

2017 IEEE Transportation Electrification Conference (ITEC-India 2017)

**Pune, India
13-15 December 2017**



**IEEE Catalog Number: CFP1781Y-POD
ISBN: 978-1-5386-3747-0**

**Copyright © 2017 by the Institute of Electrical and Electronics Engineers, Inc.
All Rights Reserved**

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

****** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP1781Y-POD
ISBN (Print-On-Demand):	978-1-5386-3747-0
ISBN (Online):	978-1-5386-3747-0

Additional Copies of This Publication Are Available From:

Curran Associates, Inc
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: (845) 758-0400
Fax: (845) 758-2633
E-mail: curran@proceedings.com
Web: www.proceedings.com

CURRAN ASSOCIATES INC.
proceedings
.com

TABLE OF CONTENTS

AN ENHANCED SPACE VECTOR PWM FOR NINE-LEVEL INVERTER EMPLOYING SINGLE VOLTAGE SOURCE.....	1
<i>B. Hemanth Kumar ; Makarand. M Lokhande</i>	
NUMERICAL ANALYSIS OF THERMAL AND MECHANICAL FIELD IN THE HIGH TEMPERATURE PERMANENT MAGNET SYNCHRONOUS MACHINE.....	7
<i>K. Komeza ; M. Lefik ; E. Napieralska Juszcak ; D. Roger ; N. Takorabet ; F. Meibody-Tabar</i>	
SMART TRANSFORMERS FOR INDUSTRIAL APPLICATIONS.....	13
<i>Gajanan C. Jaiswal ; Prasad A. Venikar ; Makarand Sudhakar Ballal ; Hiralal M. Suryawanshi ; D. R. Tutakne</i>	
UNIT COMMITMENT IN A SMART GRID WITH PLUG-IN HYBRID ELECTRIC VEHICLES — A COST-EMISSION OPTIMIZATION.....	17
<i>Arvind Kumar ; Vikas Bhalla ; Praveen Kumar</i>	
A NON UNIFORM AIR GAP HYBRID EXCITATION ALTERNATOR.....	23
<i>Uday Kumar Mudhigollam ; Umakanta Choudhury ; Kamalesh Hatua</i>	
IMPROVED ROTOR STRUCTURE OF HYBRID EXCITATION ALTERNATOR.....	29
<i>Uday Kumar Mudhigollam ; Umakanta Choudhury ; Kamalesh Hatua ; Uppuluri Sridhar</i>	
LEAD ACID BASED LOW VOLTAGE MILD HYBRID APPLICATION IN INDIA — MERITS AND CHALLENGES.....	33
<i>L. Manjitha ; R. Ganesh Kumar ; S. Kannan</i>	
ONLINE COMPENSATION FOR TORQUE RIPPLE REDUCTION IN SRM DRIVES.....	38
