

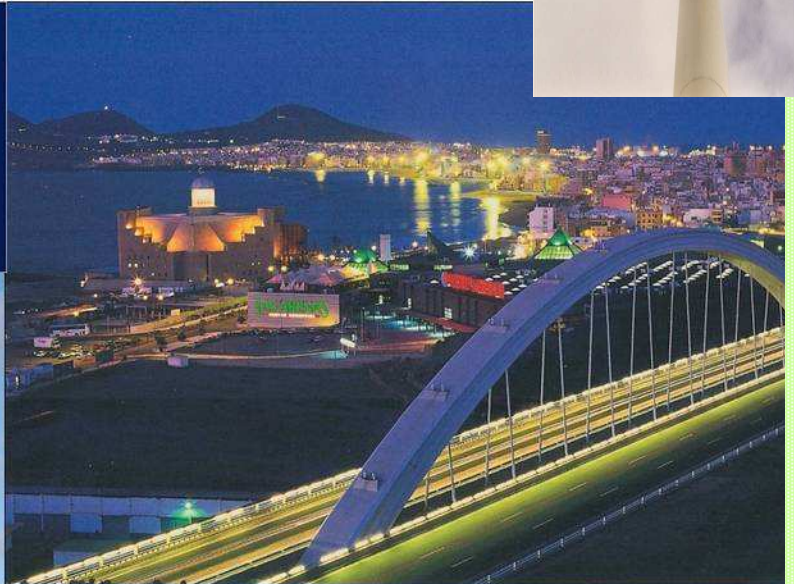
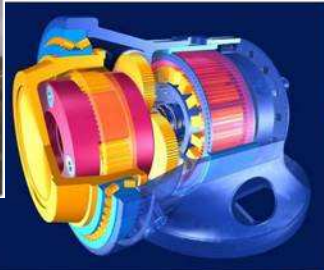
European Association
for the Development of
Renewable Energy,
Environment and
Power Quality

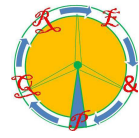
RE&PQJ-9

RENEWABLE ENERGY & POWER QUALITY JOURNAL

RE&PQJ-9, ISSN 2172-038X

No.9, 12th May 2011



**RE&PQJ-9 EDITORIAL COMMITTEE**

Manuel Pérez Donsión (Main Editor)
 Ramón Bargalló Perpiña
 Manuel Burgos Payán
 Debora Coll Mayor
 Mario Mañana Canteli
 Mariano Sanz Badía

RE&PQJ-9 SCIENTIFIC COMMITTEE

Alexandru, Catalin (Romania)	Kádár Péter (Hungary)
Andrada Gascón, P. (Spain)	Kladas, A. (Greece)
Andras, Dan (Hungary)	Lemos Antunes, C. (Portugal)
Arcega Solsona, F. (Spain)	Levi, Emil (U.K.)
Arnaltes Gómez, S. (Spain)	Llombart Estopiñán, A. (Spain)
Bargallo Perpiña, R. (Spain)	Machado e Moura, A. (Portugal)
Basma EL ZEIN (Saudi Arabia)	Mañana-Canteli, M. (Spain)
Bendl, Jiri (Czech Republic)	Martinez, André (France)
Bitzer, Berthold (Germany)	Narsimhulu, Sanke (India)
Boccaletti, Chiara (Italy)	Niememan, Asco (Finland)
Burgos Payan, M. (Spain)	Petkovska, L. (Macedonia)
Brslica, Vit (Czech Republic)	Predescu, Mihai (Romania)
Capolino, G.A. (France)	Redondo Gil, C. (Spain)
Catalão, João (Portugal)	Ribeiro, Hugo (Portugal)
Cortez, Liliana (México)	Robyns Benoit (France)
Driesen, Johan (Belgium)	Roger Folch, J. (Spain)
Donsión, M.P. (Spain)	Rusek, Jan (Poland)
Duran, M. (Spain)	Saadate, S. (France)
Engin Ozdemir (Turkey)	Salmerón-Revuelta, P. (Spain)
Ertan, H.B. (Turkey)	Sanz Badía, M. (Spain)
Fernández Cabanas, M. (Spain)	Shibli, Murad (Arab Emirats)
Figueiredo, J.M.G. (Portugal)	Schlemmer, Erwin (Austria)
Flores, Antonio (Portugal)	Stenzel, Jürgen (Germany)
Fraile Mora, Jesús (Spain)	Stumberger, Gorazd (Slovenia)
Funabashi, Toshihisa (Japan)	Tegopoulos, J.A. (Greece)
Gharehpetian, G.B. (Iran)	Tekwani, P. (India)
Ghita, Constantin (Romania)	Torrente Lujan, E. (Spain)
Göl, Ozdemir (Australia)	Tudorache, Tiberiu (Romania)
Güemes Alonso, J.A. (Spain)	Valouch, V. (Czech Republic)
Iwaszkiewicz, J. (Poland)	Vitale, Gianpaolo (Italy)
Jokinen, T. (Finland)	Zamora Belver, I (Spain)
Jigeng Li (China)	Zobaa Ahmed (UK)
Jyotirmoy Roy (UK)	

