin Guan; Kazuhiro Muramatsu</i>	2278
0614	Position Sensorless Control of PMSMs With Single Current Sensor Considering Dead Zone <i>Wang Moyang; Fan Ying; Zheng Yang</i>	2282
0617	Equivalent Modeling and Vector Control Verification of Solid Rotor Induction Motors <i>Zhiguo Gao; Zhiquan Deng</i>	2288
0618	A Dual Active Bridge DC-DC Converter with an Active Capacitor <i>Weibin Jiang; Zimin Shao; Qingbo Tang; Wentie Yang</i>	2292
0622	Position Estimation Error Reduction Based on a Complex-Coefficient Extended State Observer for IPMSM Sensorless Drives <i>Zhenghong Luo; Yashan Hu; Yonggang Li</i>	2297
0623	Electro-Magnetic Design and Analysis for a High Performance, Aerospace Electrical Machine <i>Christian John Dalli; Joseph Cilia; Michael Galea</i>	2303
0624	Loss Calculation of Magnetic Steel Sheet based on the Magductance <i>Jingxia Wang; Wei Qin; Ming Cheng</i>	2309
0626	Overview of High Overload Motors <i>Zaixin Song; Yongtao Liang</i>	2314

0628	Current Harmonics Suppression Control of PMSMs Based on Extremum-Seeking Algorithm <i>Yue Zhang; Lei Zhu; Zewei Song</i>	2320
0631	A Novel Active Damping Control Method Based on Virtual Damping Resistor for IPMSM Drives with Small DC-Link Capacitors <i>Zhentu Lao; Yashan Hu; Li Liu; Tao Wang</i>	2325
0633	Stator Magnetic Field Consistency Fault Detection of MMT-PMSLM Based on Bayesian Optimization Convolutional Neural Network <i>Rui Xu; Jiwen Zhao; Zhenbao Pan; Zixiang Yu; Kaiwei Wei; Xiang Zhang</i>	2331
0635	A PV DC Boost Collection Converter Based on Capacitor Isolation <i>Haoying Fu; Baiyan Sun; Congzhe Gao; Zhen Chen</i>	2337
0636	Design of a Novel Six-Phase Outer Rotor Transverse Flux Reversal PM Motor for Distributed Aviation Propulsion System <i>Bowen Zhang; Rundong Huang; Zhiping Dong; Yuxin Liu; Chunhua Liu</i>	2342
0637	Research on speed control of PMSM based on a new sliding mode reaching law of fast integral terminal sliding mode control with iterative-based high-gain disturbance observer <i>Shi Song; Wang Yi; Mai Songping</i>	2347
0639	Robust Control of Permanent Magnet Synchronous Linear Motor Using a General Order Model and Time Delay Estimation <i>Lijun Wang; Jiwen Zhao; Zixiang Yu; Zhenbao Pan; Le Yin; Fang Xie;</i>	2353
0640	SVPWM Sideband Harmonic Analysis in Permanent Magnet Synchronous Motor Driven by Voltage Source Inverter <i>Yuan Cheng; Haodong Sun; Yao Wang; Mingliang Yang; Ling Ding; Kai Yao</i>	2358
0641	An Efficient Control Strategy for Integrated Flywheel Energy Storage System Based on HIM <i>Yuanlong Zhao; Kexun Yu; Jiahao Xie; Xianfei Xie</i>	2364
0644	Model-Free Predictive Current Control of Sensorless PMSM Drives with Extended Kalman Filter <i>Liyang Luo; Wentao Huang; Minjie Huang; Qigao Fan</i>	2369
0645	Torque Enhancement of an Axial Flux Permanent Magnet Synchronous Machine with Asymmetrical Rotor Configuration <i>Chaofan Miao; Yongdan Chen; Kan Liu; Yan Ding; Zhiwei Zhao; Cong Zeng</i>	2375
0647	Design of a High Specific Power Permanent Magnet Electrical Machine for a Flywheel Energy Storage System <i>Xuwen Lian; Cedric Caruana; Michael Galea; Robert Camilleri</i>	2381
0648	Review on Power Factor Improvement of Vernier Machines <i>Yongtao Liang; Zaixin Song</i>	2387
0649	Asynchronous Discontinuous SVPWM Strategy for High-power Three-level ANPC Traction Inverter at Low Modulation Ratio Region <i>Mutian Zhao; Qiongquan Ge; Ke Wang; Lu Zhao; Bo Zhang; Pei Yang</i>	2393
0650	Multi-objective Optimization of Interior Permanent Magnet Synchronous Motor Based on Layered Response Surface Method and Improved NSGA-II <i>Thomas Wu; Yan Liu; Dongdong Zhang; Jiawei Yi; Jiayu Liu; Teng Yu</i>	2398

0651	Compensation Method of Neutral Voltage Oscillation for Adjacent Double-Phase Open-Circuit Fault <i>Chao Chen; Xiaoyong Sun; Zhen Chen</i>	2405
0652	Advance Angle Flux Weakening Control Strategy of Integrated Five Phase PMSM <i>Yue Zhang; Qiang Gao; Jiqiang Han</i>	2411
0653	Tri-mode Fault-Tolerant Control of Three-Phase Permanent Magnet Synchronous Motor Drive System under Single-Phase Open Fault <i>Fu Li; Kai Zeng; Yunze Jiang; Yini Zhao; Shuangchen Chen</i>	2417
0655	Cogging Torque Suppression of Inner Rotor in Coaxial Magnetic Gear with Modulator Slots <i>Zhiwei Zhao; Yongdan Chen; Yan Ding; Chaofan Miao; Cong Zeng; Huaqiang Cai; Jinya Chen; Jinya Chen; Kan Liu</i>	2422
0656	Parameter Estimation for Permanent Magnet Synchronous Motors Based on the Improved Genetic Algorithm <i>Xinghao Wang; Hao Jing; Zifeng Chen; Dehui Luo; Shuo Zhang; Xueqing Wang; Dianxun Xiao</i>	2427
0657	Misaligned bilateral linear permanent magnet vernier motor design and optimization <i>Qiaoling Yang; Qi Zhang; Binhua Su;</i>	2433
0658	Research on the cooling structure and electromagnetic coupling mechanism of electric rocket pump drive system <i>Boyu Chen; Jiwei Cao; Yuchen Song; Jiangtao Wu; Liyi Li</i>	2439
0659	Quasi-Online Technique for Health Monitoring of Stator Winding Insulation in Inverter-Fed Motor Using Switching Transient Voltage Response <i>Dayong Zheng; Geye Lu; Guodong Li; Minglu Yao; Pinjia Zhang</i>	2444
0661	A Novel Flux-Regulation Permanent Magnet Excited HIA with Adjustable Relative Position of Two Halves of Rotor <i>Longjian Liu; Kexun Yu; Xianfei Xie</i>	2450
0664	Design and Cogging Torque Optimization of Outer-Rotor Permanent Magnet Synchronous Motor <i>Dongdong Zhang; Teng Yu; Jiawei Yi; Thomas Wu; Jiayu Liu; Jiawen Zhang</i>	2454
0665	A Novel Real-Time Control Strategy for Smart-Multi-motor System Based on a Hybrid FPGA Gateway <i>Zhichao Huang; Song Qiu; Bangji Wang; Qingxiang Liu</i>	2460
0668	Double-Paralleled Bidirectional Buck-Boost DC-DC Converter for Battery Energy Storage System on More Electric Aircraft <i>Boyi Zhang; Hong Guo; Jinquan Xu</i>	2465
0669	A Novel High-Speed Hybrid PMSM and Homopolar Inductor Alternator Used for Double-Frequency Power Generation System <i>Longjian Liu; Kexun Yu; Xianfei Xie</i>	2471
0671	Surge Disturbance Suppression of Active Magnetic Bearing Suspended Compressors Based on Disturbance Observer <i>Wenyue Ma; Yanyi Fu; Hongbin Li; Jinxiang Zhou</i>	2475
0672	Research on Sensorless Technique of Ultra-High-Speed Permanent Magnet Synchronous Motor Considering Control Delays <i>Yue Zhao; Zhiquan Deng; Suwan Ge</i>	2480

0673	Adaptive Nonlinear Robust Control for Overhead Cranes With Uncertain Disturbances	2486
	<i>Guidan Li; Kaiwen Liu; Bin Li</i>	
0674	A Novel Halbach Design for Hybrid Rotor and Performance Optimization in PMSM	2492
	<i>Yunong Wang; Yi Huang; Mi Zhao; Min Lu</i>	
0675	Global path planning method for mobile vehicles based on Goal-Optimized algorithm	2498
	<i>Wei Fan; Yinbei Li; Jiaqiang Yang; Boxiang Wang</i>	
0676	Power System Control of AC-AC Electric Power Architecture for Distributed Hybrid Electric Propulsion Aircraft	2502
	<i>Tianyu Yang; Wenxin Huang</i>	
0677	Design and Analysis of a Novel Axial Flux Stator Staggered Pole Permanent Magnet Machine	2507
	<i>Jilong Zhao; Qingfeng Han; Qing Wang; Lixuan Wang; Lei Wang</i>	
0678	Common-Mode Voltage of Back-to-Back Hybrid Modular Multilevel Converter under Third-Harmonic Injection	2513
	<i>Yanjun Shen; Linjie Han; Binbin Li; Yingzong Jiao; Dianguo Xu; Lei Chen; Youguo Xiao; Sihan Zhao</i>	
0679	Research on Permanent Magnet Synchronous Motor Drive System based on Vector Resonant Control and Resonant Pole Inverter	2518
	<i>Chengjie Lei; Xianguo Gui</i>	
0680	PV Energy Storage Capacity Optimization for Receiving End Grid Based on Grey Wolf Algorithm	2523
	<i>Ziwei Wang; Congzhe Gao; Dahui Zhang; Junliang Chen; Xiyan Li</i>	
0681	Design and Analysis of Fractional Pole-Pair Permanent Magnet Vernier Machine Using Asymmetrical V-Shaped Permanent Magnet	2529
	<i>Xiong Tao; Chen Yiguang; Sun Haotian; Xing Ning; Hao Weijie</i>	
0682	Design of Loosely-Coupled High-Frequency Tank Transformer with Co-Magnetic Paths for Simultaneous Transmission of Power and Data	2534
	<i>Tianrui Zhou; Ping Jin; Yujing Guo; Xiang Xu</i>	
0684	Fault-Tolerant Control of Open-Circuit Faults of Five-Phase Permanent Magnet Synchronous Motor with Current-Source-Inverter	2539
	<i>Chao Chen; Xiaoyong Sun; Zhen Chen</i>	
0685	Ripple Analysis and Reduction of a Dual-PM Direct-Drive Machine by a Harmonic Current Injection Approach	2545
	<i>Yue Ma; Shuangxia Niu; Weinong Fu; Jiaqi Fei; Jiahui Huang</i>	
0686	Multi-objective optimization of TMPS-HESM torque performance based on particle swarm optimization and TOPSIS method	2553
	<i>Liang Pang; Ying Lu; Qiang Lv; Jianjian Ning; Tingbin Li; Haihong Qin; Chaohui Zhao</i>	
0688	Study of Potential Factors and their Interaction in Dielectric Elastomer based Cell Stretcher	2557
	<i>Simon Holzer; Florian Hartmann; Fatma Oz; Thomas Martinez; Yoan Civet; Yves Perriard</i>	

0689	Optimization of the Power-to-Weight Ratio of an Electric Aircraft Propulsion System using Planetary Gearboxes <i>Lucas Brenner; Dieter Gerling</i>	2563
0691	Mixed Eccentricity Detection by Identification of Harmonic Order of No-load Line-line Voltages in Multi-three-phase PMSMs <i>Kodai Okazaki; Kan Akatsu; Kan Yang</i>	2569
0692	Bearing Fault Diagnosis for Electrical Machines based on Multi-sensor Multi-level Fusion and Convolutional Neural Network <i>Zhaowei Wang; Chuanshuai Liu; Xiangjin Song</i>	2574
0693	A Hierarchical Optimization Method of Industrial Rectifier Transformer Loss Considering Winding Impedance Matching <i>Yi Yang; Fang Liu; Qianyi Liu; Yong Li; Hassaan Khalig Qureshi</i>	2579
0695	An Improved Sensorless control strategy for SynRM Model Predictive Current Control Based on High-Frequency Square-wave Voltage Injection <i>Yuhao Huang; Kai Yang; Cheng Luo; Yixiao Luo</i>	2584
0696	Temperature Simulation of 800 kVA Converter Transformer Windings Considering the Effects of High-Order Harmonics <i>Tao Chen; Zhi Liu; Pengbo Wang; Jinyang Jiang; Fan Yang</i>	2589
0697	An Improved Two-Terminal Hybrid Connection Method to Reduce the Armature Winding MMF Space Harmonics of Asymmetric Six-Phase Machine <i>Jianzong Yu; Jiangtao Yang; Qing Li; Xinzhe Zhao; Sheng Huang; Shoudao Huang</i>	2594
0699	A Thrust Ripple Suppression Strategy of PMLSM Based on Resonant Disturbance Observer with Optimal Gain and Phase Compensation <i>Anpeng Wang; Liyi Li; Xuzhen Huang</i>	2600
0700	Study on the Characteristics of Electromagnetic Force of Single-phase Concentrated Winding Induction Motor <i>Bin Chen; Yong Xiao; Jinfei Shi; Xia Li; Yusheng Hu; Liyi Li</i>	2606
0701	Torque Optimization of a Dual Three-Phase Permanent Magnet Synchronous Machine with Asymmetric Rotor Core for Electric Vehicles <i>Cong Zeng; Yongdan Chen; Kan Liu; Chaofan Miao; Zhiwei Zhao; Yan Ding</i>	2612
0702	Research on the Online State Reconstruction Method of High-Power Converter Based IGCT <i>Pei Yang; Bo Zhang; Qiongxuan Ge; Xiaoxin Wang</i>	2618
0703	Mutual Inductance Estimation for Constant Voltage Control of Wireless Power Transfer System under Frequency Splitting <i>Fuju Chen; Kan Liu; Pengfei Sang; Haozhe Luan; Huaqiang Cai; Jinya Chen And Kaiqing Li</i>	2623
0704	Position Sensorless Control of Deep-sea Permanent Magnet Synchronous Motor with Umbilical Cable for Long-distance Power Transmission <i>Wenrui Liu; Yongdan Chen; Kan Liu; Kaiqing Li; Shichao Zhou; Jing Zhou; Haozhe Luan; Tao Peng; Dong Wei; Dinghua Zhang</i>	2629
0705	A Dynamic Voltage Decoupling Control Method Based on Vehicle Reluctance Motor <i>Yusheng Hu; Bin Chen; Mintong Liu; Guanghui Chen; Guoxiang Zhong; Yunlong Teng</i>	2635
0706	Sequential Model Predictive Control of Open-Winding Permanent Magnet Synchronous Motor without Weighting Factor <i>Chong Zhang; Chun Gan; Kai Ni; Shuanghong Wang; Jianbo Sun; Ronghai Qu</i>	2640