<i>Arun Chithrabhanu ; Krishna Vasudevan</i>	
PULSE TURN-OFF METHOD FOR STARTING OF PMSM DRIVE USING BACK-EMF POSITION ESTIMATION TECHNIQUE.....	44
<i>Sandeep V. Nair ; Kamalesh Hatua ; N. V. P. R. Durga Prasad ; D. Kishore Reddy</i>	
COMPARISON OF VARIABLE-FLUX PMSG FOR EXTENDED SPEED-RANGE BASED ON MAGNET ARC-LENGTH TO POLE-PITCH RATIO.....	50
<i>Shailendra Kumar Gupta ; R. K. Srivastava</i>	
ENGINE MOUNT DESIGN TECHNIQUE TO ADDRESS VEHICLE LEVEL BUZZ, SQUEAK & RATTLE.....	55
<i>Sandip Hazra ; Isha Pathak</i>	
DATA ANALYSIS TECHNIQUES FOR FAULT DETECTION IN HYBRID/ELECTRIC VEHICLES.....	60
<i>Vishal Vijayan Nair ; Boppudi Pranava Koustubh</i>	
SINGLE-PHASE MODIFIED CONTINUOUS INPUT CURRENT SWITCHED BOOST INVERTER FOR HIGH VOLTAGE GAIN.....	65
<i>Anish Ahmad ; R. K. Singh</i>	
AFFORDABLE HYBRID TOPOLOGY FOR PV AND LDV'S IN PROSPERING INDIA: CASE STUDY OF 48 V (P)HEV SYSTEM BENEFITS.....	71
<i>Ajith Kumaran ; Ashraf Emran ; Ragupathi Soundara Rajan ; Vijay Sharma ; Gaurav Sadekar ; Martin Laermann ; Matthias Köter ; Hans-Peter Lahey ; Thomas Körfer</i>	
DEVELOPMENT OF REGENERATION BRAKING MODEL FOR ELECTRIC VEHICLE RANGE IMPROVEMENT.....	77
<i>Balaji Balasubramanian ; A. C. Huzefa</i>	
LVRT CAPABILITY EVALUATION OF VARIABLE-FLUX PMSG BASED WECS.....	82
<i>Shailendra Kumar Gupta ; R. K. Srivastava</i>	
BATTERY AGING ESTIMATION WITH DEEP LEARNING.....	87
<i>Amirthalakshmi Veeraraghavan ; Viswa Adithya ; Ajinkya Bhawe ; Shankar Akella</i>	
DRIVING SCENARIO RECOGNITION FOR ADVANCED HYBRID ELECTRIC VEHICLE CONTROL.....	91
<i>Amirthalakshmi Veeraraghavan ; Ajinkya Bhawe ; Viswa Adithya ; Yasunori Yokojima ; Shingo Harada ; Satoshi Komori ; Yasuhide Yano</i>	
A STRATEGIC MULTI-STEP PMU ALLOCATION BASED ON DIRECT MONITORING FOR SMART GRID (SG) IMPLEMENTATION.....	96
<i>Tapas Kumar Maji ; P. Acharjee</i>	
IMPLEMENTATION OF ABS/ESC SYSTEMS FOR LIGHT WEIGHT ELECTRIC VEHICLE.....	102
<i>Koorma Rao Vavilapalli ; V. P. Abhijith ; A. L. Aravind Chandrashekar</i>	