INVITED PAPERS. Renewable Energy & Power Quality Journal, No.9, 12th May 2011

PL3. Renewable Energy, Global Warming Problem and Impact of Power Electronics

Ahmed. F. Zobaa(1), Bimal. K. Bose(2)

1. School of Engineering and Design. Brunel University. UK

2. Department of Electrical Engineering and Computer Science. The University of Tennessee. (USA)

PL4. SmallWind Energy Systems. State of the Art and New Challenges

M. Mañana

Department of Electrical and Energy Engineering. E.T.S.I.I.T. University of Cantabria. Cantabria, Spain

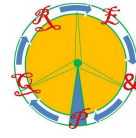
PL6. The Strategic Energy Technology Plan: Financial Instruments

Andrés Llombart-Estopiñán(1), Ignacio Martín Jimenez(2), Elena Calvo Gallardo(3)

1. Deputy Director. CIRCE – (Research Centre for Energy Resources and Consumption); University of Zaragoza

2. Brussels Energy Area manager. CDTI - Centre for the Development of Industrial Technology

3. EU R&D Manager. CIRCE – Research Centre for Energy Resources and Consumption



The following papers have been included in the
Renewable Energy & Power Quality Journal

No.9, 12th May 2011

ISSN 2172-038X

Titles/Authors/Institution/Country

209 Modeling and simulation of power yield in chemical and electrochemical systems

S. Sieniutycz, P. Kuran

Faculty of Chemical and Process Engineering, Warsaw University of Technology. Poland

215 Investigation and evaluation of multilevel H-NPC converter for electrically driven trains

G. Adamidis, N. Alagialoglou, G. Tsengenēs

Department of Electrical Engineering and Computer Engineering. Democritus University of Thrace. Greece

217 Development of a small-scale reactor system for bioethanol production from agriculture waste geared towards small industries applications in Malaysia

M.O. Abdullah(1), S.F.Lim(1), S.F.Salleh(1), T.M. Tai(1), S.L. Leo(1), A.K. Umar(2)

1. Faculty of Engineering. University Malaysia Sarawak. Malaysia

2. Sofia Enterprise Asajava, Sadong Jaya. Malaysia

218 Digital fault locator for double end fed transmission lines

Roberto Micheletti

Department of Electrical Systems and Automation, University of Pisa. Italy

220 Improving profitability of the network distribution by protecting power transformers with a current limiting technology device

T. Madiba, M. Siti, A.A. Jimoh

Department of Electrical Engineering, Tshwane University of Technology, Campus of Pretoria. South Africa

226 Assessment of harmonic distortion sources in power networks with capacitor banks

Reyes S. Herrera, Patricio Salmerón, Salvador P. Litrán

Department of Electrical Engineering, E.T.S.I.Huelva University. Spain

227 Study on split-capacitors applied in positive output super-lift Luo-converters

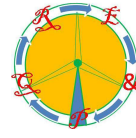
Fang Lin Luo

Nanyang Technological University. Singapore

230 A practical comparative evaluation of different active harmonic filter topologies

Patricio Salmerón, Salvador P. Litrán, Reyes S. Herrera, J. R. Vázquez

Departamento de Ingeniería Eléctrica y Térmica. Escuela Politécnica Superior, University of Huelva. Spain

**231 Hybrid active power filter: design criteria**

Salvador P. Litrán, Patricio Salmerón, Reyes S. Herrera

Departamento de Ingeniería Eléctrica y Térmica. Escuela Politécnica Superior, Universidad de Huelva. Spain

233 Biodiesel production performance estimation from simple viscosity measurements

L. Díaz, M.E. Borges, A. Brito

Chemical Engineering Department, University of La Laguna. Tenerife. Canary Island. Spain

236 Production and characterization of biogas obtained from biomass of aquatic plants

Roberto G. Pereira(1), María Cristina D.E. Pereira(2), José G. da Silva(3), Fernando Luiz B. de Abreu(3), Valdir de Jesus Lameira(4)

1. Federal Fluminense University, TEM/PGMEC/MSG. Brazil

2. UBEE. Rio de Janeiro. Brazil

3. Federal Fluminense University, PGMEC. Brazil. 4. INESC Coimbra. Portugal

238 Investigation and comparison between international standars for information integration and control of ECSs based on RESs over IP-based networks