0707	Reactive Power Compensation of a Hybrid Excitation Generator with Parallel Capacitors	2645
	<i>Xiangpei Gu; Zhuoran Zhang; Weijia Jiang; Changzhou Lu</i>	
0708	Fault-Tolerant Design of Paralleled Three-phase Topology with Active Bidirectional Switches	2650
	<i>Xiangwen Sun; Zicheng Liu; An Li; Dong Jiang; Ronghai Qu; Qingzhe Wang</i>	
0711	Application of a Large Scale 10kV Five-Level IGCT Inverter for Natural Gas Long-Distance Pipeline Network	2655
	<i>Dapeng Zheng; Pei Yang; Hailong Li; Qiongxuan Ge</i>	
0712	An eGaN HEMT-Based High Power Density Controller for Permanent Magnet Synchronous Motor	2661
	<i>Zeyu Zhang; Jiadan Wei; Ming Zhang; Jiate Zhang; Wenzhi Hu; Le Zhang</i>	
0714	Analysis and Compensation of Rotor Position Detection Errors in DC-FRBLM	2667
	<i>Jiayun Liu; Jian Li; Dawei Li; Wubin Kong; Ronghai Qu</i>	
0715	Design a New Hybrid PM Machine with a Low Cogging Torque by Attaching Permanent Magnets on Rotor Surface	2673
	<i>Zhongqi Shi; Wei Xu; Jiyao Wang</i>	
0716	Characteristics and Reduction of the Magnet Eddy Current Loss of an FSCW Spoke-type PMSM	2678
	<i>Chendong Liao; Zhuoran Zhang; Jianbin Han; Jian Zhang; Chen Wang; Peng Wang</i>	
0717	A Back-EMF Sliding-Mode Observer for PMSM Sensorless Control with Online Stator Resistance Estimation	2683
	<i>Yaxuan Wang; Bo Wang; Pengcheng Du; Dianguo Xu</i>	
0720	Analysis and Design of Cooling Structure for Magnetically Suspended Permanent Magnet Synchronous Planar Motor	2688
	<i>Lu Zhang; Junjie Xu; Chunyu Du; Kai Yang; Baoquan Kou</i>	
0721	Optimization Design of Stator Core for High frequency Vibration Reduction of Multiphase Surface Permanent Magnet Motors	2694
	<i>Yajun Lv; Siwei Cheng; Xinghong Li</i>	
0722	Analysis of Tension Winding of High-Speed Permanent Magnet Motor Rotor with Magnetic Sleeve	2699
	<i>Chen Zhao; Yue Zhang; Fengge Zhang; Zerun Wang; Siyang Yu</i>	
0723	High Speed Permanent Magnet Motor Optimization Based on Multi-fidelity Surrogate Model	2707
	<i>Yuexin Li; Bingchuan Xie; Siyang Yu; Fengge Zhang</i>	
0724	Research on Air Gap Magnetic Field for Permanent Magnet Toroidal Motor with Rotor Eccentricity	2712
	<i>Xin Liu; Yuting Zhang; Xiaoyuan Wang</i>	
0725	Improved Position-tracking Accuracy Based on Feedforward-Loop PLL for Sensorless Control of High-Speed PMSM	2717
	<i>Yongkang Zhang; Wei Xu; Jiyao Wang</i>	
0726	Direct Torque Control of DC-Biased Hybrid Excitation Machine with Adjustable Zero Sequence Current	2722
	<i>Liang Xu; Youhui Zhi; Tingting Jiang; Wenxiang Zhao; Shuangxia Niu</i>	

0727	Polar-Frame-based Modeling and Small-Signal Analysis of Diode Rectifier-based HVDC with Commutation Overlap Angle Dynamics <i>Yi Chen; Boxin Liu; Huan Yang; Yiping Lu</i>	2727
0729	Influence of Different Mode-shape Functions on Analytical Calculation of Stator Natural Frequencies <i>Wei Wang; Yanxin Li; Qinfen Lu</i>	2733
0730	Flux-Weakening Capability Enhancement of a Zero Sequence Current Excitation based Pole-changing Permanent Magnet Machine <i>Wenjie Wu; Shuangxia Niu; Mingyuan Jiang; Yao Wang</i>	2739
0731	Study on the influence of stator chute on the magnetocaloric properties of surface-mount permanent magnet synchronous motor <i>Ying Zhu; Shuye Ding; Xiaoyu Cao</i>	2744
0732	Predefined-Time Cascaded Distributed Control of DC Microgrids <i>Zhenyu Ke; Panbao Wang; Wei Wang; Dianguo Xu</i>	2749
0733	Comparative Study on Harmonic Current Suppression of Dual three-phase PMSM Based on LMS Adaptive Linear Neuron and Resonant Controller <i>Yonggang Li; Yashan Hu</i>	2755
0734	Design of a new type of capacitance variable electrostatic motor <i>Hao Luan; Shuye Ding; Xiaoming Yan; Shoucheng Li</i>	2761
0737	Design and Optimization of a Novel Flux Reversal Permanent Magnet Machine with DC Excitation Source <i>Wenjie Wu; Shuangxia Niu; Mingyuan Jiang; Yao Wang</i>	2765
0738	Research on the Performance of Permanent Magnet Synchronous Motor Based on Radial Magnetization and Permanent Magnet Circumferential Blocking <i>Bin Chen; Fang Zhang; Bowen Xiong; Yaoxing Jiang; Yusheng Hu</i>	2770
0739	An online phase-to-phase insulation diagnostic method for multi-phase Wye winding machine <i>Yunfei Hu; Siwei Cheng; Bin Chen; Xinghong Li; Zhongkun Ji</i>	2776
0740	Resonant Coupled Excitation Brushless Synchronous Motor <i>Shumei Cui; Yuqi Zhang; Beibei Song; Xin Gao; Tianxu Zhao; Shuai Dong</i>	2782
0742	Vibration Characteristics for the Amorphous Alloy Three-D Wound Core Transformer <i>Daosheng Liu; Zeshuai Li; Longsheng Liu</i>	2788
0743	A Comparative Study between Proportional Integral and Proportional-Resonant Controllers in Controlling the Harmonic Current of PMSM <i>Shenglei He; Wei Xu</i>	2793
0744	Design and Optimization of a Convex-T Coaxial Magnetic Gear with Spoke Structure and Halbach Arrays <i>Libing Jing; Zeyu Min; Wei Liu; Ronghai Qu</i>	2799
0745	Control Strategy for High Lift Motors in Distributed Electric Propulsion Aircraft <i>Dongheng Wang; Bingqiang Li; Yiyun Zhao; Jiale Yan</i>	2805
0746	Five-order Linear Extended State Observer based Robust Backstepping Position Tracking Control for Dual-Motor Servo System with Backlash <i>Tao Peng; Yongdan Chen; Kan Liu; Kaiqing Li; Shichao Zhou; Jing Zhou; Haozhe Luan; Wenrui Liu; Dong Wei</i>	2811

0747	Online Diagnosis Method for Rotor Inter-turn Short Fault of Hydrogenerator Based on Air Gap Magnetic Field Decoupling <i>Jiao He; Chong Zeng; Song Huang; Liangliang Tian; Jing Song</i>	2817
0749	Design Optimization and Comparative Study of Hybrid-Excited Flux Modulated Linear Machines with Different Slot Permanent Magnets <i>Yiming Shen; Guanghui Yang; Zhaokai Li; Zhiqiang Zeng; Qinfen Lu; Christopher H. T. Lee</i>	2822
0750	Research on Resistance to Load Disturbance Control Method Based on LCI Fed Dual ThreePhase Synchronous Motor <i>Fengrui Yang; Gaoxiang Liu; Jiabao Kou; Fengyi Guo; Zhenquan Lin</i>	2828
0752	Research on Current Harmonics Minimization by Resonant Controller for PMSM <i>Bitong Chen; Jian Guo; Wenze Zhang; Runkai Yuan</i>	2833
0753	Optimal Design of Direct-Drive PMSG Considering Annual Wind Speed Variation <i>Shaoling Zhuang; Pingting Lin; Meng Lu; Xiao Liu</i>	2840
0754	PWM-VSI Fault Diagnosis of PMSM for Aircraft Based on Fuzzy-Park Vector Method <i>Shaoguang Rong; Ning Dong; Chao Chen; Zhen Chen</i>	2846
0757	Rotor Position Estimation Method of Brushless Synchronous Starter/Generators in a Wide Speed Range <i>Xinyu Li; Weiguo Liu; Shuai Mao; Chongzhao Ma; Ningfei Jiao; Xiaoke Zhang</i>	2852
0758	Analysis and Optimization of Axial and Tangential Electromagnetic Force Waves in Yokeless Stator Axial Flux Motors <i>Qiping Shen; Tianhai Yang; Jun Cheng; Lianghong Yin; Jianhui Li; Jiaxin Tian</i>	2857
0759	Design and Analysis of a New Type of Parallel Hybrid Excitation Claw-pole Generator <i>Qiping Shen; Jianhui Li; Zongrong Long; Xiaxia Chen; Tianhai Yang; Tianxiong Zhang</i>	2863
0761	Algorithm for initial position detection of PMSM sensorless control based on Newton's method in conjunction with linear search of Wolfe's criterion <i>Zhibo Wang; Jianhui Hu</i>	2870
0765	Cumulative Error Elimination for Long-stroke PMLSM Mover Measurement Based on BP Neural Network Model <i>Junxi Guo; Jing Zhao; Fei Dong</i>	2875
0767	The rigid body modal test and mounting stiffness check of new energy bus motor mounting system <i>Gu Huanhuan; Zhang Rongting; Jiang Feng; Junguan Ou</i>	2880
0768	Radial Force Harmonics and Acoustic Noise Reduction of a Vector-Controlled SRM by Superimposed Sixth Harmonic Currents <i>Shintaro Yano; Kyohei Kiyota</i>	2886
0770	Design and Analysis of a Low Noise Out-Rotor PMSM with L-shape Magnets <i>Chao Zhi; Haotian Wu; Han Gao; Shaohui Zhang; Lijun Xu; Yinian Mao</i>	2892
0771	Comparative Analysis of Yokeless and Segmetned armature Axial Flux Permanent Magnet Motor According to Eccentricity Conditions <i>Tae-Hyuk Ji; Hyung-Woo Kim; Sung-Sik Kim; Seah Park; Yong-Jae Kim; Sang-Yong Jung</i>	2896

0772	Optimized Combination Allocation Method for Adjustable Load Resources in Virtual Power Plants <i>Xiyuan Zhang; Xiangyu Kong; Yuan Ren; Peirong Zhang; Zhiduan Yang; Shuo Wang</i>	2900
0773	Permanent Magnet Synchronous Motor Control Based on Improved Active Disturbance Rejection Control with SMC and Fuzzy ESO <i>Shangze Li; Bin Xu; Zhe Liang; Deliang Liang; Shaofeng Jia</i>	2906
0775	Parameter Design of Multi-frequency Triple-port Modular Multilevel Converter <i>Tongyu Yan; Rong Ye; Yi Lin; Shuhao Yan; Yongqing Meng; Xiang Gao; Jinpeng Kan</i>	2911
0778	Design of a Linear Vernier Permanent Magnet Generator with Improved Power Factor for Inland-Water Wave Energy Conversion <i>Junyao Liu; Shuang Liao; Zixia Sang; Yi Yu; You Zhou;</i>	2916
0779	Design and Characteristics Analysis of Double Air-gap Vernier Motor with High Torque for Robot Gripper <i>Hwajin Woo; Dohyun Kang; Youngjin Oh; Gwan-Soo Park</i>	2921
0782	Torque Ripple Analysis and Suppression of Dual rotor Axial Flux Permanent Magnet Synchronous Motor <i>Qiping Shen; Lianghong Yin; Tianhai Yang; Jun Cheng; Fuxin Cui; Jianlin Zhuo</i>	2926
0783	Switching Frequency Optimization Method and Control Strategy of Propulsion Inverter for Multiphase Motors With Hybrid SiC-MOS and Si-IGBT Bridge Legs <i>Shusen Ni; Ling Peng; Zedong Zheng</i>	2931
0784	State of Energy Estimation of Lithium-ion Batteries Using Spherical Simplex-Radial Cubature Kalman Filter <i>Jinqing Linghu; Guokuan Yu; Jun Xu; Mingxiang Tang; Yue Zhang</i>	2938
0786	A Novel Model for Dynamic Process Study of Reactor Control Rod Drive Mechanism <i>Yun Yang; Qiwei Xu; Xuefeng Zhang; Tianda Yu; Xinan Chen; Yizhou Zhao</i>	2944
0787	A Comparative Study of Inner Rotor and PM Shaping Methods for Torque Ripple Suppression in Hollow-Cup Machines <i>Zhanpeng Cui; Yun Le; Liu Zhang; Kun Wang; Ximing Liu; Shiqiang Zheng</i>	2950
0789	Numerical Investigation of Mechanical Characteristics of Racetrack REBCO HTS Magnet for MW-Class Wind Turbine Generator <i>Tao Wang; Jinhong Liu</i>	2956
0790	Control of Tube Profile in Electromagnetic Forming Using a Metallic Ring <i>Xinhui Zhu; Wang Zhang; Xiao Zhang; Limeng Du; Shaowei Ouyang; Quanliang Cao</i>	2960
0791	Analysis and Reduction of Eddy Current Influence on Measurement Dewar for a 60 T Pulsed Magnet <i>Mengyu Liu; Xian Li; Liang Li</i>	2965
0794	Analytical Magnetic Field Analysis of PMSM with Inter turn Short circuit Fault and its Diagnosis through Detection Coil <i>Weiming Zhang; Yufei Han; Youwei Tang; Jian Liu; Jie Yu</i>	2970
0795	Research on Position Calculation Method of Multi-coil Inductive Displacement Measurement Sensor <i>Longjiang Gao; Qiwei Xu; Yaowen Hu; Yiru Miao; Yiming Wang; Yizhou Zhao</i>	2976
0797	Design and Evaluation of A Long Stroke 2-DOF Permanent Magnet Synchronous Planar Motor <i>Yixuan Zhang; Qiwei Xu; Yun Yang; Yiru Miao; Yiming Wang; Yizhou Zhao</i>	2982

0798	Fast Driving Cycle Efficiency Optimization of an IPMSM with Hairpin Windings Considering PWM Induced Losses <i>Sa Zhu; Feng Zeng; Jianbo Lu; Ziqing Chu</i>	2988
0801	Saliency Ratio Improvement Based on Relative Permeability Calculated by Magnetic Circuit Model of SynRM <i>Yi Wang; Yixiao Luo; Kai Yang; Baichuan Xu</i>	2996
0802	Calculation method of the End Eddy Current Losses in Stator Windings of the Large Turbo-generator <i>Xu Bian; Yutian Sun; Jibin Zou</i>	3002
0805	Torque Calculation of Surface-Mounted Permanent-Magnet Motors Using Subdomain Model Considering Finite Permeability: Influence of Harmonic Content <i>Che Sun; Youtong Fang; Pierre-Daniel Pfister</i>	3007
0807	Structural Analysis of the Eddy Current Displacement Sensor for Magnetic Levitation Centrifugal Compressors <i>Hu Yusheng; Chen Bin; Gong Gao; Wei Zhitao</i>	3012
0808	Magnetic saturation modeling of dual three-phase synchronous reluctance motor based on improved equivalent excitation current method <i>Qicuan Wang; Yonghong Huang; Dan Liu; Renjie Zhou; Fan Yang; Kai Xie</i>	3017
0809	Hexagon Trajectory Flux Weakening Control for Permanent magnet assisted SynRM <i>Wei Li; Kai Yang; Cheng Luo; Xuming Wang; Lingfeng Qiu</i>	3022
0814	Proposal of a Novel Line-Start Permanent Magnet Synchronous Machine Using Fractional Slot Concentrated Winding <i>Xin Li; Jinlin Gong; Xiulin Wang; Nicolas Bracikowski; Frédéric Gillon</i>	3027
0819	Investigation of a 12slots-22poles Novel Linear Permanent Magnet Vernier Motor with Spoke Structure <i>Yi Shao; Baoquan Kou; He Zhang; Junren Mu; Xu Niu</i>	3033
0820	Ripple Suppression of High Magnetic Field by Eddy Currents in Metal Tube <i>Zengwen Wang; Shaozhe Zhang; Zhenglei Wang; Houxiu Xiao; Xiaotao Han</i>	3037
0822	Time-Domain Model of the Three-Phase SRC-DAB Resonant Converter <i>Jiarong Xie; Kai Qiu; Yiheng Zhang; Pengyu Jia; Yang Mei</i>	3042
0825	Improved Two-Vector-Based Model Predictive Current Control with Online Parameter Identification for Doubly Salient Electromagnetic Machine <i>Xingwei Zhou; Minhui Zhan; Yaowu Guo; Shuangxia Niu; Shangjian Dai; Li Zhang</i>	3048
0831	A Study on Torque Ripple Reduction of a Half-Wave Rectified Excitation Motor Adjusting Excitation Current Phase <i>Reiji Ikeuchi; Yuichi Yokoi; Tsuyoshi Higuchi</i>	3054
0833	Sensorless control strategy of permanent magnet synchronous motor based on extended Sliding Mode Observer and the feedforward phase compensator <i>Jiamin Xu; Jinglin Liu; Xinran Shi</i>	3058
0834	Robust design of radial electromagnetic force of permanent magnet synchronous machines based on manufacturing tolerance <i>Jianguo He; Dawei Li; Ronghai Qu; Sibao Wang; Zhanxi Lin</i>	3063
0835	Optimal Design of Electrical Machine Utilizing Hybrid Kernel Extreme Learning Machine Method <i>Qi Wang; Ziyang Ren; Dianhai Zhang</i>	3068