DESIGN AND ANALYSIS OF AN AC-DC LLC RESONANT CONVERTER WITH NEW BUS VOLTAGE STABILIZATION TECHNIQUE	108
<i>Antony K. Peter ; P. M. Amalraj ; Bobby Philip ; Jaison Mathew</i>	
EFFECT OF DIFFERENT DRIVE MODES ON ENERGY CONSUMPTION OF AN ELECTRIC AUTO RICKSHAW	113
<i>Robindro Lairenlakpam ; Gananath Doulat Thakre ; Poonam Gupta ; Yograj Singh ; Praveen Kumar</i>	
FOLLOWING THE PATH TO ELECTRIFICATION WITH A HOLISTIC BATTERY DEVELOPMENT APPROACH.....	118
<i>Paul Schiffbaenker ; Raghunandan Shankavaram</i>	
THE PATH FROM COMBUSTION TO ELECTRIFICATION USING MODULAR POWERTRAIN CONCEPTS	124
<i>Raimund Ellinger ; Stephen Jones ; Helmut Kassler ; Raghunandan Shankavaram</i>	
SPEED ASSIST SYSTEM FOR ELECTRIC VEHICLES: MANUAL SPEED ASSIST SYSTEM AND FAIL-SAFE TORQUE STRATEGIES	130
<i>Venkatanarasimharao Medam ; Yaswanth Kumar Lanka ; T. Pranav</i>	
RUN-TIME SIMULATION MODEL FOR LI-ION BATTERY USING IN-CIRCUIT EXTRACTED MASS TRANSPORT PARAMETERS	136
<i>Baiju Payyappilly ; Vinod John</i>	
REAL-TIME POWER HARDWARE-IN-THE-LOOP EMULATION OF A PARALLEL HYBRID ELECTRIC VEHICLE DRIVE TRAIN.....	142
<i>R. Sudharshan Kaarthik ; P. Pillay</i>	
MULTI-OBJECTIVE RECONFIGURABLE THREE PHASE OFF-BOARD CHARGER FOR EV	148
<i>Anjeet Verma ; Bhim Singh</i>	
COMBINED POWER INSTALLATIONS FOR THE OF HEAVY-DUTY AND OFF-ROAD VEHICLES	154
<i>Rinat Kurmaev ; Kirill Karpukhin ; Sergey Korkin ; Alexey Terenchenko</i>	
RESISTANCE EMULATION BASED FAULT RIDE-THROUGH IN STANDALONE VOLTAGE SOURCE INVERTERS	158
<i>Rahul Mallik ; D. Venkatramanan ; Anil K. Adapa ; Vinod John</i>	
THIRTY-SIX PULSE AC-DC CONVERTER FED T-TYPE INVERTER BASED VECTOR CONTROLLED INDUCTION MOTOR DRIVE.....	164
<i>Piyush Kant ; Bhim Singh</i>	
ADAPTING SUV AWD POWERTRAIN TO P0/P2/P4 HYBRID EV ARCHITECTURE: INTEGRATIVE PACKAGING AND CAPABILITY STUDY.....	170
<i>Prateek Biswas</i>	
SEMI-ANALYTICAL MODEL FOR TRIANGULAR SKEWED PERMANENT MAGNET AXIAL FLUX MACHINE.....	175
<i>M. M. Reza ; Anish Ahmad ; Praveen Kumar ; R. K. Srivastava</i>	
QUASI MUTUALLY COUPLED ACTIVE IMPEDANCE SOURCE CONVERTER — AUTOTRANSFORMER TYPE TURNS RATIO.....	180
<i>Avneet K. Chauhan ; M. Raghuram ; Deepankar ; Santosh K. Singh</i>	
ANALYSIS AND SIMULATION OF PWM BASED POWER AMPLIFIER FOR SINGLE AXIS ACTIVE MAGNETIC BEARING (AMB).....	185
<i>Sukanta Debnath ; Pabitra Kumar Biswas ; Jonathan Laldingliana</i>	
SIZING OF HYBRID ENERGY STORAGE SYSTEM AND PROPULSION UNIT FOR ELECTRIC VEHICLE.....	190
<i>R. Bindu ; Sushil Thale</i>	
AN INTELLIGENCE-BASED STATE OF CHARGE PREDICTION FOR VRLA BATTERIES	196
<i>Deshanna Scott ; Jide Lu ; Haneen Aburub ; Aditya Sundararajan ; Arif I. Sarwat</i>	
SENSORLESS ELECTRIC VEHICLE DETECTION IN INDUCTIVE CHARGING STATIONS USING SELF-TUNING CONTROLLERS	200
<i>Masood Moghaddami ; Aditya Sundararajan ; Arif I. Sarwat</i>	
DYNAMIC MODELING AND SIMULATION OF A THREE-WHEELED HUB MOTOR VEHICLE.....	204
<i>G. S. G. Ravikanth ; C. Sujatha</i>	
ANALYSIS OF TWO-INPUT SWITCHED INDUCTOR-CAPACITOR HYBRID BUCK-SEPIC DC-DC CONVERTER.....	209
<i>Vargil Kumar Eate ; Mummadi Veerachary</i>	
AN ALTERED PWM STRATEGY FOR OVERMODULATION OPERATION OF THREE-LEVEL NPC INVERTER WITH CAPACITOR VOLTAGE BALANCING	215
<i>Santu Kr. Giri ; Sarbani Mukherjee ; Sourabh Kundu ; Subrata Banerjee</i>	

