

IEEE TRANSACTIONS ON

INDUSTRIAL ELECTRONICS

A PUBLICATION OF THE IEEE INDUSTRIAL ELECTRONICS SOCIETY

APRIL 2010

VOLUME 57

NUMBER 4

ITIED6

(ISSN 0278-0046)

SPECIAL SECTION ON HARDWARE-IN-THE-LOOP SIMULATION OF ELECTRIC DRIVES

- Guest Editorial *A. Bouscayrol, A. Monti, and M. Steurer* 1134
-

SPECIAL SECTION PAPERS

- Real-Time Simulation of a Wind Turbine Generator Coupled With a Battery Supercapacitor Energy Storage System *W. Li, G. Joós, and J. Bélanger* 1137
- Hardware-in-the-Loop Simulation of Power Electronic Systems Using Adaptive Discretization *M. O. Faruque and V. Dinavahi* 1146
- A Real-Time Development Platform for the Next Generation of Power System Control Functions *D. Westermann and M. Kratz* 1159
- Hardware-in-the-Loop Simulation for the Development of an Experimental Linear Drive *S. Huang and K. K. Tan* 1167
- Reduced-Scale-Power Hardware-in-the-Loop Simulation of an Innovative Subway *A.-L. Allègre, A. Bouscayrol, J.-N. Verhille, P. Delarue, E. Chattot, and S. El-Fassi* 1175
- A Per-Unit Hardware-in-the-Loop Simulation of a Fuel Cell/Battery Hybrid Energy System *L. Gauchia and J. Sanz* 1186
- Comparing the Dynamic Performances of Power Hardware-in-the-Loop Interfaces *S. Lentijo, S. D'Arco, and A. Monti* 1195
- A High-Performance Electronic Hardware-in-the-Loop Drive–Load Simulation Using a Linear Inverter (LinInverter) *S. Grubic, B. Amlang, W. Schumacher, and A. Wenzel* 1208
- Real-Time Electrical Load Emulator Using Optimal Feedback Control Technique *Y. Srinivasa Rao and M. C. Chandorkar* 1217
- An HIL-Based Reconfigurable Platform for Design, Implementation, and Verification of Electrical System Digital Controllers *S. Karimi, P. Poure, and S. Saadate* 1226
- A Test of HIL COTS Technology for Fuel Cell Systems Emulation *F. R. Palomo Pinto and A. P. Vega-Leal* 1237
- Architecture of a Network-in-the-Loop Environment for Characterizing AC Power-System Behavior *A. J. Roscoe, A. Mackay, G. M. Burt, and J. R. McDonald* 1245
- A Megawatt-Scale Power Hardware-in-the-Loop Simulation Setup for Motor Drives *M. Steurer, C. S. Edrington, M. Sloderbeck, W. Ren, and J. Langston* 1254
-

PAPERS

Multiphase Systems

- Three-Dimensional Flux Vector Modulation of Four-Leg Sine-Wave Output Inverters *D. C. Patel, R. R. Sawant, and M. C. Chandorkar* 1261
-

请阅后放回:

Contents Continued on Page 1133

排架号 694 处



(Contents Continued from Front Cover)

Machines and Drives

Sensorless Sliding-Mode MTPA Control of an IPM Synchronous Motor Drive Using a Sliding-Mode Observer and HF Signal Injection	G. Foo and M. F. Rahman	1270
Multiphysics Modeling: Electro-Vibro-Acoustics and Heat Transfer of PWM-Fed Induction Machines	J. Le Besnerais, A. Fasquelle, M. Hecquet, J. Pellé, V. Lanfranchi, S. Harmand, P. Brochet, and A. Randria	1279
Characterization and Reduction of Audible Magnetic Noise Due to PWM Supply in Induction Machines	J. Le Besnerais, V. Lanfranchi, M. Hecquet, and P. Brochet	1288
Stator-Current-Based MRAS Estimator for a Wide Range Speed-Sensorless Induction-Motor Drive	T. Orłowska-Kowalska and M. Dybkowski	1296
Implementation of a Sliding-Mode Controller With an Integral Function and Fuzzy Gain Value for the Electrical Drive With an Elastic Joint	T. Orłowska-Kowalska, M. Kamiński, and K. Szabat	1309

Single-Phase Electronics

Discontinuous-Conduction Mode DC/DC Converters Feeding Constant-Power Loads	A. M. Rahimi and A. Emadi	1318
Optimal Buck Converter Output Filter Design for Point-of-Load Applications	A. De Nardo, N. Femia, G. Petrone, and G. Spagnuolo	1330
General n -Level Driving Approach for Improving Electrical-to-Optical Energy-Conversion Efficiency of Fast-Response Saturable Lighting Devices	S.-C. Tan	1342
Analysis of Balancing Driver for Multiple Cold Cathode Fluorescent Lamps	H.-C. Yen	1354

Renewable Energy Systems

Modulation Techniques to Eliminate Leakage Currents in Transformerless Three-Phase Photovoltaic Systems	M. C. Cavalcanti, K. C. de Oliveira, A. M. de Farias, F. A. S. Neves, G. M. S. Azevedo, and F. C. Camboim	1360
The Switch-Mode Flying-Capacitor DC-DC Converters With Improved Natural Balancing	R. Stala	1369

Robotics and Mechatronics

Force Control of Human-Robot Interaction Using Twin Direct-Drive Motor System Based on Modal Space Design	C. Mitsantisuk, S. Katsura, and K. Ohishi	1383
A Study on High-Speed and High-Precision Tracking Control of Large-Scale Stage Using Perfect Tracking Control Method Based on Multirate Feedforward Control	K. Saiki, A. Hara, K. Sakata, and H. Fujimoto	1393
Human-Observation-Based Extraction of Path Patterns for Mobile Robot Navigation	T. Sasaki, D. Brščić, and H. Hashimoto	1401
Extended-State-Observer-Based Control of Flexible-Joint System With Experimental Validation	S. E. Talole, J. P. Kolhe, and S. B. Phadke	1411
Adaptive Neural Network Control of a Self-Balancing Two-Wheeled Scooter	C.-C. Tsai, H.-C. Huang, and S.-C. Lin	1420

Control and Signal Processing

Estimating the Probability Density Function of a Nonstationary Non-Gaussian Noise	A. Mukherjee and A. Sengupta	1429
Quasi-Continuous Higher Order Sliding-Mode Controllers for Spacecraft-Attitude-Tracking Maneuvers	C. Pukdeboon, A. S. I. Zinober, and M.-W. L. Thein	1436
Some Novel Techniques for Insulation Parameters Measurement and Petersen-Coil Control in Distribution Systems	X. Zeng, Y. Xu, and Y. Wang	1445

Diagnosis and Monitoring

Mode Identification of Hybrid Systems in the Presence of Fault	S. A. Arogeti, D. Wang, and C. B. Low	1452
--	---------------------------------------	------

Instrumentation and Sensors

Reverse-Link Interrogation Range of a UHF MIMO-RFID System in Nakagami- m Fading Channels	D.-Y. Kim, H.-S. Jo, H. Yoon, C. Mun, B.-J. Jang, and J.-G. Yook	1468
---	--	------

Intelligent Systems

Method of Load/Fault Detection for Loosely Coupled Planar Wireless Power Transfer System With Power Delivery Tracking	Z. N. Low, J. J. Casanova, P. H. Maier, J. A. Taylor, R. A. Chinga, and J. Lin	1478
An Intelligent Longitudinal Controller for Application in Semiautonomous Vehicles	L. Cai, A. B. Rad, and W.-L. Chan	1487