0837	Research on Ignition Starting Characteristics of Aeronautical Starter Generator with Turbine Engine Based on Reduced Order Model <i>Liang Zhuo; Du Yang; Ruolan Sun; Daolong Shi; Jibin Zhou</i>	3074
0839	Accurate Identification Method of Rotational Inertia under Variable Load Conditions for High-speed Permanent Magnetic Synchronous Motor <i>Gengkui Wei; Baodong Chen; Shiqiang Zheng; Peiru Sun</i>	3079
0840	DC-Link Capacitor Ripple Current Suppression Strategy Based on Harmonic Injection for PMSM Drives <i>Desheng Qu; Binxing Li; Gaolin Wang; Jiayi Zhao; Dawei Ding; Qiwei Wang; Guoqiang Zhang; Dianguo Xu</i>	3084
0841	A Permanent Magnet Synchronous Motor Control Method Based on the Extended Kalman Filter <i>Qian Zhang; Jinglin Liu; Yuyuan Yang</i>	3089
0845	Model Predictive Current Control of Axial Flux Permanent Magnet Motor with Equidirectional Toroidal Winding Based on Fuzzy PI <i>Yanqi Wei; Jikai Si; Rui Nie; Peixin Wang; Sen Li; Jing Liang</i>	3094
0846	Harmonic Current Suppression for Dual ThreePhase PMSM Based on Disturbance Observer <i>Xuefeng Zhang; Qiwei Xu; Yiming Wang; Yiru Miao; Xiangyi Wang; Fuqi Zhang</i>	3099
0847	Optimization-Method-Inspired Update Scheme for Neural Network Assisted Control Tuning of PMSMs <i>Zhenxiao Yin; Hang Zhao; Pei Lu; Yang Shen</i>	3105
0850	Linear Active Disturbance Rejection Controller for the 3-DOF Repulsive Magnetic Levitation System <i>Ming-Hong Guo; Guang-Zhong Cao; Su-Dan Huang; Yu Lei; Hao-Tian Wang; Xin Yuan</i>	3111
0851	Effect of Cooling Strategies on Performance of Rotor PM and Stator PM Machines <i>Ankan Dey; Dawei Liang; Z.Q. Zhu; Yanjian Zhou; Yinzhaoh Zheng</i>	3117
0854	Analysis of AC and DC Demagnetization of a Rare Earth Free Permanent Magnet Assisted Synchronous Reluctance Motor <i>Bin Chen; Xiangyu Yang; Yusheng Hu; Jinxin Jia; Hanxin Wang; Xiaojuan Yang</i>	3123
0855	An Efficiency Optimization Strategy for PMSM Drives by Combination of LMC and Multi-Vector- MPC <i>Na Sun; Chenwei Ma; Jiayao Li; Wensheng Song</i>	3128
0858	Research on the Structure of Foil Gas ThrustBearings for High Speed Motors <i>Yusheng Hu; Bin Chen; Jinxin Jia; Jiuzhan Su; Zhen Chen; Jianing Xue</i>	3133
0859	Three-phase Radial distribution networks power flow calculation <i>Zhixin Guo; Qian Zhang; Xunting Wang; Jinjin Ding</i>	3137
0860	A Power Control Strategy for a Hybrid Power Supply System Composed of Open-Winding WFSG and Energy Storage System in Islanding Mode <i>Zhihao Ma; Dan Sun; Heng Nian</i>	3142
0861	Characterization of Magnetic Properties and Loss Estimation of Magnetic Materials Under Service Conditions Based on Characteristic Points <i>Zile Cheng; Dianhai Zhang; Ziyang Ren</i>	3148

0862	Methods for Detecting and Compensating Position Estimation Error Caused by Cross Saturation in Sensorless Control of SynRM <i>Yiming Wang; Qiwei Xu; Xuefeng Zhang; Yiru Miao; Yun Yang; Lingyan Luo</i>	3152
0864	Power Losses Analysis of Converter for Switched Reluctance Motor Drive with Fault-Tolerant Control <i>Yanfang Hu; Zhongting Tang; Frede Blaabjerg</i>	3157
0868	Suspension Force Model of Bearingless Multisector Surface-mounted Permanent Magnet Synchronous Motor Based on Maxwell Stress Tensor Method <i>Huifeng Cui; Xiaofeng Ding</i>	3163
0870	Design and Analysis of Low Frequency Transformer Applied in Fractional Frequency Transmission <i>Yuan Hu; Jien Ma; Youtong Fang;</i>	3169
0871	A Critical Current Calculation Method of HTS Excitation Winding Considering the Effect of Self-Field <i>Siyu De; Qiusheng Wang; Huan Li; Yubin Wang</i>	3175
0872	A Model-Based Current Sensor Fault Tolerant Strategy of Multiphase Permanent Magnet Synchronous Motors by Coordinate Systems Rotation <i>Shaokang Zhang; Zhiwen Wang; Xiaoqin Zheng</i>	3181
0873	Harmonic Loss Reduction of Permanent-Magnet Vernier Motor with Different Stator Modular Designs <i>Xuhui Zhu;Meiling Zhao;Libing Cao;Huanzhi Wang;Chenhao Zhao;Christopher H. T. Lee</i>	3185
0874	High Quality Sensorless Control Strategy for Seven-phase PMSM in Full Speed Range <i>Xiulin Wang; Jinlin Gong; Youxi Huang; Eric Semail; Ngacky Nguyen; Ling Peng</i>	3192
0876	Direct Power Control of Permanent Magnet Linear Generators Based on Newton Interpolation Prediction <i>Qiaoling Yang; Binhua Su; Qi Zhang</i>	3198
0877	Research on vibration noise characteristics of high-speed IPMSM for electric vehicles <i>Xue Tian;Xiaohua Li;Guangxu Li;Meiying Xue</i>	3204
0880	Sliding Mode Observer-Based Discrete-Time Position Sensorless Control of Permanent Magnet Synchronous Motor <i>Tingting Chen; Zhuoran Zhang; Weiqiu Zhang</i>	3210
0881	Cooling Design and Thermal Analysis of Flooded High Power Density Machines with Multi Cooling Channels <i>Cong Wang; Lihao Huang; Shengqiao Hao; Dawei Li; Yi Cheng; Nanhong Lu; Xinggang Fan; Xing Zeng</i>	3215
0882	Analysis and Design of a Flat Wire PM Machine with Module-combined and Hollowed-out Stator for Aviation Electric Pump <i>Lihao Huang; Shengqiao Hao; Dawei Li; Cong Wang; Yi Cheng</i>	3221
0883	Multilevel and Multi-Objective Optimization and Design of Double V-Shaped In-Wheel Permanent Magnet Motor for High Torque Density and Quality <i>Chunlei Han; Xiaoyong Zhu; Deyang Fan; Zixuan Xiang</i>	3227

0884	Deformation model and performance of multi-layer flywheel based on laser displacement detection method <i>Sun Wanxiang; Gu Lei; Yuan Zhugang; Wen Xuhui; Wang Youlong</i>	3232
0886	Electro-Magnetic Coupling Demagnetization Assessment of Double Stator Vernier Permanent Magnet Motor Considering Short-Circuit Fault <i>Wu Shan; Deyang Fan; Zixuan Xiang; Xiaoyong Zhu</i>	3237
0887	Sliding Mode Current Control Strategy Based on Variable Exponential Convergence Rate for Dual Three-Phase Segment Powered PMLSM <i>Jinhai Liu; Liming Shi; Haibin Zhu; Keyu Guo; Shijiong Zhou; Ganlin Kong</i>	3242
0888	Initial Rotor Position Estimation for Brushless Electrically Excited Synchronous Starter/generator Based on Time Division Signal Injection <i>Chongzhao Ma; Shuai Mao; Weiguo Liu; Guangzhao Luo; Shuo Zhang; Lu Wang</i>	3246
0889	Active Disturbance Rejection Control Combined with Current-Stress-Optimization for Dual Active Bridge DC-DC Converter <i>Chenchen Tan; Chongbo Li; Zhenxing Liu; Renjun Dian</i>	3251
0890	Design and Analysis of High Torque Density Axial Flux Permanent Magnet Synchronous Motor <i>Qiping Shen; Tianxiong Zhang; Tianhai Yang; Li Liu; Jianhui Li; Lianghong Yin</i>	3257
0891	Active Disturbance Rejection-Based Radial Four-Degree-of-freedom Decoupling Control for Electromagnetic Bearing System <i>Renjun Dian; Chengjie Cai; Linjie Ren</i>	3263
0892	Research on Unbalanced Vibration Suppression of Active Magnetic Bearings Based on Adaptive Parameter Identification <i>Fang Li; Linjie Ren; Zhenxing Liu; Renjun Dian</i>	3268
0893	Research on Flux-focusing Axial-flux Consequent pole Vernier Permanent Magnet Machine Based on the Global Tooth Chamfering <i>Mengfan Jia; Yaojing Feng; Kun Huang; Chenxi Xia; Yu Li; Shoudao Huang</i>	3274
0894	Research on Rotor Structure Safety of High-speed Permanent Magnet Motor <i>Cao Li; Yan Hu; Shi Daolong; Zhuo Liang; Jibin Zou; He Sun</i>	3280
0895	Optimization Design of 15kW Induction Motor for IE4 Level CNC machine tools with NAGA-II <i>Hye-Won Yang; Dohyun Jang; Young-Ho Hwang; In-Seok Song; Sang-Young Jung</i>	3288
0897	A Novel Coupling Control Method for 6-DOF AUVs based on Multi-Motor Cooperation <i>Pei Lu; Zhenxiao Yin; Hang Zhao</i>	3292
0898	Robust Predictive Current Control of CBDFG Based on Ultra-Local Model <i>Junpeng Li; Shengnan Li; Xin He; Yunhang Dai; Yongchang Zhang; Tao Jiang; Han Chen</i>	3297
0900	Adaptive Control of Solid-Core Active Magnetic Bearing Based on System Identification Model <i>Xuetao Song; Zhiquan Deng</i>	3303
0901	Design of Propulsion Motor for EV to mitigate Shaft Voltage Considering Electromagnetic Performance <i>Han-Joon Yoon; Su-Bin Bae; Chang Hyeon Wang; Yong-Jae Kim; Sang-Yong Jung</i>	3308

0902	A inclined tooth structure of external rotor for reducing the radial force wave of switched reluctance motor <i>Chaozhi Huang; Wenjin Zhang; Haiwen Li</i>	3312
0903	Modal Analysis and Calculation of Stator Core with Welding Slots of PMSM for Electrical Vehicles <i>Haowei Lei; Tingna Shi; Dong Yan; Jianqi Qiu; Wei Chen; Changliang Xia</i>	3318
0905	Open-Circuiting Fault Analysis of Series-Connected 24-Pulse Rectifier With Auxiliary Pulse Multiplication Circuit <i>Jingfang Wang; Teng Liu; Chen Zhao; Tianlong Yu</i>	3324
0907	Feed-Forward Control Strategy for Cascade H-bridge High-Voltage Inverter based on Active Front-end Rectifier <i>Renjun Dian; Xiongxing Cai; Chongbo Li</i>	3330
0908	Fault-Tolerant Control for One-Phase Open-Circuit in Six-Phase Field-Modulated Permanent Magnet Motor <i>Yujian Zhao; Xianglin Li; Zhen Wei; Yongjian Hao; Wenbo Dai</i>	3335
0909	Research on Downhole Synchronous Generator with End Magnetization and Voltage Stabilization Structure <i>Haichuan Cao; Xiangjun Wang; Zhoushuo Wang</i>	3340
0911	A Study on Electromagnetic Field Analysis Considering Geometry Variation Using Physics Informed Neural Network <i>Ji-Hoon Han; Eui-Jin Choi; Sun-Ki Hong</i>	3345
0912	A Novel Filter Time Delay Compensation Algorithm of Sliding Mode Observer for PMSM Sensorless Control <i>Guannan Liu; Wu Liao; Sheng Huang; Shoudao Huang; Meizhou Yang; Derong Luo</i>	3349
0914	Resonance Control Method for a Point Absorber Wave Energy Converter with Magnus Effect-Based Turbine Generator <i>Ken-Ichiro Yamashita; Seina Takekoshi; Sho Katsuki</i>	3355
0917	Design of Axial Flux Permanent Magnet Motor for EV traction with SMC core and Nd Bonded Magnet <i>Seah Park; Hyung-Woo Kim; Tae-Hyuk Ji; Seok-Won Jung; Yong-Jae Kim; Sang-Yong Jung</i>	3360
0920	Investigation of short-circuit fault control for aerospace dual three-phase motor drive <i>Xun Han; Yu Zhang; Qiao Li</i>	3364
0922	Quench Detection Analysis of YBCO Coated Conductor Based on Temperature Slope Method <i>Dongyu Li; Xianglin Li; Mingzhe Sang; Shaorui Wang</i>	3369
0923	Fault-tolerant Control Strategy for Traction Rectifier Based on Predictive Current Control <i>Jingying Lin; Li Zeng; Hongmo Song; Xiaoqiong He; Pengcheng Han</i>	3373
0924	Performance Comparison Between Modular Transverse Flux-Switching Permanent Magnet Machine and Flux-Switching Permanent Magnet Machine <i>Tianli Liu; Peng Su; Hang Zhang; Tianyu Yang; Yongjian Li</i>	3379
0925	Modeling of a Flux-Concentrating Field-Modulated Permanent Magnet Motor in Control System via Incorporating Finite Difference Method into Subdomain Model <i>Yue Sun; Bo Yan; Xianglin Li; Yujian Zhao; Zhen Wei</i>	3384

0926	Performance Investigation of Axial-Flux Limited Angle Torque Motor with Tooth-Tip Structure for Torque Performance Improvement <i>You Zhou; Guanghui Yang; Yaojie He; Xiaoyi Lei; Dawei Li; Lihao Huang; Christopher H.T. Lee</i>	3389
0929	Research on the Reliability of Winding Insulation for Short-Term High Overload Motors <i>Yiguang Ma; Jiwei Cao; Chengming Zhang; Pengrui Fu; Chaoyu Zhang; Liyi Li</i>	3394
0931	Torque Density Improvement of Double-Stator HTS-Excitation Field-Modulation Machine by Using YBCO Compound Modulation Rotor <i>Mingzhe Sang; Xianglin Li; Yongjian Hao; Zhiheng Zhang; Yubin Wang</i>	3398
0934	Temperature Field Analysis of Linear Synchronous Motor for High Speed Maglev Train under Low Pressure Conditions <i>Zijia Wang; Yan Yan; Zhiqiang Zhang; Dong Yan; Xinmai Gao; Zhen Zhang; Liyan Guo; Wei Chen</i>	3402
0936	A Multiple Loops-Based Control Strategy of Current Source Rectifier for Low-Voltage DC Distribution Systems <i>Yiming Wang; Qiwei Xu; Xuefeng Zhang; Longjiang Gao; Wei Zhang; Yiru Miao</i>	3407
0937	The Application of Mosaic Mesh in Numerical Simulation for Cooling Channels of the Aircraft Electric Machine <i>Hanqi Li; Yankun Wang; Zhuoran Zhang; Jincal Li; Jian Zhang; Liqiang Li</i>	3415
0938	Deflection Position Detection of Permanent Magnet Spherical Motor Based on the Back-EMFs Differences of the Tilting Stator <i>YanJun Yu; Zichuan Yan; Mingzhe Yang; Feng Chai</i>	3420
0939	Investigation and Suppression of Cross-PhaseCount Magnetic Field Modulation in Compound Permanent Magnet Vernier Machines <i>Zaixin Song; Yongtao Liang; Rundong Huang; Bowen Zhang</i>	3424
0940	A Hybrid Flux Estimator for Detection of Inter-Turn Short Circuit Fault in Traction Motors <i>Lisong He; Jinsong Kang; Dongliang Ke; Fengxiang Wang</i>	3430
0941	Control and Modelling of Offshore Wind Farms Using High-Capacity Wind Generators and MMC HVDC Transmission <i>Chunhua Li; Han Diao; Shaowei Huang; Ruibin Zhao; Haiming Wang; Renqi Su; Haoran Yang</i>	3436
0943	Principle and Analysis of Double Rotor Permanent Magnet Motor with Stator Modularization <i>Xiaowei Quan; Zheng Wang; Xin Zhao; Dong Xu; Zhaoji Zhou; Wei Wang</i>	3441
0946	Deadbeat Predictive Control Algorithm for PMSM Based on Super-Twisting Sliding Mode Observer <i>Zongbo Hu; Jinsong Kang; Xiaodong Xue</i>	3445
0947	Fault-Tolerant Control for a Symmetrical Dual Three-Phase SPMSM Drive under Two-Phase Open-Circuit Fault <i>Zhe Liang; Zhanqiang Luo; Xintuan Yang; Shangze Li; Shaofeng Jia; Deliang Liang</i>	3451
0948	The Modulation and Control Strategy of DC-link Current Minimization for Single-Phase Current Source Inverter <i>Wei Zhang; Qiwei Xu; Yaowen Hu; Longjiang Gao; Yun Yang; Yiru Miao</i>	3457