A MODIFIED PWM SCHEME FOR THREE-LEVEL INVERTERS WITH NEUTRAL POINT VOLTAGE BALANCING FOR EV APPLICATIONS	220
<i>Sarbani Mukherjee ; Santu Kr. Giri ; Sourabh Kundu ; Subrata Banerjee</i>	
THERMAL MODELLING OF DUAL-STATOR FIVE-PHASE PERMANENT MAGNET SYNCHRONOUS GENERATOR.....	226
<i>Raja Ram Kumar ; Santosh K. Singh ; R. K. Srivastava</i>	
OPTIMAL INTEGRATION OF ELECTRIC VEHICLES AND ENERGY MANAGEMENT OF GRID CONNECTED MICROGRID	232
<i>Sonam Parashar ; Anil Swarnkar ; K. R. Niazi ; Nikhil Gupta</i>	
HUBLOAD — CAUSES, EFFECTS AND MITIGATION MEASURES ON A P0 ELECTRICAL MACHINE IN A TYPICAL MILD HYBRID ELECTRIC VEHICLE POWERTRAIN	237
<i>Loganathan Sethuraman ; Muhammad Haris</i>	
ROUTE TO ELECTRIFICATION FOR TRUCKS & BUSES IN INDIA	242
<i>Martin Ackerl ; Michael Kordon ; Heimo Schreier ; Heinz Petutschnig ; Matthias Huetter</i>	
BREAK-EVEN ANALYSIS AND ECONOMIC VIABILITY OF POWERTRAIN ELECTRIFICATION — AN ANALYTICAL APPROACH.....	248
<i>K. Murali Krishna ; Nabal K. Pandey ; Satish Thimmalapura</i>	
A NOVEL CONFIGURATION OF REGENERATIVE BRAKING SYSTEM TO IMPROVE THE ENERGY EFFICIENCY OF AN ELECTRIC VEHICLE WITH DUAL-STATOR DUAL-ROTOR BLDC MOTOR.....	254
<i>B. V. Ravi Kumar ; K. Sivakumar ; S. Karunanidhi</i>	
CURRENT-FED ISOLATED LCC-T RESONANT CONVERTER WITH ZCS AND IMPROVED TRANSFORMER UTILIZATION	258
<i>Venkata R. Vakacharla ; Venu Sangwan ; Akshay Kumar Rathore ; Rajesh Kumar</i>	
ELECTRIC MACHINE STATOR THERMAL SENSITIVITY ANALYSIS USING CFD	264
<i>Abhay Gudi ; Amar Singh ; Bhupesh Agarwal</i>	
A FAULT TOLERANT CASCADED MULTILEVEL INVERTER TOPOLOGY FOR OPEN CIRCUIT FAULTS IN SWITCHES.....	270
<i>Santosh Kumar Maddugari ; Vijay B. Borghate ; Sidharth Sabyasachi ; Raghavendra R. Karasani</i>	
OPTIMAL SIZING OF ENERGY STORAGE SYSTEM AND THEIR IMPACTS IN HYBRID MICROGRID ENVIRONMENT	275
<i>Chethan Parthasarathy ; Souvik Dasgupta ; Amit Gupta</i>	
A MODIFIED REVERSE VOLTAGE INVERTER TOPOLOGY WITH INVERTED SINE WAVE CARRIER PWM TECHNIQUE	281
<i>Sidharth Sabyasachi ; Vijay B. Borghate ; Santosh Kumar Maddugari ; Raghavendra R. Karasani</i>	
MODELING AND ANALYSIS OF PASSIVE NETWORKS USING DYNAMIC PHASORS FOR STUDY OF ISLANDED INVERTERS.....	287
<i>D. Venkatramanan ; Vinod John</i>	
OPTIMIZATION WITH LOAD PREDICTION IN ASYNCHRONOUS GENERATOR DRIVEN TUGBOAT PROPULSION SYSTEM.....	293
<i>A. K. Birudula ; A. K. Kesavarapu ; T. R. Chelliah ; D. Khare ; U. S. Ramesh</i>	
VEHICLE ELECTRIFICATION ARCHITECTURE TRADE STUDIES, ANALYSIS AND SYNTHESIS.....	299
<i>Anupam Mukhopadhyay</i>	
A CARRIER-BASED FLEXIBLE DISCONTINUOUS MODULATION SCHEME FOR THREE-LEVEL NEUTRAL-POINT-CLAMPED TRACTION INVERTER.....	302
<i>Sarbani Mukherjee ; Santu Kr. Giri ; Sourabh Kundu ; Subrata Banerjee</i>	
COMPOUND WIRELESS POWER TRANSFER TOPOLOGY FOR TWO STAGE CHARGING OF BATTERIES	308
<i>Vaka Ravikiran ; Ritesh Kumar Keshri ; Manish S. Trivedi</i>	
RELIABLE DETECTION OF OPEN-CIRCUIT FAULTS IN CASCADED H-BRIDGE MULTILEVEL INVERTER VIA CURRENT RESIDUAL ANALYSIS	313
<i>Kalpani Thantrige ; Suwajit Mukherjee ; Michael A. Zagrodnik ; Chandana Gajanayake ; Amit Kumar Gupta ; Sanjib Kumar Panda</i>	
COMPLIANCE OF ISO 26262 SAFETY STANDARD FOR LITHIUM ION BATTERY AND ITS BATTERY MANAGEMENT SYSTEM IN HYBRID ELECTRIC VEHICLE.....	319
<i>Sagar Sahebrao Tikar</i>	
COMPACT AND MODULAR SOLID STATE CONTROLLED FLYWHEEL BASED CAPACITOR CHARGING POWER SUPPLY	324
<i>S. R. Gurumurthy ; Vivek Agarwal ; Vijaya Srinath</i>	
ATTRIBUTION OF ENGINE THERMAL ENERGY FOR BATTERY MANAGEMENT	330
<i>Aditya Pratap Singh ; Prashant Sharma ; Divanshu Wadhvani ; Vivek Rai ; Vijay Sharma</i>	