0949	An Improved Dual-PLL based Full-Order Sliding Mode Observer for Position Sensorless Control of IPMSMs <i>Chenglei Gao; Zheng Wang</i>	3465
0950	Loss and Efficiency Comparison of Mover PM and Stator PM Linear-Rotary Generators for Wind-Wave Combined Energy Conversion System <i>Rui Nie; Yifei Jia; Jikai Si; Jing Liang; Shuai Xu; Peixin Wang</i>	3470
0953	Research on the Application of Dual Three-Phase PMSM in Renewable Energy System <i>Jianwei Shen; Xueqing Wang; Zifan Zhang; Shaowei Ren; Donghui Ma; Dianxun Xiao</i>	3475
0954	Optimal Rotor Design for Reducing Electromagnetic Force Harmonics in Wound Field Synchronous Motor for EV Propulsio <i>Yongmin Kim; Ho-Jin Oh; Jae-Hoon Cho; Seok-Won Jung; Sang-Yong Jung</i>	3480
0955	Analysis of Predictive Current Regulator for High Speed IPMSM Operating at Low Sampling to Fundamental Frequency Ratios <i>Shengyu Lin; Daniel L. Mon-Nzongo; Paul G. Ipoum-Ngome; Chunyan Lai</i>	3484
0956	A New Rotor Displacement Self-Sensing Method for Bearingless Switched Reluctance Motor with Bipolar PWM Voltage Demodulation <i>Junhao Zhang; Chuanchuan Wang; Yanhong Xue; Huijun Wang</i>	3490
0960	Research on the Application of Open-End Winding PMSM in Renewable Energy System <i>Zifan Zhang; Xueqing Wang; Jianwei Shen; Shaowei Ren; Donghui Ma; Dianxun Xiao</i>	3496
0961	Verification of High Frequency Impedance Characteristics Affected by Excitation Currents under Open-loop Primary Flux Control for Induction Machines <i>Ryosuke Kubota; Kazuhiro Ohyama</i>	3501
0962	Optimal Design of Asymmetrical Rotor with MAS Method for Improving Torque Density of PMa-SynRM in High-Speed Railway Applications <i>Sung-Chang Lee; Do Hyun Kang; Seung-Gu Kang; Han-Joon Yoon; Seok-Won Jung; Sang-Yong Jung</i>	3506
0963	Multiple Vector Model Predictive Torque Control of a Hybrid Excitation Axial Flux Switching Permanent Magnet Motor <i>Lei Xu; Zhixiang Fan; Nan Chen; Chao Zhang; Li Quan</i>	3510
0964	Optimum Design of Self-Starting Capability for Two-Phase Double Stator Switched Reluctance Motor <i>Yanhong Xue; Junhao Zhang; Huijun Wang</i>	3516
0965	Research on IPMSM Online Parameter Identification with Low Carrier Ratio Considering Nonlinearity of NPC Inverter <i>Ziyu He; Zheng Wang</i>	3522
0966	Comparison Electromagnetic Characteristics of Multi-phase SPMSM for Electric Vessel According to Pole/Slot Combination under Fault Operation <i>Chang-Hyeon Wang; Nam-Ho Kim; Su-Bin Bae; Yong-Min Kim ; Sang-Yong Jung</i>	3528
0968	A New Incremental Inductance Based Position Estimation Method for SRM with Sliding Mode Observer <i>Juncheng Du; Zhaoxiang Niu; Hu Liu; Shuaijie Huang; Huijun Wang</i>	3533
0969	Design and Simulation of Three-phase Electromagnetic Wiping Device for Steel Strips Hot-Dip Galvanizing <i>Weilin Chen; Xiaotao Han; Tonghai Ding</i>	3539

0970	An Improved RC Network Negative Voltage Gate Driver Circuit for GaN Devices <i>Jianing Liang; Yue Wu; Huyong Ling; Tianfu Sun; Xueqiang Zhang; Dingfang Lin</i>	3544
0972	Analysis of Magnetic Field and Stator Iron Loss in IPMSM with Different Rotor Topologies for Electric Vehicles <i>Xiaoyuan Wang; Shuangshuang Liu; Lixin Wang; Tianyuan Li</i>	3550
0978	Numerical simulation and study of winding spray cooling of oil-cooled motor <i>Xiaojiao.Chen; Ting.Li; Gang Xu; Mengnan.Zhu; Aihua.Wu; Wenjie.Yang</i>	3556
0979	Transformerless DC-DC Converter With High Voltage Gain and Low Voltage Stress for Renewable Energy Systems <i>Qingyu Deng; Ping Wang; Hang Zhou; Feng Jiang; Tao Xiong; Ze Cheng</i>	3561
0980	Pick-up Coil Design for Weak Magnetization Measurement under Pulsed High Magnetic Field <i>Zhuoheng Li; Shuo Huang; Chao Dong; Ming Yang; Junfeng Wang; Xiaotao Han</i>	3566
0981	Loss Analysis of a Free-Piston Transverse-Flux Linear Generator under Reciprocating Variable Speed Motion <i>Bo Liu; Jingang Bai; Guopeng Liu; Yong Liu; Ping Zheng</i>	3570
0982	Analysis of the Effect of Structural Errors of RV Reducer on the Fatigue Life of Internal Multiple Bearings <i>Chengbao Zhong; Cheng Liu; Zhongfu Cheng; Wei Chen</i>	3574
0985	Research On Commutation Spark Suppression Of Aviation Dc Starter Generators <i>Huideng Peng;Ruolan Sun;Dong Yang;Guisong Huang;Liang Zhuo;Daolong Shi</i>	3580
0987	A Hybrid Modulation Method with Variable Carrier Frequency for Three-level NPC Inverters <i>Hongbiao Li; Zunmin Ma; Kui Wang; Changqing Qiu; Zedong Zheng; Yongdong Li</i>	3587
0988	Torque Ripple Suppression of Permanent Magnet Synchronous Motor Based on Improved Duty Ratio Regulation Considering Speed Region <i>Xuming Wang; Kai Yang; Yixiao Luo; Yuhao Huang; Wei Li</i>	3592
0989	An enhanced implementation method of fixed-point iteration technique for solving magnetic hysteresis finite-element problems <i>Yongjian Li; Jiatong Yin; Shuaichao Yue; Jingming Gao; Ming Yang; Kangshuo Qin</i>	3598
0991	Two Novel Ultra-Gain DC-DC Boost Converter without Using Coupled Inductors <i>Feng Jiang; Ping Wang; Ze Cheng; Hang Zhou</i>	3603
0992	Troubleshooting and Life Analysis Based on Abrasive Wear of RV Reducer <i>Cheng Liu; Chengbao Zhong; Jinran Wang; Bao Sun; Baoqiang Shi</i>	3607
0996	A Novel Current Decoupling Controller Based on Internal Model Principle <i>Longjiang Gao; Qiwei Xu; Yiru Miao; Shengbo Yang; Xuefeng Zhang; Lingyan Luo</i>	3612
1000	Development of Hybrid Excitation Characteristics of Superconducting Homopolar Generator <i>Juzhuang Yan; Wenjiang Yang;</i>	3618
1001	Analysis of Loss and Thermal Characteristics for Doubly Salient Electro-Magnetic Machine with Hollow Conductor <i>Guangyuan Hu; Jian Zhang; Zhuoran Zhang; Haozhe Jiang</i>	3624

1002	Recursive-Extended-Least-Squares-Based Model Predictive Position Control for the Planar Switched Reluctance Motor <i>Hong-Li Li; Guang-Zhong Cao; Su-Dan Huang; Hong-Jin Hu; Hao-Tian Wang</i>	3630
1006	High Performance Sensorless Control of Dual Three-phase Permanent Magnet Synchronous Starter-Generator <i>Jiakang Zhao; Hong Guo; Jinqian Xu</i>	3635
1009	A Mixed Logical Dynamic Model-Based Open-Circuit Fault Diagnosis Method for Five-Phase PMSM Drives <i>Wentao Huang; Yijia Huang; Liyan Luo; Ling kang Zhou</i>	3641
1011	A Online Parameter Identification for Surfacemounted Magnet Synchronous Motors based on Adaptive RBF Neural Network <i>Jing Cao; Xiaojun Zhang; Rongfeng Deng; Jiaqiang Yang; Wei Fan</i>	3647
1012	Reliability Evaluation of Dual Stator Switched Reluctance Motor System Based on Enhanced Reliability Model <i>Shuai Xu; Hui Zeng; Xiaochang Jiang; Ge Qi; Guoqiang Han</i>	3651
1015	Research on axial force balance and loss optimization control of electric aircraft <i>Yukun Fan; Peixin Liang; Weiguo Liu; Lihao Liang; Xiaoke Zhang</i>	3657
1016	A Three-Port High-Gain DC-DC Y-Source Converter for Renewable Energy Power Generation System <i>Hao Wang; Panbao Wang; Dianguo Xu; Wei Wang</i>	3662
1017	A Two-degree-of-freedom Double-stator Linear rotary Switched Reluctance Motor for An Industrial Robot <i>Shuai Xu; Xiaochang Jiang; Jikai Si; Rui Nie; Peixin Wang;</i>	3666
1021	Multi-sensor data fusion for bearing fault diagnosis using symmetrized dot pattern <i>Wei Zhang; Qiwei Xu; Yaowen Hu; Chunlei Xu; Lingyan Luo</i>	3672
1022	Action Time Selection and Structure Design of Multi-Optimization Links for IPMSM Sensorless Drives with Square-wave Modulation <i>Hang Zhang; Linyu Gao; Yukun Lei</i>	3677
1024	An Improved Droop Control Method in High Voltage DC Parallel Electric Power System for the More Electric Aircraft <i>Yiming Yao; Zhuoran Zhang; Yankun Wang; Jincai Li</i>	3683
1025	A Field Reconstruction Method for the Analysis of Magnetization Tolerances in PM Synchronous Machines with Halbach Array <i>Peng Wang; Zhuoran Zhang; Chendong Liao</i>	3688
1027	Effect of excitation current on vibration and noise of tangential magnetizing parallel structure hybrid excitation synchronous motor <i>Liang Pang; Ying Lu; Qiang Lv; Jianjian Ning; Tingbin Li; Haihong Qin; Chaohui Zhao</i>	3694
1029	Modulation and Capacitor Voltage Balancing Control of a Hybrid Four-Level DAB with Reduced Switches <i>Jupeng Pang; Kui Wang; Zedong Zheng; Yongdong Li</i>	3698
1030	Thermal Design of High Power Density Motors with Excellent Efficient Cooling Structure <i>Cong Wang; Lihao Huang; Shengqiao Hao; Dawei Li; Xinggong Fan; Linshan Jin</i>	3704

1034	Preliminary Studies of a New Superconducting Magnet Based on Disk-up-down-assembly	3709
	<i>Yingzhen Liu; Jingbo Lin; Rui Wang; Haida Xue; Liyi Li; Francesco Grilli; Tabea Arndt</i>	
1035	A Digital Decoupling Control Scheme for Synchronous-Frame Current Regulators in High-Speed Motor Drives	3715
	<i>Daniel L. Mon-Nzongo; Shengyu Lin; Paul G. Ipoum-Ngome; Chunyan Lai</i>	
1037	Analysis of transient characteristics of train traction braking process	3722
	<i>Shi Cheng; Lu Zhao; Yuhang Chi; Xue Liu</i>	
1038	A Novel Three-DOF Transverse Flux Spherical Actuator With Decoupling Mechanism	3728
	<i>Xiaoshuai Liu; Liang Yan; Pengjie Xiang; Xinghua He; Nannan Du; Chong Wu</i>	
1043	Current Decomposition in Loop Distribution Network	3733
	<i>Bin Zhao; Yi Yang; Ximing Li</i>	
1044	Model-Free Predictive Current Control of PMSM Based on Sliding Mode Disturbance Observer	3739
	<i>Xiangyi Wang; Qiwei Xu; Yiming Whang; Xuefeng Zhang; Sheng Liu; Yiru Miao</i>	
1045	Design Consideration of Bearingless Doubly Salient Electromagnetic Motor	3745
	<i>Qiuyu Xu; Li Yu; Wei Chen; Haonan Zou; Yongtao Guan; Zhuoran Zhang</i>	
1046	Design and Critical Current Testing of Superconducting Rotor Coils for Megawatt Aviation Motor	3750
	<i>Yi Cheng; Shengqiao Hao; Weiyong Li; Dawei Li; Lihao Huang; Cong Wang</i>	
1047	Current-Inductance Model Identification of Synchronous Reluctance Motor Based on Biaxial High Frequency Voltage Injection	3754
	<i>Fuqi Zhang; Yiru Miao; Xuefeng Zhang; Yiming Wang; Xiangyi Wang; Yizhou Zhao</i>	
1048	Optimal Design of Induction Machine for Spindle Motor Considering Rotor Conductor Bar Porosity	3760
	<i>Chae-Won Seo; Dohyun Jang; Young-Ho Hwang; In-Seok Song; Yong-Jae Kim; Sang-Yong Jung</i>	
1049	Influence of Core Saturation on Suspension Force of Bearingless Doubly Salient Electromagnetic Motor	3764
	<i>Wei Chen; Li Yu; Haonan Zou; Qiuyu Xu; Yuke Shi; Xu Chen; Guoqing Wang; Zhiyi Wen; Zhuoran Zhang</i>	
1050	Full Speed Range Sensorless Control of Surface Permanent Magnet Synchronous Motor Based on Novel Nonlinear Flux Observer	3769
	<i>Yiming Wang; Qiwei Xu; Xuefeng Zhang; Yiru Miao; Yixuan Zhang; Lingyan Luo</i>	
1051	Research on Inrush Overcurrent Detection Based on IGCT Internal Resistance Characteristic	3775
	<i>Jiahao Liang; Haibin Chen; Haohan Zhen; Shaozhe Zhang; Qi Chen; Xiaotao Han</i>	
1052	Enhancing PCB Motor Performance through Phase Resistance Reduction in Slotted PCB Motors with Ferrite Core	3780
	<i>Shahin Asgari; Nejat Saed; Annette Muetze</i>	
1053	Practical Non-singular Terminal Sliding Mode Control Based Improved Extended State Observer for IPMSM Speed Regulation	3785
	<i>Jingxiu Wu; Shoulong Li; Yu Pan; Qiang Liu; Yong Zhao; Yong Kong; Lei Zhang</i>	