A CAPACITIVELY LEVEL SHIFTED FAST CELL-TO-CELL BATTERY VOLTAGE EQUALIZER	334
<i>Shimul Kumar Dam ; Vinod John</i>	
THERMAL STUDIES ON BATTERY PACKS WITH DIFFERENT GEOMETRIC CONFIGURATION OF 18650 CELLS	340
<i>Ghazanfar Khan ; M. Rajalingam ; N. Chandrasekaran ; Manuel Tholath ; Vinten Diwakar</i>	
VIRTUAL CHARACTERIZATION OF INTERIOR PERMANENT MAGNET (IPM) MOTOR FOR EV TRACTION APPLICATIONS	346
<i>Rajesh Gudivada ; Kishor Kumar Bodnapu ; Koorma Rao Vavillapalli</i>	
MODELING AND CONTROL OF FOUR QUADRANT CHOPPER FED DC SERIES MOTOR USING TWO-DEGREE OF FREEDOM DIGITAL FRACTIONAL ORDER PID CONTROLLER	350
<i>Swapnil Khubalkar ; Anjali Junghare ; Mohan Aware ; Shantanu Das</i>	
HYBRID CHARGING OF LITHIUM ION BATTERY	355
<i>M. Dharanivasan ; A. Kalaivani</i>	
HYBRIDIZATION — BRIDGE FOR ELECTRIFICATION	359
<i>Pritesh Doshi ; Dheeraj Kapur ; Ramkumar Iyer</i>	
COLLISION WARNING WITH AUTO BRAKE & COMPLETE HIGH VOLTAGE DISCONNECT DURING CRASH— A REAL-LIFE SAFETY PERSPECTIVE	364
<i>L. Sathish Kumar ; R. Naveen Kumar ; A. C. Huzefa</i>	
CHALLENGES OF ELECTRIC VEHICLES FROM LAB TO ROAD	368
<i>Yajna Somayaji ; Naveen Kumar Mutthu ; Hemachander Rajan ; Sasidhar Ampolu ; N. Manickam</i>	
DEPLOYING COMMON SOFTWARE SYSTEM FOR HYBRID ELECTRIC VEHICLES IN AUTOSAR WAY	373
<i>A. Sreekanth ; K. Srikanth ; C. Aditya ; T. Satish ; R. Ramchandran</i>	
ELECTRIC VEHICLE BATTERY CURRENT PREDICTION BASED ON DRIVING PARAMETERS	379
<i>M. Rajalingam ; M. Karthikeyan ; Vinten Diwakar</i>	
OPTIMIZATION OF SINGLE SPEED EV DRIVETRAIN FOR COMMERCIAL ELECTRIC VEHICLES	382
<i>P. V. V. Sathyaranayana ; G. Sathish Kumar</i>	
INDIA'S CHARGING INFRASTRUCTURE — BIGGEST SINGLE POINT IMPEDIMENT IN EV ADAPTATION IN INDIA	385
<i>Sreejakumar Nair ; Narendar Rao ; Shantanu Mishra ; Anand Patil</i>	
INTEGRATED STARTER ALTERNATOR SIZING FOR MICRO / MILD HYBRID VEHICLE USING MONTE CARLO SIMULATION	391
<i>Saikat Subhra Ghosh ; Timothy J. Flack ; Teng Long</i>	
ENERGY MANAGEMENT STRATEGIES FOR HYBRID ELECTRIC VEHICLE USING PV, ULTRACAPACITOR AND BATTERY	397
<i>Gargi Pancholi ; D. K. Yadav ; Lokesh Chaturvedi</i>	
THE LATTICE: AN INTELLIGENT GRID FOR CONNECTED CAR INDUSTRY	402
<i>Kumar Ranjan</i>	
SAFETY CONSIDERATIONS FOR EV CHARGING IN INDIA: OVERVIEW OF GLOBAL AND INDIAN REGULATORY LANDSCAPE WITH RESPECT TO ELECTRICAL SAFETY	407
<i>Ameya Gambhir</i>	
ESTIMATION OF MODEL PARAMETERS AND STATE-OF-CHARGE FOR BATTERY MANAGEMENT SYSTEM OF LI-ION BATTERY IN EVS	412
<i>Venu Sangwan ; Rajesh Kumar ; Akshay K. Rathore</i>	
A NOVEL APPROACH FOR OPTIMAL SPEED CONTROL OF THE VEHICLE USING DRIVE ENVELOPE BASED ANALYSIS	418
<i>Ayush Mohanty ; Jignesh Sindha ; Anstiuman Panda ; Debashish Chakravarty</i>	
APPLICATION AND PERFORMANCE OF FPGA USING PARTIAL RECONFIGURATION WITH XILINX PLANAHEAD	423
<i>Ipseeta Nanda ; Nibedita Adhikari</i>	
HIL SIMULATION AND CONTROLLER PROTOTYPING OF EV/HEV SYSTEMS USING MULTI-CORE XEV REAL TIME SIMULATOR	427
<i>S. Amal ; V. Vishnu ; Renji V. Chacko ; Swapnil Ghugal ; Parag Mengaji ; Ujjwala Karle</i>	
REACTIVE POWER ESTIMATION BASED ADAPTIVE VOLTAGE CONTROL FOR IMPROVED GRID VOLTAGE RESTORATION USING DOUBLY FED INDUCTION GENERATORS	432
<i>Sudipta Ghosh ; Rojan Bhattarai ; Sukumar Kamalasadana</i>	