1059	An Experimental Approach for the Design of Uni-axial Fiber Reinforced Dielectric Elastomer Actuators <i>Stefania Konstantinidi; Julian Asboth; Armando Walter; Simon Holzer; Thomas Martinez; Yoan Civet; Yves Perriard</i>	3790
1060	Quantify Analysis Prior to Capacity Plunge of Liquid Metal Battery Based on The Data-driven Methods <i>Qionglin Shi; Min Zhou; Haomiao Li; Kangli Wang; Kai Jiang</i>	3795
1062	A Digital Controlled Desaturation Detection with Adjustable Blanking Time for IGBT <i>Yanning Chen; Yali Shao; Fang Li; Zhen Fu; Quan Zhang; Peng Xu; Meigen Shen; Yaoming Xie; Dongmei Li; Licheng Wang; Xiangbin Lu; Wen Yu; Songchao Zhu</i>	3801
1064	Design and Validation of a High-Efficiency Synchronous Reluctance Motor <i>Tingke He; Yawei Wang; Mingyang Bao; Junhao Li; Siyuan Feng; Ronghai Qu</i>	3806
1065	Efficiency Improvement of 6.78MHz Metamaterials for WPT System <i>Lihui Yan; Huiming Gao; Cancan Rong; Zhijuan Liao; Chenyang Xia; Qiong Wang</i>	3812
1066	Analysis of the Normal Force Ripple for the Flat Plate Permanent Magnet Linear Synchronous Motor <i>Qiang Tan; Xinbang Wang; Jing Li; Xuzhen Huang; Bing Tian;</i>	3816
1067	Optimal Design of Yokeless and Segmented Armature Axial Flux Permanent Magnet Machine Based on Quasi-Three-Dimensional Model <i>Lingyun Shao; Yue Xu; Zhuoran Zhang; Xueyi Yan; Zhongze Wu; Wei Hua</i>	3821
1068	Simultaneous Wireless Power and Data Transfer System with Fewer Auxiliary Devices Based on Partial Current Modulation <i>Zhen Yang; Chun Gan; Haochen Shi; Kai Ni; Ronghai Qu</i>	3827
1069	Star-Connected Modular Auxiliary Resonant Commutated Pole Inverter with Commutation_x0002_Aligned PWM Modulation <i>Zehuan Ding; Chun Gan; Haochen Shi; Kai Ni; Ronghai Qu</i>	3833
1070	Design and Comparison of Vernier PM Machines with Uneven Distribution of PMs <i>Yongze Miao; Ziyi Liang; Dawei Li; Ronghai Qu</i>	3839
1072	Torque Ripple Minimization of Reaction Flywheel Based on Linear Extended State Observer <i>Mohan Hao; Jianhua Qu; Yuanlin Yan; Zenghui Wang</i>	3844
1073	Multi-Objective Optimization Design of Permanent Magnet Assisted Synchronous Reluctance <i>J.Q. Hu; R.H. Jiang; S.S. Zhu; C. Liu; K. Wang</i>	3849
1074	Virtual Power Angle Based Excitation Scheme for ESSC with Improved Overcurrent Protection Strategy <i>Patrick J. Palanas; Kexun Yu; Xiaozhe Li; Xi Chen; Xianfei Xie</i>	3854
1076	The Effect of Damper on the Dynamic Performance of Energy Storage Synchronous Condenser for Active Power <i>Xiaozhe Li; Patrick J. Palanas; Xi Chen; Kexun Yu; Xianfei Xie</i>	3859
1077	Stability Analysis of Stator End Winding of Evaporative Cooling Wind Turbine <i>Wenbiao Hu; Haifeng Wang</i>	3864

1078	Motion Control of a Direct Drive Permanent-Magnet Motor Selective Compliant Articulated Robot for Assembly <i>Zhun Liu; Chentao Tang; Youtong Fang; Pierre-Daniel Pfister</i>	3869
1079	The Parameter Adaptive Sensorless Control Scheme for Permanent Magnet Synchronous Motor in a Wide-speed Range <i>Jiate Zhang; Jiadan Wei; Le Zhang; Ming Zhang; Zeyu Zhang</i>	3875
1080	A Current Harmonic Suppression Method for Inductively Coupled Power Transfer System Based on Auxiliary Pickup Module <i>Jixin Yang; Liming Shi; Zhenggang Yin; Manyi Fan; Enze Fan</i>	3881
1081	A Position Sensorless Control of PMSM in Full Speed Range Using Improved Current Derivative Method <i>Jialong Bu; Yongchang Zhang; Yeyuan Zhu; Tao Jiang</i>	3885
1083	Long-Prediction-Horizon FCS-MPC of Six-Phase Permanent Magnet Synchronous Motor Based on Kbest Sphere Decoding <i>Mengdi Wang; Yixiao Luo; Kai Yang; Jincheng Yu</i>	3890
1084	Predictive Control for Asymmetrical Six-Phase PMSM Motor under Open-Circuit Fault Based on Internal Model Disturbance Observer <i>Yixiao Luo; Junqiang Luo; Kai Yang; Jincheng Yu</i>	3896
1085	Synchronous Continuous SVPWM Strategy for High-speed Maglev Three-level Active Neutral Point Clamped Traction Inverter <i>Mutian Zhao; Qiongquan Ge; Jinquan Zhu; Ke Wang; Xiaoxin Wang; Lu Zhao</i>	3902
1086	Synchronized CBPWM Strategy with Optimized Common-Mode Voltage for Three-Level Inverter at Low Carrier Ratio <i>Zhan Gao; Lixin Wang; Zhida Zhou; Chengfei Geng; Xuanqin Wu; Pengkun Sun</i>	3908
1087	Investigation and Optimization of a Magnetic Geared Permanent-Magnet Machine for Torque Density Improvement <i>Yang Liu; Bao Song; Xiangdong Zhou; Kun Zhao; Tianhang Chen</i>	3914
1088	Optimal Design of a High Temperature Superconducting Homopolar Inductor Machine <i>Yuanhang Pan; Jiangtao Yang; Qing Li; Xuezhi Luo; Shoudao Huang; Jun Ma</i>	3920
1089	Research on Disturbance Suppression Control Method for Underwater Propulsion Motor Based on Active Disturbance Rejection Control Technique <i>Tao Zeng; Wei Zhao; Zaiyong Jiang; Haifeng Wang; Teng Liu; Yuze Wang</i>	3926
1091	A Novel Model Predictive Control for Torque Pulsations Suppression of Variable Flux Memory Machine During Magnetization State Manipulations <i>Hezezhou Huang; Hui Yang; Xing Liu; Yuxiang Zhong</i>	3931
1092	Design of A Wireless Switched Reluctance Motor and Drive System Using Switch-Controlled Capacitors <i>Yi Zhu; Yontai Jin And Haichao Cao; Yang Xiao</i>	3937
1093	Pole-to-Ground Fault Current Calculation for MMC-HVDC Grid with Symmetrical Component Decomposition <i>Zhen He; Pingliang Zeng; Lijun Hang; Yanhua Liu</i>	3942
1096	Suppression of Detent Torque for Arc Permanent Magnet Synchronous Motor Based on Variable-Height Tooth <i>Yansong Liu; Xuzhen Huang</i>	3948

1097	Research on Repetitive Pulse Generation of Switched Reluctance Generator Based on Angles Optimization <i>Zhitong Liu; Yanting Liu; Fulin Zhou; Chuang Liu</i>	3953
1098	Unified Control Framework for Multi-Mode Operation of Wind Farm <i>Wei Chen; Hongke Li; Lingang Yang; Wenbin Yang</i>	3959
1099	Control Method for Coordinated Power Frequency Modulation and DC Voltage Recovery in Grid connected Photovoltaic System <i>Zheng Fan; Jing Zhang; Taiying Zheng</i>	3964
1100	A novel modular multilevel converter for medium voltage high power wind power generation system <i>Tongyu Yan; Rong Ye; Yi Lin; Zhe Chen; Yongqing Meng; Shuhao Yan</i>	3969
1104	High Frequency Harmonics Reduction with Periodic Random SVPWM Strategy <i>Jichao Feng; Tao Tao</i>	3974
1105	Design and Analysis of the Coaxial Magnetic Gears with Halbach PM arrays for Downhole Electric Drilling Tools <i>Aiguo Wang; Xiaolong Zhao; Longhui Liu; Jin Cheng; Han Qiao; Hongwei Wang; Jin Wang</i>	3979
1106	New Triple-Output Quad-Active-Bridge DC/DC Converter Employing a Four-Leg Inverter Input Stage <i>Takanobu Ohno; Spasoje Miric; Thomas Guillod; Florian Krismer; Jonas Huber; And Johann W. Kolar</i>	3984
1110	A Model Based Feedback Decoupling Method for Variable Pitch Electric Propulsion Units <i>Jiaxin Wu; Yong Li; Jianhui Hu; Chengjun Liu; Shanlin Jiang</i>	3992
1112	Winding Reconfiguration Permanent Magnet Synchronous Motor System Instead of Mechanical Transmission <i>Meng Li; Qingbo Guo</i>	3997
1113	Design Optimization of Permanent Magnet Motors Considering Multiple Operating Conditions <i>Bin Li; Zhongyi Zhang; Peng Gao; Guidan Li</i>	4003
1117	Study of Control Strategies for Grid-connected Current Improvement Under Distorted Grid Conditions Based on Virtual Impedance <i>Caomao Zhong; Zhi Zhang; Benxin Liang; Anan Zhu</i>	4009
1118	Discrete-Time Sliding Mode Control with Disturbance Observer Compensation for Electromechanical Servo <i>Chunqiang Liu; Ming Sun; Ziteng Li; Bowen Zou; Qianwen Du; Mingguang Dai</i>	4013
1119	High-Frequency Voltage Injection Based Sensorless Control Strategy for Single DC-Link Shunt PMSM Drives <i>Zhaoqiang Fu; Runze Jing; Qiwei Wang; Gaolin Wang; Guoqiang Zhang; Lianghong Zhu; Dianguo Xu</i>	4019
1120	Characteristic Analysis of a Cylindrical Linear Motor for Drive Mechanism <i>Xu Niu; Tianda Yu; Lu Zhang; He Zhang;</i>	4025
1122	Full-Speed Sensorless Control for Electric Propulsion Based on I-f Startup and Super-Twisting Sliding Mode Observer using Load Torque Observer <i>Yunlong Wu; Shijie Yang; Wanquan Li; Chengde Tong; Ping Zheng</i>	4030

1124	An Improved Strategy for Direct Instantaneous Torque Control of Four-Phase Switched Reluctance Motor <i>Xin Li; Zhiyuan Chai; Shanshan Yang; Chuang Liu; Xuezhong Zhu</i>	4036
1125	Multi-waveform electromagnetic emission scheme based on segmented pulse width modulation <i>Shengbao Yu; Chenglong Yang; Xinhao Zhang</i>	4041
1127	Capacitor Energy Based DC-Link Voltage Control Method for Dual Three-Phase PM Assisted SynR Starter/Generator <i>Yuejin Tan; Yongjun Cheng; Ming Zha; Kangjian Song; Zimin Li; Wubin Kong</i>	4045
1129	Pulsating Torque Reduction of Flux Reversal Permanent Magnet Machines with Halbach Array Magnets and a Designed Rotor Shape <i>Junzhou Li; Yuting Gao; Ronghai Qu</i>	4050
1130	Current Redistribution Method for Induciton Motor Voltage Closed-Loop Field-Weakening Control <i>Jing Zhang; Xu Zhang; Yong Yu; Bo Wang; Dianguo Xu</i>	4055
1132	Analytical Model Transfer-Based Surrogate Assisted Design Optimization for SPMVM Using Structural Similarity <i>Liyang Liu; Yiming Ma; Ruichi Wang; Zequan Li; Yang Xiao; Hang Zhao</i>	4060
1133	A New S-curve Acceleration/Deceleration Control Considering Displacement Conditions <i>Luo Zhaojiang; Wang Changkai; Lei Junsong; Liu Xu; Hu Feipeng; Li Chaoqun</i>	4065
1134	Position Offset Injection based Inductance and PM Flux Linkage Decoupled Estimation of PMSMs Considering Magnetic Saturation <i>Zhe Tong; Bo Meng; Fengyu Wang; Junyan Liu; Yu Liu; Shihao Lin; Guodong Feng</i>	4069
1135	Comparison of PMSM versus PMa-SynRM and IM from an Optimized Electric Vehicle Powertrain Perspective <i>Meng Lu; Gabriel Domingues-Olavarr á; Mats Alaktila</i>	4075
1136	Comparison between Surface-mounted and Interior Permanent Magnet Synchronous Machines for Low Voltage Regulation Applications <i>Yu Xiao; Yang Xiao; Yiming Ma; Ruichi Wang; Jin Wang; Libing Zhou</i>	4081
1137	Harmonic-Injection Based Noise Reduction of Interior Permanent Magnet Synchronous Motors for Electric Vehicles <i>Zhichu Chen; Yang Lu; Jian Li; Bin Yang</i>	4087
1138	An Optimization Method for Multi-loop Transient Performance Suitable for Multi-module Expansion <i>Yi Zhang; Donglai Zhang; Yunhan Fan; Qian Wan; Qing Liu; Shaolin Wang</i>	4092
1140	A Method for Electrical and Thermal Modeling of Thin Film Capacitors for Electric Vehicles from Multiscale Perspective <i>Kaining Kuang; Xinhua Guo; Xiuwan Li; Xuan Xi; Huaheng Fang; Chunzheng Li</i>	4098
1141	Power Allocation Strategy for Battery Energy Storage Power Station Considering SOC Equalization <i>Xing Wang; Yongchang Zhang; Pengxiang Dong; Na Jia; Xiaoyi Zhu</i>	4105
1142	Data-Driven Model-Free Predictive Current Control for Brushless Doubly-Fed Induction Generator <i>Changshan Yang; Yongchang Zhang; Tao Jiang; Xu Zhang; Han Chen</i>	4110

1143	Model-Free Predictive Current Control for Three-Phase AC/DC Inverters with LCL Filter Based on Hybrid SVM <i>Lei Han; Yongchang Zhang; Xing Wang; Na Jia; Xiaoyi Zhu</i>	4116
1146	A Multilevel Current Source Actively Commutated Converter With the Control Strategy <i>Hang Zhang; Zixin Li; Fei Xu; Fanqiang Gao; Cong Zhao; Baiyan Sun</i>	4121
1148	Control Strategy for Twelve-Phase Permanent Magnet Synchronous Starter/Generator System <i>Kangjian Song; Yongjun Cheng; Bin Zuo; Zimin Li; Qicheng Wang; Wubin Kong</i>	4126
1149	A Generator-Powered Electric Variable-Pitch Drive System for the High-Performance Regulation of Propeller <i>Chen Yan; Yifei Shao; Yongjun Cheng; Haifeng Guo; Wubin Kong</i>	4131
1150	Research on the Heat Exchanger in the Combined System of the Air Cooling and the Evaporative Cooling <i>Liu Feihui; Wang Chao</i>	4137
1151	Adaptive Gain Fuzzy-projection of Permanent Magnet Linear Synchronous Motor with Dead-zone Compensation <i>Hengrui Zhang; Peng Sun; Tianru Zhang; Zeyang Xue</i>	4141
1152	Data-Mechanism Joint Driven Short-term Voltage Stability Assessment for Islanded Microgrid <i>Ronghe Zhang; Zhikang Shuai; Yang Shen</i>	4147
1153	A Novel Consequent Pole Flux Reversal PM Machine with V-shape Magnets <i>Yuting Zheng; Wei Xiang; Ping Tan</i>	4153
1154	Co-simulation hardware architecture based on data center management platform for power system simulation <i>Junyang Zhang And Yu Zhang; Zheng Li; Jianjian Zhao; Yijing Chen</i>	4158
1155	Capacity Optimization Configuration of Grid Connected Microgrid Considering Green Certificate Trading Mechanism <i>Fuxin Chen; Zhanpeng Xu; Xuefan Yang</i>	4163
1156	Magnetic Field Analysis of Conical Shape External Rotor Permanent Magnet Synchronous Motor Based on Equivalent Magnetic Network Method <i>Feng Chai; Jingmin Zhu; Kui Zhao; Yulong Pei; Tanci Chen</i>	4168
1157	Maximum Torque Per Ampere (MTPA) Control Based on Online Calculation of Inductance Increment <i>Cenwei Shi; Chan Zhang; Jianqi Qiu; Xinmin Li; Yan Yan</i>	4174
1158	Research on decoupling of trajectory error for industrial robot based on kinematics <i>Junsong Lei; Zhaojiang Luo; Changkai Wang; Fei Qu; Xu Liu; Feipeng Hu</i>	4180
1159	Analysis of a Double-Stator Rotary Linear Permanent Magnet Motor with Phase-Group Concentrated-Coil Windings <i>Gaoyang Xu; Wenliang Zhao; Ning Wang; Xiuhe Wang; Hai Lin</i>	4185
1160	Fast algorithm for reduced order of temperature rise of dry type transformer windings based on equivalent thermal conductivity <i>Zhenbin Du; Junjie Zhang; Jiaoyang Wang; Xiaojun Zhao; Lanrong Liu; Jinli Qin</i>	4190