PERFORMANCE AND DYNAMIC CHARGE ACCEPTANCE ESTIMATION OF DIFFERENT LITHIUM-ION BATTERIES FOR ELECTRIC AND HYBRID ELECTRIC VEHICLES	437
<i>Mahesh Padmanabh ; Manoj Madhukar Desai</i>	
SMART MOBILITY: ALGORITHM FOR ROAD AND DRIVER TYPE DETERMINATION	442
<i>Pritesh Doshi ; Dheeraj Kapur ; Ramkumar Iyer ; Arkajyoti Chatterjee</i>	
MATERIAL CHARACTERIZATION OF LITHIUM-ION BATTERY CELLS BY SCANNING ELECTRON MICROSCOPY & X-RAY DIFFRACTION TECHNIQUES	446
<i>P. K. Ajeet Babu ; Asmita S. Waghmare ; Suhail M. Mulla ; U. S. Karle ; M. R. Saraf</i>	
RECEIVER SIDE CONTROL FOR EFFICIENT INDUCTIVE POWER TRANSFER FOR VEHICLE RECHARGING	451
<i>Mohammadhossein Afshin ; Akshay Kumar Rathore</i>	
THE IMPACT OF LOAD SHARING ON MULTI-DRIVE PROPULSION DRIVE SYSTEM EFFICIENCY	457
<i>Arshiah Yusuf Mirza ; Weiqiang Chen ; Ali Bazzi</i>	
AN ELECTRIC CIRCUIT BASED EV BATTERY MODEL FOR RUNTIME PREDICTION AND STATE OF CHARGE TRACKING	462
<i>Kaveh Sarrafan ; Danny Sutanto ; Kashem M. Muttaqi</i>	
DEVELOPMENT, ANALYSIS AND TESTING OF AN ELECTRIC ALL-TERRAIN VEHICLE	468
<i>K. C. Vora ; Mohammad Rafiq B. Agrewale ; M. M. Desai ; Himanshu Mishra ; Omkar Narkar</i>	
POWER & PERFORMANCE ANALYSIS ON ELECTRIFIED VEHICLES	474
<i>Franz Murr ; Wolfram Giczi</i>	
E-DRIVE TESTING	481
<i>Mario Propst</i>	
Author Index	