1162	Analysis of Loss Characteristics and Parasitic Parameters of High-Frequency Transformer under Sinusoidal and Non-sinusoidal Excitation <i>Minglei Dou; Wenliang Zhao; Min Li; Haibo Ding; Li Zhang</i>	4196
1163	Accurate Calculation and Reduction of Losses in Fractional Slot Concentrated Winding Permanent Magnet Machines <i>Shuo Li; Hengliang Zhang; Wei Hua</i>	4201
1165	Enhanced Output Quality of Dual Inverter with Isolated Supplies Using Virtual SVPWM Method <i>Zhen Huang; Shuhao Zhang; Jinliang Wan; Yonghong Xia</i>	4206
1166	The prediction model of the equivalent thermal conductivity of stator winding <i>Puzhen Xue; Hengliang Zhang; Qiushi Xu</i>	4211
1167	Large Signal Stability Analysis of Offshore Wind Power Low Frequency Transmission System Based on Y-type Modular Multilevel Converter <i>Yunkang Duan; Yongqing Meng; Ziyue Duan; Zihang Kang; Xiang Gao; Mengwei Ge; Dandan Zhu; Qian Zhou</i>	4217
1168	Adaptive Virtual Inertia Control Strategy Based on Multilevel Matrix Modular Converter <i>Hua Li; Xudong Li; Weichen Xiong; Mengwei Ge; Yongqing Meng; Chunzhe Ma; Boyang Song</i>	4223
1169	Flux Regulation and Torque Performance Enhancement of a Hybrid Excitation Axial Flux Switching PM Motor with Different Winding Arrangements <i>Qingran Zhang; Lei Xu; Xiaoyong Zhu; Wenjie Fan; Chao Zhang</i>	4228
1170	Position Sensorless Control Based on Velocity Electromotive Force Switching for Permanent Magnet Synchronous Motor in Full Speed Region <i>Yuyuan Yang; Jinglin Liu; Xinran Shi; Qian Zhan</i>	4234
1171	Deadbeat Predictive Current Control for Current Source Inverter Fed High-Speed Permanent Magnet Synchronous Motor <i>Jianqi Qiu; Qiwei Xie; Yanfei Cao; Chen Li; Cenwei Shi; Tingna Shi</i>	4239
1173	Research on Coordinated Control Strategy of Power Supply Arm Voltage Fluctuation Compensation in Traction Power Supply System Based on Railway Power Conditioner <i>Qian Ma; Wenhao Xu; Rijie Luo; Yufeng Yang; Zhenxi Li; Ming Luo</i>	4245
1175	A Novel Pole-Changing Memory Machine with Hybrid-Pole Configuration <i>Rui Tu; Hui Yang; Heyun Lin; Junquan Chen; Dabin Liu; Xing Liu</i>	4251
1176	Sensorless Control of DTP-PMSM Ship-Propulsion Drives by Using Nonsingular Fast Terminal Sliding Mode Observer <i>Vahid Teymoori; Hossein Dastres; Maarten J. Kamper; Rong-Jie Wang; Nima Arish</i>	4257
1178	Harmonic Analysis and Suppression Strategy Research of M3C Converter Based on Fractional Frequency Transmission System <i>Yuhuan Zhu; Yongqing Meng; Yahan Hu; Zihang Kang; Xiang Gao; Mengwei Ge; Dandan Zhu; Qian Zhou</i>	4263
1179	Investigation of Air-Gap Magnetic Field Harmonics and Generated Torque in Low-Speed High-Power Density Spoke-Type FSCW PMSMs <i>Sayyed Haleem Shah; Yunchong Wang; Dan Shi; Jian-Xin Shen</i>	4269

1180	Modulation Schemes for a 36MVA Press-Pack IGBT Converter under Interleaved Operation <i>Meina Wu; Liang Zhou; An Hu</i>	4275
1181	Comparative Study of Stator Vernier PM Machines With Different PM Arrangements <i>Pengcheng Sun; Shaofeng Jia; Deliang Liang; Zhanqiang Luo</i>	4280
1182	Research on the Characteristics of Lightning Electromagnetic Fields in Mixed Land-sea Propagation Paths <i>Yundong Cao; Xiaohui Hu; Haojin Yi; Jiajun Song; Linsen Jiang</i>	4285
1183	Research on Speed Measurement Method of Standing Wave Rotating Ultrasonic Motor Based on Unscented Kalman Filter <i>Junyu Fan; Zhike Xu; Long Jin</i>	4291
1184	Separation of Vibration Caused by Maxwell Force and Magnetostrictive Effect in Electrical Machines <i>Xinjie Wen; Haiyang Fang; Wendi Pan; Minyue Ding; Rui Li; Yu Wang</i>	4295
1186	Analysis and Calculation of AC Loss of HTS Coil in Superconducting Armature Electrical Machine <i>Xinkai Zhu; Ye Zhou; Yucai Wu; Yupeng Zhao; Yuanfan Yao; Wei Hua</i>	4300
1187	Analysis of Wide-Speed-Range Sensorless IPMSM Drives with Integrated Flux-Linkage Estimator and I/f Starting Technique for E-Vehicle Application <i>Sadiq Ur Rahman; Chaoying Xia; Usman Abubkar; Sayyed Haleem Shah; Mahmood Ul Hassan; Muhammad Ahmad Khan</i>	4305
1188	Performance Comparison of 20 MW Double-Stator Superconducting Exciting Wind Generator with Modular Dewar and Integrated Dewar <i>Yabin Liu; Xinkai Zhu; Guangyu Qi; Zhiheng Zhang; Wei Hua; Yucai Wu</i>	4311
1189	Design of Unequal Width Stator Teeth Permanent Magnet Motor Based on Actual Winding Factor <i>Jiajun Zhu; Zhihui Chen</i>	4317
1191	Multi-objective Optimization of Square Magnetic Coupler for Undersea Inductive Power Transfer <i>Jixie Xie; Jia Li; Chong Zhu; Xi Zhang</i>	4323
1192	Implementation of Two-Dimensional Finite Element Analysis Method in Axial Flux Permanent Magnet Motor <i>Yichen Liu; Ronggang Ni; Yong Zhao; Siyu Han</i>	4328
1193	Complex parameter mapping method of motor inductance considering mechanical stress and thermal expansion for quality operation <i>Seung-Gu Kang; Seah Park; Chae Won Seo; Sang-Yong Jung</i>	4334
1194	Serially and Parallely Half-wave Rectified Excited Permanent Magnet motors <i>Mamo Daniel; Yuichi Yokoi; Tsuyoshi Higuchi</i>	4338
1195	Design of Wireless IoT System for Monitoring and Controlling DC Circuit Breaker <i>Boseung Kwak; Juwon Kim; Sunghyeon Park; In-Dong Kim</i>	4342
1198	Calculation method for equivalent circuit parameters of Doubly-Fed Induction Generator-Motor based on frozen permeability finite element analysis <i>Xianzhuo Zhang; Jin Wang; Xiang Gao; Bo Zhao; Lu Sun; Libing Zhou</i>	4346

1202	Analysis and Optimization of Carrier Phase-Displacement Angles for Six-Phase Modular Multilevel Converters with Improved Common-Mode Voltage Performance	4352
	<i>Bin Zhang; Ningyi Dai</i>	
1204	Analysis of Short-Circuit Fault Voltage Support Mechanism of Power Electronized Power System	4357
	<i>Kun Hu; Jiabing Hu; Yingbiao Li; Kui Luo; Yiran Jing; Liangyi Zhang; Erxi Wang</i>	
1205	A Design Method for Virtual Inertial Control Parameters of DC Microgrid Energy Storage System	4363
	<i>Ya Zhang; Zhenyang Hao; Jiawen Zhang</i>	
1206	Harmonic Current Suppression for PMSM Drives with Enhanced ADRC Based on Fractional-Order Vector Resonant Control	4368
	<i>Hui Wu; Chun Gan; Kai Ni; Shuanghong Wang; Ronghai Qu</i>	
1207	Systematic Winding Adjustment Designs for Efficiency Improvements of Single-phase Capacitor-run Motors	4373
	<i>Cheng-Tsung Liu; Peng-Yu Wu; Huang-Zhih Chen; Pei-Yu Chao</i>	
1208	Multi-eye Visual Servo Drives with Self-Sensing Permanent Magnet Synchronous Machine	4378
	<i>Jingqi Dong; Le Sun; Enci Wang; Yingguang Liu; Longmiao Chen</i>	
1209	Torque Ripple Suppression method of Four-phase Doubly Salient Electromagnetic Motor Based on Torque Sharing Function with minimum copper loss	4383
	<i>Lei Zhu; Zhihui Chen</i>	
1210	Research on Traction and Levitation Characteristics of High-Speed Maglev Train Based on BP Neural Network	4389
	<i>Yuying Zheng; Yanxin Li; Qinfen Lu</i>	
1211	Improved Quantitative Analysis Method for Extracting Stray Capacitance in Common-Mode Inductor Based on Finite Elements	4395
	<i>Biyan Xie; Qiao Li; Yechi Zhang; Ziyao Zhang; Qinghong Luo</i>	
1212	Flexible Vector Distribution Strategy for Cooperative Current Ripple Reduction in Three-phase Voltage Source Inverter	4401
	<i>Haotian Ren; Chun Gan; Kai Ni; Haochen Shi; Chong Zhang; Ronghai Qu</i>	
1213	Position Error Signal Extraction Strategy Based on High-Frequency Signal Injection Method	4406
	<i>Dekang Kong; Zhaolong Sun; Weichao Li; Chuibing Huang; Anmin Ding; Yinhao Mao</i>	
1215	Coil Position Accurate Detection for UAV Wireless Charging	4412
	<i>Xingyu Liu; Sibao Chen; Chaowu Zhuang; Qiyun Ding; Yong Yang; Yang Xiao</i>	
1217	Research on MW-Level Half/Full Direct-Drive Doubly-Fed Induction Generators for Fractional Frequency Transmission System	4418
	<i>Zhidong Yuan; Shaofeng Jia; Deliang Liang;</i>	
1219	A Novel Doubly-Fed Permanent Magnet Wind Generator for Fractional Frequency Transmission System	4423
	<i>Zhidong Yuan; Shaofeng Jia; Deliang Liang; Yuliang Liu</i>	
1221	Vibration Sources and Minimization Techniques in Permanent Magnet Synchronous Machines: A Review	4428
	<i>Mohammad Kimiabeigi; Zi-Qiang Zhu; Liangjie Liu; Bin Liu; Ruiren Luo; Yue Liu</i>	

1222	A Method of Initial Position Estimation for a Low Saliency Machine Based on Eddy-Current Loss <i>Henghong Wang; Wei Xu; Zhen Jin</i>	4434
1224	Optimized Stator/Rotor-Pole Number Combinations for Torque Ripple Suppression in Four-Phase Doubly Salient PM Machines <i>Guangqiang Ming; Guanchen Liu; Xuhui Yue; Jianping Yuan; Junyang Xu; Shihao Ma</i>	4440
1227	Position Sensorless Control for Electromagnetic Launch system based on Linear Extended Kalman Filter <i>Anmin Ding; Zhaolong Sun; Chuibing Huang; Dekang Kong</i>	4445
1228	A Simplified Modeling and Analysis Method for Interturn Short-Circuit Fault of Permanent Magnet Synchronous Motor <i>Yao Rao; Yuntao Wang; Wei Wang</i>	4450
1229	Odd-Harmonic Repetitive Control Scheme in Two-phase Stationary Frame for Grid-Connected Inverter <i>Weidong Zhong; Daihong Zhang; Kai Chen; Jingliang Zhu; Jiaying Lei; Chengjia Lu</i>	4456
1230	Comparative Analysis of E-Core Stator DualPermanent Magnet Flux-Switching Machine with Different PM Arrangements <i>Yanding Bi; Weinong Fu; Shuangxia Niu; Jiahui Huang</i>	4460
1231	Characteristic Analysis of Flux-Switching Permanent Magnet Linear Motor with Segmented Secondary On Discontinuous Secondary <i>Lei Guo; Yongcai Zhang; Ruiwu Cao</i>	4466
1232	Analytical Model of Doubly-fed Induction Generator-motors for Full-region Operation Analysis <i>Yiming Ma; Lu Sun; Yang Xiao; Jin Wang; Jianjun Liu; Libing Zhou</i>	4472
1233	Model-Referenced Tuning Algorithm for L-Network Impedance Tuner of Long-Wave Antenna <i>Xianglong Wu; Bohan Shen; Gen Long; Hangchuan Lou; Hengyang Liu; Junyao Tu; Wubin Kong</i>	4477
1234	Loss analysis of amorphous alloy Flux revering permanent magnet machines	4482
1237	Multi-Objective Optimization of Magnetic Parameters in Wireless Charging Coupler Based on Deep Belief Network <i>Yu Lan; Jinhai Jiang; Kai Song; Fengshuo Yang; Lin Sang; Ke Wang; Zhenjun Zhang; Xuan Zhang; Xuling Li</i>	4487
1240	A Novel Approach to High-Speed Sensorless Control of Switched Reluctance Motor Using Fourth Order Generalized Integrator Without Magnetic Characteristics <i>Zifeng Chen; Hao Jing; Xinghao Wang; Zaixin Song; Dianxun Xiao</i>	4493
1241	Multi-Domain Optimization Design for a Bimodal Linear Ultrasonic Motor with Double Driving Feet <i>Xiang Li; Yuan Ding; Yangze Li</i>	4499
1244	Self-healing Scheme of Dual-Redundancy Permanent Magnet Synchronous Motor Based on Voltage Disturbance Observer <i>Shuai Wang; Guijie Yang; Jianyong Su</i>	4504
1245	Design and Analysis of Five-phase and Three-phase Combined Dual Winding Induction Generator for Integrated AC/DC Generating System <i>Zhekai Liu; Feifei Bu; Haozhe Liu; Wenxin Huang</i>	4509

1247	Optimization of the Structural Parameter in Linestart Permanent Magnet Synchronous Machine for Traction Applications <i>Hui Zou; Yaohua Hu; Shushu Zhu</i>	4514
1249	Control Scheme for Single-Phase Grid-Connected Inverter Based on Modified Odd-Harmonic Repetitive Control <i>Ding Chen; Weidong Zhong; Chun Li; Minghua Chu; Fangzhou Wu; Jiaying Lei; Chengjia Lu</i>	4519
1250	Influence of Anti-parallel Diode Characteristics on Gate Drive during IGBT Turn-on Transient <i>Mingcheng Ma; Tianlin Sun; Jiale Ren; Yuanchao Hao; Dianguo Xu</i>	4523
1251	Speed Sensorless Control of Asynchronous Motors Using Sliding Mode Observer with an adaptive power-order reaching law <i>Zhiwei Liu; Lin Chai; Jin Zhou; De Fang</i>	4527
1252	Analysis of Space Magnetic Field Coupling Effect on Transient Process of Power MOSFET <i>Yuanchao Hao; Mingcheng Ma; Dianguo Xu</i>	4533
1254	Model-Free Predictive Current Control of a Modular Multilevel Converter Based on Nearest-level Modulation <i>Fangyuan Zhao; Yongchang Zhang</i>	4537
1256	A Novel Selected-Harmonic Radial Vibration Suppression Strategy of Permanent Magnet Synchronous Motor <i>Tao Xu; Wei Xu; Zhen Jin; Jiyao Wang</i>	4543
1257	Analysis of Inter-Turn-Short Fault in High-Speed Permanent Magnet Generators Considering Effect of Structure Windings <i>Cunxiang Yang; Yiming Wang; Hongbo Qiu; Si Chen; Zhenxiang Lian; Zhihao Zhu</i>	4549
1258	A Design of Distributed Coils System for Electromagnetic Bulging in Large Aluminum Alloy Rings <i>Xinyu Tang; Xiaoxiang Li; Liang Li</i>	4555
1259	Research on Leakage Inductance and Eddy Current Loss of Nanocrystalline High-Frequency Transformers <i>Yang Liu; Xue Liu; Zhenhuan Yin; Kan Dong; Chi Ma; Dongdong Cui</i>	4560
1260	Analysis of Incremental Carbon Emission Flow Intensity in Power System Considering Transmission Loss <i>Zhiyu Zou; Xiangyu Kong; Shangze Li; Yi Gao; Shuai Luo; Bixuan Gao</i>	4565
1264	Low Computational Burden Based Multi-Step Model Predictive Current Control for Induction Motors <i>Yaru Xue; Zhibin Shuai; Yaoheng Li; Lijun Diao</i>	4571
1265	An Iterative Calculation Method for the Loss and Temperature of an Air-cooled Driver of a Permanent Magnet Motor <i>Wenmao Liu; Shanming Wang; Quan Zheng; Yituo Li; Hongchao Li</i>	4575
1266	An Improved Predictive Control for Vienna Rectifiers with Current Tracking Error-based Disturbance Adaptation <i>Haitao Yang; Yafei Cui; Qiyan Qu</i>	4581
1268	Full Closed Loop Algorithm of Position and Torque Double Loop Control Based on Linear Active Disturbance Rejection <i>Pengfei Guan; Junguan Ou; Jin Zhang</i>	4585

1269	Numerical Calculation of Fluid Heat Transfer in Rotor of Large Air-cooled Generator Based on Global Ventilation Network Model <i>Wenmao Liu; Shanming Wang; Weili Li; Guorui Xu; Tianhuai Qiao</i>	4590
1270	High-Performance Continuous Control Set-Model Predictive Control for Three-Phase Two-Level Power Converters <i>Hao Lin; Yufei Zhao; Jing Zhang; Chong Qi; Hui Zhao</i>	4596
1274	Sensorless Control of Synchronous Reluctance Machines Based on Improved Kalman Filter-Phase Locked Loop <i>Jian Huang; Zhixun Ma</i>	4602
1276	Design Optimization of Filters and Power Stacks in Three-Phase Transformer-less UPS including SiC devices <i>Dong-Ju Lee; Jae-Wang Choi; Jong-Gyeum Kim</i>	4606
1277	Analysis of the heat generation of liquid metal battery during charging and discharging <i>Yi Zhang; E Zhang; Min Zhou</i>	4611
1280	A Unipolar Coil-Based Multi-Load Inductive Power Transfer System with Decoupling Compensation Design <i>Yuan Liu; Sheng Zhang; Ran Zhang; Chenwen Cheng; Wei Hua</i>	4616
1283	Comparison of Double-Stator Superconducting Electrical Machine with Two Typical Superconducting Excitation Stator Topologies <i>Zhiheng Zhang; Wei Hua; Xinkai Zhu; Yubin Wang; Xianglin Li</i>	4621
1284	Self-Updating Incremental Model Based Robust Current Predictive Control for Permanent-Magnet Synchronous Motor Drives <i>Hongzhe Wang; Chun Gan; Kai Ni; Jianbo Sun; Ronghai Qu</i>	4627
1286	Influence of Parameter Differences on the Current Distribution Within Parallel-connected Liquid Metal Batteries <i>E Zhang; Shuai Yan; Yi Zhang; Haomiao Li; Kai Jiang; Kangli Wang</i>	4632
1288	DC Power Cycling Test and Lifetime Prediction for SiC MOSFETs <i>Xiaofeng Ding; Binbin Wang; Yanyong Yang</i>	4638
1289	Controller Design of Multi-Modular DAB Converter for Battery Charger and Discharger <i>Sunghyeon Park; Boseung Kwak; Juwon Kim; In-Dong Kim</i>	4644
1290	Enhanced Phase Current Reconstruction Strategy in Overmodulation Range for Single DC-Link Shunt PMSM Drives <i>Haozhe Wang; Jian Wu; Runze Jing; Wenlong Liu; Tan Long; Binxing Li; Guoqiang Zhang; Gaolin Wang; Dianguo Xu</i>	4649
1292	Maximum Torque Per Ampere Angle Detection for Interior Permanent Magnet Synchronous Machines based on Signal Injection <i>Ying Zuo; Chunyan Lai; K. Lakshmi Varaha Iyer</i>	4654
1293	Investigation of Low-Speed High-Power Density Spoke-Type FSCW PMSM with Similar PM Volume and Different Shapes Considering Magnetic Gearing Effect <i>Sayyed Haleem Shah; Yunchong Wang; Dan Shi; Ziang Zhu; Jian-Xin Shen</i>	4660
1294	A High-Frequency Signal Injection-Based Control Method for Low-Speed Sensorless Control of Permanent Magnet Synchronous Motor <i>Yan Yuanlin; Mao Kun; Wang Kun; Qu Jianhua</i>	4666

1295	Integrated Optimal Control System for a Household Photovoltaic-Battery Energy Storage System <i>Zaijin Zhu; Zheng Fan; Fan Zhang; Min Wu; Jing Zhang; Taiying Zheng</i>	4671
1297	Investigation of Modulation Effect of Unsymmetric Structure on Vibration and Noise in Fractional-Slot Concentrated-Winding Permanent-Magnets InWheel Motors <i>Hang Yin; Wei Hua; Hengliang Zhang; Mingjing Hu; Yuchen Wang; Guangchen Wang</i>	4677
1303	Multiple-Vector-Based Model Predictive Direct Power Control with Controllable Switching Frequency for Doubly Fed Induction Generators <i>Han Chen; Yongchang Zhang; Tao Jiang; Changshan Yang</i>	4682
1304	Analysis of Robust Speed and Position Identification Motion-sensorless Flux Linkage Observer of an IPMSM Drive for Electric-Vehicle Application <i>Sadiq Ur Rahman; Chaoying Xia; Usman Abubkar; Sayyed Haleem Shah; Mahmood Ul Hassan</i>	4688
1305	Study on Power Output Characteristics of Piezoelectric Energy Harvesting Array with Parameter Variations <i>Qizhi Sui; Zhike Xu; Long Jin; Junyu Fan; Boyang Ye</i>	4693
1306	Comparative study of synchronous reluctance motors with different winding configurations and rotor structures <i>Tong Zhang;He Cheng;Cheng Peng;Jing Wu;Fandi Lin</i>	4698
1307	A Novel Model Predictive Voltage Control for PMSM with Lower Parameter Dependency <i>Yuanhang Cao; Xiaoguang Zhang</i>	4704
1308	A Hybrid Control Strategy for CLLLC Resonant Converter Based on PS-PFM under Wide Input Voltage <i>Minghai Xie; Kaitao Bi; Jian Ai; Qigao Fan</i>	4710
1309	Position Sensorless Control of Permanent Magnet Synchronous Motor Based on Reduced Order Quasi Resonant Extended State Observer <i>Xiangjunling Guo; Yulong Liu; Wenfu Wu</i>	4716
1311	Investigation of Measuring Method of Hardening Layer Depth of High-Frequency Quenching Steel by Small Pen-shaped Electromagnetic Sensor <i>Masafumi Kuromizu; Kouhei Kawada; Tomoyuki Taguchi; Yuji Gotoh</i>	4722
1312	A Rotor Winding Scheme for Reducing Magnetic Field Harmonics of Doubly-fed Machine <i>Xiao Chen; Xianfei Xie; Weidong Pan; Wenhao Chen; Xi Chen</i>	4726
1313	Predictive Current Control for Permanent Magnet Synchronous Motor Based on Delay Compensation and Parameter Identification <i>Zijie Gu; Feifei Bu; Zhaopeng Dong</i>	4732
1314	A Power Loss Optimization Method for Modular Multilevel Converters Based on Variable Control Cycle <i>Mengyue Wang; Fujin Deng; Qiang Yu</i>	4737
1315	Neutral-Point Voltage Balancing Control of Active NPC Converter for The High-Power Flywheel Energy Storage System <i>Junliang Chen;Zeming Zeng;Congzhe Gao;Dahui Zhang;Ziwei Wang</i>	4743
1317	A high-torque flux-modulated permanent magnet motor with reduced low-order spatial harmonics <i>Hongli Zhou;Yulong Liu;Chenxi Yang</i>	4749

1318	A Novel Duty Ratio Interval Subdivision Based MPTC Method for PMSM <i>Nan Du; Lefei Ge</i>	4755
1319	Surrogate Model based Optimization of DS PMLSM with Multi-Sampling Points Adding Rule based on Support Vector Machine <i>Keyu Guo; Zhibin Shuai; Xinzhe Zhao; Jinhai Liu; Shijiong Zhou; Liming Shi;</i>	4761
1320	Transient Subdomain Magnetic Network Method for Estimating Winding Eddy Current Losses in Flat Wire Motors <i>Peipei Yang; Yanping Liang; Jia Liu; Ke Zhang</i>	4767
1321	Enhanced Robust Control of the DC-DC Converters Based on Reduced-Order GPI Observer <i>Xiang Xu; Yunren Li; Rongchao Niu; Liangbo Tian; Yuntong Li; Bo Liang</i>	4773
1324	Acoustic Noise Reduction of Surface Permanent Magnet Motor by Injection of Third and Ninth Harmonics into the Zero-Sequence Current <i>Hironori Minegishi; Yusuke Fujii; Akira Chiba</i>	4779
1325	A Motor-Parameter-Free Model Predictive Voltage Control for PMSM Drives Based on Incremental Prediction Model <i>Lu Xu; Xiaoguang Zhang</i>	4785
1327	A review of research on wireless charging technology for electric vehicles <i>Zhu Bingke; Liu Jingyun</i>	4791
1328	Position Sensorless Control of PMSM Based on Double Sliding Mode Variable Structure <i>Zhibin Ren; Jianqiao Hu; Yu Wu; Fengshun Liao</i>	4798
1329	A Novel Parameter-free Model Predictive Voltage Control for SPMSM System <i>Ruifang Chen; Xiaoguang Zhang</i>	4802
1331	Dynamic Programming-based Mass Block Placement Method for Gravity Energy Storage <i>Julong Chen; Yongqing Zhu; Zhen Li; Xuepeng Mou; Junming Yangdong; Youkang Zhang; Tian Gao; Shuyang Fang; Zufan Wang</i>	4807
1332	Research on Influence of Rotor Eccentricity on Electromagnetic Vibration in High-speed Permanent Magnet Generators <i>Cunxiang Yang; Zhenxiang Lian; Hongbo Qiu; Si Chen; Yiming Wang</i>	4813
1334	Analysis of Influencing Factors of Energy Efficiency of Slope Gravity Energy Storage System <i>Zhen Li; Yongqing Zhu; Bin Wang; Xuepeng Mou; Linlin Dong; Tian Gao; Zilin Hao; Jianwang Gao; Zufan Wang</i>	4820
1335	An Improved Leakage-current-based Online Monitoring Method of Transformer Insulation by Injecting Asymmetric Voltages at Photovoltaic Inverter Switching Frequency <i>Geye Lu; Jianzhen Qu; Dayong Zheng; Pinjia Zhang</i>	4826
1336	Analytical Calculation of Magnetic Field for Permanent Magnet Synchronous Machine with Hybrid Magnets <i>Chengwu Diao; Wenliang Zhao; Cong Liu; Mengmeng Tian</i>	4832
1338	Magnetic Field Simulation of HTS Cable based on Flight Mission Profile by Finite Element Method <i>Gaotai Lyu; Yutaka Terao; Hiroyuki Ohsak</i>	4837

1339	Method for online SOH estimation of lithium-ion power batteries based on multi-factor capacity prediction empirical model <i>Yipeng Yang; Mengfei Xu; Xuerui Gong; Wenjie Wu; Keyang Jing; Yufei Sun</i>	4842
1340	Position Sensorless Control for DSEG with Bridge Semi-controlled Rectifier Based on Line-to-Line Voltage Detection <i>Xingwei Zhou; Yaowu Guo; Shuangxia Niu; Shangjian Dai; Li Zhang; Peixin Liu</i>	4847
1341	A Digital Twin Based Condition Monitoring Method for Power Modules of Inverters <i>Chao Zhang; Bochao Du; Ke Qiao; Yong Xue; Shumei Cui</i>	4852
1342	Design of high-power density magnetic field modulated permanent magnet synchronous motor <i>Hongwei Fang; Yuzhu Feng; Xinyu Cheng</i>	4857
1345	Electromagnetic Vibration Characteristics Analysis of Permanent Magnet Synchronous Linear Motor for Electromagnetic Launch <i>Yinhao Mao; Zhaolong Sun; Chuibing Huang;</i>	4862
1346	Comparative Study of Hybrid PM Assisted Synchronous Reluctance Machines with Parallel and Series Configurations <i>Wutao Chen; Yawei Wang; Xinhua Liu; Yu Shi; Yiru Zhao; Ronghai Qu</i>	4868
1347	An SOE estimation algorithm for lithium-ion power batteries based on a PF-EKF dual filter <i>Yipeng Yang; Mengfei Xu; Wenjie Wu; Xuerui Gong; Keyang Jing; Jun Tian</i>	4874
1350	Design of an IE5 5.5kW Synchronous Reluctance Machine with Low Torque Ripple <i>Yuanjian Chen;Yawei Wang;Xuan Li;Ronghai Qu</i>	4879
1351	Advance Phase Changing Control of the Doubly Salient Electromagnetic Generator Based on the Half-controlled Rectifier <i>Lingyun Jiang; Chengyue Wu; Yanwu Xu; Chenghao Sun</i>	4885
1352	Modified Algorithm for the L/C-based Switch Model Based on FPGA <i>Qinsheng Wang; Haowen Weng; Can Wang</i>	4890
1353	Design of a Novel Spray Evaporative Cooling System for Electric Machines <i>Yang Jie; Wang Chao</i>	4895
1355	Single Q-Axis Current Reference Control Strategy Based on Line-Constrained EMPC for SPMSMs <i>Han Wang; Jianyong Su; Guijie Yang</i>	4899
1359	Multi-Objective Optimization Method for Surface-Mounted PMSM with Fixed Torque Output <i>Xinghua He; Liang Yan; Pengjie Xiang; Nannan Du; Xiaoshuai Liu ; Jiatong Liu</i>	4904
1360	Design and Analysis of a Free-Piston PM Linear Motor Considering the Influence of Processing and Assembly <i>Xiaoying Qiu; Jingang Bai; Yi Sui; Qifan Xiao; Guanghe Li; Yong Liu</i>	4909
1361	An Enhanced PLL Based Sensorless Control Strategy for IPMSM with Cross Coupling Factor Estimation in Low Speed Range <i>Yuhan Chen; John Xu; Jing Li; Dunant Halim</i>	4914
1362	A Novel AC/DC Magnetically Isolated Control Topology for Zero-Sequence Current Magnetized Memory Machine System <i>Hui Yang; Yuming Yi; Xing Liu</i>	4920

1363	Common Mode Voltage Suppression Method of H14 Inverter Based on Hybrid Modulation <i>Jie Li; Xiaochen Wu; Heisi Ting; Yanbo Wang</i>	4926
1364	Analysis of A Partitioned Stator Hybrid Excitation Spoke-Type Machine <i>Dongqing Liu; Hongzhang Xu; Han Yi; Liangliang Wei</i>	4932
1366	Temperature field calculation of the PMSM with hollow shaft oil injection cooling structure based on equivalent thermal network model <i>Jixiong Li; Huimin Wang; Xiaochen Liu; Qiang Geng And Liyan Guo</i>	4938
1367	Design of Permanent Magnet Submersible Motor Driving System Based on FOC Algorithm <i>Xinyue Guo; Wei Wang; Shuping Song</i>	4943
1369	Torque ripple suppression strategy of switched reluctance machine based on phase current harmonic optimization <i>Chenyi Yang; Shoujun Song; Qingkun Yang; Qiyuan Cheng; Chong Bao; Haotian Gao</i>	4947
1370	Vibration Suppression of Active Magnetic Bearing with Rotor Unbalance Control <i>Haijiao Wang; Zicheng Liu; Dong Jiang; Ronghai Qu; Rui Li</i>	4953
1371	A New High Speed Superconducting Maglev Traction Converter Topology and Modulation Strategy <i>Bo Zhang; Ke Wang; Pei Yang; Qiongquan Ge; Xiaoxin Wang; Yaohua Li</i>	4958
1373	Design and Optimization of Permanent-Magnet Fault-Tolerant Motors for Electric Aircraft Based on Multi-Objective Genetic Algorithm <i>Bitan Wang; Jinghua Ji; Wenliang Zhao; Cong Liu</i>	4962
1374	Impedance Control of a Spherical Motor with a Complementary H2 - H Paradigm <i>Qianhong Xiao; Zehui Wang; Kun Bai</i>	4967
1376	Research on Startup and Emergency Braking Strategy of Doubly-Fed Induction-Machine-Based Flywheel Energy Storage System <i>Jinglin Zhao; Hui Li; Xuwei Xiang; Wendong Li</i>	4971
1377	Demagnetization Fault Analysis of FSCW-PMM with Four-Layer Star-Delta Winding <i>Zhenfei Chen; Chenyang Fan; Xiangmin Wan; Zhihao Ling; Feng Wang</i>	4977
1378	Position Error Compensation for PMSM in Sensorless Control Based on Maximum Output Power per Unit Current <i>Peiyu Yao; Yuting Lu; Guodong Feng; Weiwen Peng; Beichen Ding</i>	4981
1379	Comparative Study on Stranded and Hairpin Windings for 350kW EV Traction Motor <i>Jianan Jiang; Tianjie Zou; Salvatore La Rocca; David Gerada; Chris Gerada</i>	4987
1380	A Study on On-Board Chargers for EVs Using 3-Level T-Type Converter <i>Juwon Kim; Sunghyeon Park; Boseung Kwak; In-Dong Kim</i>	4993
1383	Boosting System Control with Power Distribution for Series Hybrid System Using D-EPC <i>Hiroki Matsuno; Kantaro Yoshimoto; Tomoki Yokoyama</i>	4998
1385	A Medium Voltage Photovoltaic DC Transmission System Based on Current Source Actively Commutated Converter <i>Hang Zhang; Zixin Li; Fei Xu; Fanqiang Gao; Cong Zhao; Baiyan Sun</i>	5002

1387	Research on Power Flow Controller Based on Dual-Excited Synchronous Machine <i>Guorui Xu; Jiancheng Zhang; Qianwei Li; Fuke Sun; Jintian Lin</i>	5006
1389	Dynamic Performance Optimization Based on Busbar Current and Field Current Prediction for Doubly Salient Electromagnetic Generator <i>Guilu Min; Yanwu Xu; Junjie Wang; Xiaoming Yan</i>	5011
1390	Acoustic Noise Performance of Vector Controlled Switched Reluctance Motor with Radial Force Ripple Suppression <i>Heng Yuan; Shintaro Yano; Shou Qiu; Kyohei Kiyota</i>	5016
1391	Influence of Armature Current Commutation on Suspension Performance of Bearingless Doubly Salient Electromagnetic Motor under High-Speed Operation <i>Haonan Zou; Li Yu; Wei Chen; Yuke Shi; Qiuyu Xu; Zhuoran Zhang</i>	5022
1393	Investigation of Electro Hydrostatic Actuators on Torque density Improvement Based on Halbach Array Permanent Magnets <i>Yulei Yang; Qian Wang; Jing Shang; Fangrui Wei</i>	5028
1395	Two-Stage Active-Flux Observer for Position Sensorless Control of PMSM Drives with Output Filter <i>Aiguo Wang; Dongdong Chen; Lingyu Tao; Fei Han; Zhijian Hu; Hongwei Wang; Han Qiao; Jin Wang</i>	5032
1396	A Highly Reliable Naturally Clamped Current-fed Dual Active Bridge Converter <i>Chao Wang; Heyu Wang; Yu Gu; Xuwei Pan</i>	5038
1397	Theoretical Analysis and Structural Optimization of Ultrathin Permanent Magnet Linear Array Motor <i>Chengjun Liu; Jianfei Sun; Yifei Zhang; Jing Shang</i>	5044
1399	A Spoke-Type PM Machine with Quasi-Trapezoid Magnets and Quasi-Dovetail Iron Poles <i>Pengjie Xiang; Yan Liang; Xinghua He; Xiaoshuai Liu; Nannan Du And Xuxu Yang</i>	5048
1401	Design Options and Considerations of a Linear Flux Switching Machine for Dry Gravity Energy Storage <i>Morris Mugyema; Maarten J. Kamper; Rong-Jie Wang;</i>	5053
1402	Design and Torque Ripple Optimization of U-type Permanent Magnet Synchronous Motor <i>Dongdong Zhang; Jiayu Liu; Jiawei Yi; Thomas Wu; Teng Yu; Yan Liu</i>	5058
1403	Analysis of structural strength and rotor sheath interference of double-rotor single-stator axial flux motor <i>Qiping Shen; Jiaxin Tian; Zongrong Long; Hualu Zhu; Tianhai Yang; Li Liu</i>	5064
1406	Design and Analysis of Armature for Multistage Electromagnetic Induction Coil Propulsion Device <i>Feihong Yue; Zhaolong Sun; Chuibing Huang;</i>	5069
1408	Optimization and Comparative Study of Dual-PM Machine by Using Grain-Oriented Silicon Steel Stator Teeth with Different Proportion <i>Qinying Wu; Xinhua Guo; Qifang Lin; Congqi Lu; Jiapeng Pang</i>	5074
1409	Design and Simulation Analysis of Oil Cooling System for Axial Flux Permanent Magnet Motors <i>Qiping Shen; Li Liu; Hualu Zhu; Tianxiong Zhang; Jianhui Li; Jiaxin Tian</i>	5079

1410	Research on Magnetic Stability and Improvement Method of a Novel Permanent Magnet Synchronous Servo Machine <i>Bo Liu; Jie Fu; Zaiping Zheng; Xiaoyu Liang; Mingqiao Wang; Yong Liu; Ping Zheng</i>	5085
1413	Design and Optimization of Permanent-Magnet Vernier Machine with Split-teeth Stator based on Grain-Oriented Silicon Steel <i>Qinying Wu; Xinhua Guo; Qifang Lin; Jiapeng Pang; Congqi Lu</i>	5089
1414	Research on Electromagnetic Performance of a Series-Circuit Hybrid-PM Variable-Flux Machine for Servo System <i>Wanquan Li; Xibin Guo; Faliang Liu; Shukuan Zhang; Mingqiao Wang; Yong Liu; Ping Zheng</i>	5094
1415	A Hybrid Active Flux Observer Based Encoderless Control Method for AC Motor Drives <i>Haitao Li; Shichang Zhou; Zhenbin Zhang; Zhen Li</i>	5099
1418	Magnetization Characteristics and Electromagnetic Performance Analysis of a Straight Type Series Variable Flux Servo Machine <i>Ziyu Zhou; Zaiping Zheng; Jie Fu; Mingqiao Wang; Yi Sui; Yong Liu; Ping Zheng</i>	5103
1420	Digital one-cycle control method based on current prediction <i>Dahui Zhang; Congzhe Gao; Junliang Chen; Ziwei Wang</i>	5109
1421	A Novel Stator Dual-PM Flux-Switching Machine with Improved Utilization of High-Order Harmonics and Reduced Flux Leakage <i>Jiahui Huang; Weinong Fu; Shuangxia Niu; Yanding Bi</i>	5114
1422	A SiC MOSFETs Switching Trajectory Optimization Strategy Based on an Active Gate Drive Circuit <i>Xinyi Li; Xiaofeng Ding; Yanyong Yang</i>	5119
1423	Interturn Short-Circuit Fault-Tolerant Control for Dual Three-Phase PM Machines Utilizing Single Current Compensator <i>L. L. Guo; K. Wang; F. Li</i>	5126
1425	An Improved Model Predictive Current Control of Permanent Magnet Machine with Integrated MRAS-based Online Parameter Identification <i>Z. D. An; K. Wang; L. L. Guo; T. Wang; J. Nie; F. Li; Z. Q. Liu</i>	5132
1426	Investigation of Single-Phase Asymmetric Short Circuit Faults in Permanent Magnet Machines Considering Gravitational Lift Torque Load <i>Zilin Dong; Yidong Du; Lei Yu</i>	5137
1427	A Double-sided Cooling SiC Power Module Applied to Electric Vehicles <i>Zhao Ren; Xinhua Guo; Jinyuan Fu; Qiyan Lin</i>	5143
1428	Design and optimization of high performance electromagnetic brake for heavy-load electric aircraft erection equipment <i>Tianyi Wang; Jian Huang; Aifeng Chen; Xiaobin Li; Zuosheng Yin; Shibo Zhang</i>	5149
1429	Crosstalk Characteristics of Wireless Charging System Based on SiC MOSFET <i>Qiang Bo; Xuhui Shen; Xiaojiang Guo; Mingzhi Fu; Weiguo He; Ruibin Zhao; Meng Qin</i>	5153
1430	Sensorless Adaptive PI Control of High-Power Propulsion PMSM Based on Sliding-mode Extremum Seeking Algorithm <i>Vahid Teymoori; Pedram Ghalebani; Maarten J. Kamper; Rong-Jie Wang</i>	5158

1432	An Active Electric Field Energy Harvester For Overhead Lines <i>Yanzhao Fang; Siqi Li; Sizhao Lu; Yaju Yuan; Zhuangsheng Xiao; Xingpeng Yu</i>	5164
1433	Fault Diagnosis of Current Sensors for Dual Three-Phase PM Machines Based on Harmonic Current <i>J. H. Liu; K. Wang; L. L. Guo; L. Feng; Z. Q. Liu; J. Nie</i>	5169
1435	Small-Signal Impedance Modeling and Analysis of Doubly Salient Brushless DC Generator for More Electric Aircraft <i>Yongtao Guan; Li Yu; Zhuoran Zhang; Yiming Yao; Xu Chen; Yanhui Li</i>	5175
1436	Analysis of a Novel Consequent-Pole Halbach-Array Dual Electrical -Port Dual-Mechanical -Port Machine <i>Ziyi Liang; Yu Zhao; Dawei Li; Ronghai Qu; Xiang Ren</i>	5180
1439	Suppression of Voltage Ripple in Hybrid Excitation Synchronous Generator with Excitation Current <i>Xumin Song; Kai Wang; Tao Wang; Linlin Guo; Jian Li; Feng Li</i>	5185
1440	A Series Compensated 27.5kV to 10kV Power Supply Device <i>Changqing Qiu; Wenjie Wu; Dingquan Wang</i>	5191
1441	A cluster management system for underwater unmanned energy storage stations based on edge cloud integration technology and AI technology <i>Mengfei Xu; Yipeng Yang; Changqing Qiu</i>	5197
1445	Design and Optimization of a Halbach Consequent-Pole Permanent Magnet Machine for Rim-Driven Thruster <i>Zhonghao Liu; Kai Wang; Yuedong Guo; Jian Li; Feng Li</i>	5203
1447	Frequency Adaptive Torque Ripple Suppression for Electrical Drives Using Radial Basis Function Neural Network <i>Yuefei Zuo; Jian An Tan; Chenhao Zhao; Huanzhi Wang; Christopher H. T. Lee; Jun Yang</i>	5209
1448	Optimal Design of the Charging System for Transcranial Magnetic Stimulation <i>Jiannan Shao; Hongfa Ding</i>	5215
1449	A Fault-Tolerant FOC Strategy for Segmented Powered Dual Three-Phase PMLSM <i>Jinhai Liu; Liming Shi; Haibin Zhu; Keyu Guo; Shijiong Zhou; Manyi Fan</i>	5220
1451	Investigations on Modular Design of the High-Isolation Multi-Phase PM Machine <i>Zuosheng Yin; Tianyi Wang; Zhiyi Song; Jian Huang</i>	5224
1454	Behavior Modeling and Design of Winding Switching Permanent Magnet Synchronous Machine System Based on Normalized Model <i>Tanci Chen; Lei Chen; Feng Chai</i>	5228
1458	Characteristics Evaluation of PMSM Drive Systems with Boost Converters Using Space Vector Pulse Width Amplitude Modulation <i>Tianhao Li; Keitaro Kawarazaki; Nobukazu Hoshi</i>	5233
1460	Improvement of Output Power for AC Hybrid Excitation Brushless Generator with Novel Consequent-pole Rotor <i>H. Wang; K. Wang; Y. D. Guo; J. Li; F. Li</i>	5239
1462	A Two-stage EV Wireless Charging System Based on LCC-S Resonance and Its Wide Input and Output Voltage Range Control Method <i>Xiangwen Tan; Shanxu Duan; Yong Li</i>	5245

1466	Thermal Runaway and Propagation Study on LiFePO₄ cell in parallel application <i>Qinggang Kong; Tin Qian; Yanping Yan; Haifeng Zhu</i>	5251
1467	Performance of Large Low-Pole-Ratio Non-Overlap-Winding PM Vernier Motor <i>Nima Arish; Maarten J. Kamper; Rong-Jie Wang</i>	5255
1469	Optimal Transition from Conventional to Model Free Predictive Control for Permanent Magnet Synchronous Motors <i>Ahmad Darabi; Daniel Legrand Mon Nzongo; Chunyan Lai</i>	5261
1471	On-Line Detection and Classification of Permanent Magnet Demagnetization using Observed Flux Linkage Signals <i>Shiva Garaei; Chunyan Lai; Lakshmi Varaha Iyer</i>	5268
1473	Axial Split-phase Flux-switching Permanent-magnet Motor with Complementary Structure <i>Yongjiang Jiang; Jiaxin Kou; Yunqiao Zhao; Lingpeng Kong</i>	5274
1474	Vibration investigation of a DC-VRM synchronous condenser prototype <i>O.I. Olubamiwa; S. Botha; S.C. McIntyre; M.J. Kamper</i>	5280
1475	A Dynamic Power Distribution Method With Parameter Prediction for Electric Vehicle Hybrid Power System <i>Xiaoji Wang; Daohan Wang; Bingdong Wang; Guangsheng Xu; Xiuhe Wang</i>	5286
1477	Electromagnetic Vibrations of Interior Permanent Magnet Synchronous Motor With Different Pole and Slot Combinations <i>Wenqiang Miao; Daohan Wang; Jun Nie; Bingdong Wang; Chengqi Wang; Xiuhe Wang</i>	5291
1479	Electromagnetic Vibration of PMSM With Dual Stator Teeth of Different Width Fed by Voltage Source Inverter <i>Chengqi Wang; Daohan Wang; Jun Nie; Wenqiang Miao; Xiuhe Wang</i>	5297
1480	Electromagnetic Vibration and Acoustic Noise Analysis of Single Phase Flux Switching Motor <i>Guangsheng Xu; Daohan Wang; Zhipeng Li; Wenqiang Miao; Xiuhe Wang</i>	5302
1481	Design; Analysis and Testing of a PermanentMagnet Motor With Segmented Rotor for ReducingElectromagnetic Vibration <i>Bingdong Wang; Daohan Wang; Xiaoji Wang; Chenqi Wang; Xiuhe Wang</i>	5307
1482	Design of a Model Predictive Control for Linear Switched Reluctance Motor with Segmented Secondary <i>Zhipeng Li; Daohan Wang; Can Huang; Xiuhe Wang;</i>	5312
1483	Design and Comparison of the Centralized Winding Permanent Magnet Motors for Robotic Joint <i>Cheng Xu; Daohan Wang; Guangsheng Xu; Xiuhe Wang</i>	5317
1484	Torque Ripple and Electromagnetic Vibration of Permanent Magnet Synchronous Motor Using Unequal Width of Magnets <i>Jun Nie; Daohan Wang; Bingdong Wang; Wenqiang Miao; Xiaoji Wang; Xiuhe Wang</i>	5322
1486	A Dynamic Voltage Support Method for the Power Grid with Large-Scale Renewable Energy Generation Using Load Converters <i>Tong Zheng; Kui Wang; Ruitong Liu; Zedong Zheng; Qinglai Guo; Yongdong Li</i>	5327

1487	A feasible automotive bi-directional power converter and V2G control strategy based on differential evolutionary algorithm <i>Rongxiao Yan; Daohan Wang; Xiaoji Wang; Bingdong Wang; Xiuhe Wang</i>	5333
1490	A Novel Noncommunication-Based Inductive Power Transfer Control Technique <i>Xuwei Pan; Guocun Li; Ziran Wang; Danyang Bao; Ruihong Zhang</i>	5338
1491	Adaptive Fuzzy PID Controller-based Automatic Generation Control of Pumped Storage Power Station <i>Ruhan Li; Bo Wang; Shi Mo; Qiushi Xu; Junqi Wang; Cheng Luo; Kai Yang</i>	5343
1492	On-Shore Battery-Storage Strong Grid-Forming Wind Generator Systems <i>Lucky Dube; Maarten J. Kamper; Dillan K. Ockhuis; Karen S. Garner And Rong-Jie Wang</i>	5348
1493	Investigation of a Novel Hybrid Less-Rare-Earth Consequent-Pole Interior Permanent Magnet Machine with Asymmetric Rotor <i>Yu Ji; Yanxin Li; Qinfen Lu</i>	5354
1496	Performance Comparison of Conventional and Double-Stator Wound-Field Flux Switching Machine for High Torque Density Applications <i>Hillary C. Idoko; Udochukwu B. Akuru; Olawale Popoola; Wasiaq Ullah; Faisal Khan</i>	5360
1497	Field Oriented Control of Interior Permanent Magnet Machine with Axial Flux Regulator <i>Evarist P. Mwaigaga; Daohan Wang; Xiaoji Wang; Bingdong Wang; Chenqi Wang; Xiuhe Wang</i>	5366
1499	Feasibility and Performance Evaluation of a New Hybrid Magnetic Circuit Motor in Flux Regulation and Multi-Phase Operation <i>Xinchen Tu; Daohan Wang; Bingdong Wang; Evarist P.Mwaigaga; Xiuhe Wang</i>	5372
1500	Design and Analysis of an Axial Flux Switching DC Excited Machine by Additive Manufacturing <i>Mehdi Moradi; Azeem Khan</i>	5377
1501	Comparative Analysis of Radial and Axial Flux Permanent Magnet Machine for a Contra Rotating Fan <i>Xuanyang Hu; Yuping Qian; Kaiwen Jin; Yangjun Zhang; Weilin Zhuge</i>	5382