S. Jaloudi(1), A. Schmelter(1), E. Ortjohann(1), W. Sinsukthavorn(1), N. Alamin(1), P. Wirasanti(1), D. Morton(2)

1. Department of Electrical Engineering, South Westphalia University of Applied Sciences. Germany

2. The University of Bolton. United Kingdom

239 Analysis of interconnected power systems by hybrid calculation

E. Ortjohann(1), P. Wirasanti(1), W. Sinsukthavorn(1), S. Jaloudi(1), N. Alamin(1), D. Morton(2)

1. Department of Electrical Engineering, South Westphalia University of Applied Sciences. Germany

2. The University of Bolton. United Kingdom

240 A modified cooling system for stand alone PV greenhouse in remote areas

N.M. Ahmed, H.M. Farghally, F.H. Fahmy, A.A. Nafeh

Electronics Research Institute, Giza. Egypt

241 A viable megawatt-class space power installation under the Rankine cycle

Ramón Ferreiro García

Department of Industrial Engineering. E.T.S.N.M. University of A Coruña. Spain

243 Identification of the refrigerant pressure in split-type air conditioners based on harmonic analysis of electricity supply current

Zeljko Djuric, Milenko Djuric

University of Belgrade, Faculty of Electrical Engineering. Serbia

245 Effects of non-zero phase harmonics on inductions machines and coupled mechanical loads

Filipe Oliveira (1), Gerardo Pel áez (2), Manuel P. Donsión (3), J. Iwaszkiewicz (4), J. Perz (4)

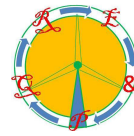
(1) Department of Electrical Engineering. School of Technology and Management. Polytechnic Institute of Leiria. Portugal

Institute for Systems and Computer Engineering at Coimbra. Portugal

(2) Department of Mechanical Engineering. University of Vigo. Spain

(3) Department of Electrical Engineering. University of Vigo. Spain

(4) The Electrotechnical Institute. Gdansk Branch. Poland

**254 Reliability and predictions of power supplied by wind power plants**

Z. Hradílek, T. Šumbera

Department of Electrical Engineering, VŠB- Technical University of Ostrava. Czech Republic

257 Hybrid single-stage triple pressure level absorption/compression cycle operated by low grade heat sources

M. Jelinek, A. Levy, I. Borde

Mechanical Engineering Department, Ben-Gurion University of the Negev. Israel

262 Power quality measurements near DER and disturbing loads

M. Van Lumig(2), S. Bhattacharyya(1) J.F.G. Cobben(1), W.L. Kling(1)

1. Electrical Power Systems Group, Technical University Eindhoven. The Netherlands

2. Electrical Power Systems, Analysis and Concepts Laborelec NL. The Netherlands

264 Continuously variable transmission using quadric crank chains and ratchets

Toshihiro Yukawa

Department of Mechanical Engineering, Iwate University. Japan

266 Analysis of behaviour of phase s capacitive tap insulator of interconnection 1, 220 kv, in Jinamar power plant (Island of Gran Canaria, Canary Islands, Spain)

José Manuel García Muñoz(1), José Antonio Torres Santana(2), Miguel Martínez Melgarejo(2)

1. Endesa Distribución Eléctrica, S.A. Canary Islands.Spain

2. University of Las Palmas de Gran Canaria (ULPGC). Spain

267 Comparison of different wind farm layouts for a 25 MW project in the south west of Algeria

M. Kesraoui, A. Harfouche, D. Acheli

Laboratoire de Recherche Automatique Appliquée. Faculté des Hydrocarbures et de la Chimie, Université M'Hamed Bougara, Boumerdes. Algeria

270 Energy efficiency and renewable energy solution in telecommunication

Borislav Odadzic, Boban Panajotovic, Milan Jankovic

Republic Agency for Electronic Communication, Belgrade. Republic of Serbia

274 Increasing transmission efficiency with advanced processing

I. Glesk, M. Nazri M. Warip, I. Andonovic

Department of Electronic and Electrical Engineering, University of Strathclyde. United Kingdom

276 A three phase photovoltaic power system connected to the MV network: behaviour during voltage dips

R. Chiumeo, C. Gandolfi

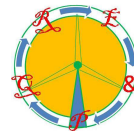
RSE- Ricerca Sul Sistema Energetico, Milano. Italy

277 Voltage magnitude state estimation by ANNs with reduction of PMUs

M. Gholami(1), G.B. Gharehpetian(1), B. Fahimi(2), M.J. Sanjari(1)

1. Electrical Engineering Department, Amirkabir University of Technology, Tehran. Iran

2. Electrical Engineering Department, University of Texas at Dallas

**278 Power control strategy for unity power factor**

Karel Jezernik

Faculty of Electrical Engineering and Computer Science, University of Maribor. Slovenia

280 Analysis of the performance of the photovoltaic array through the exergy efficiency

M. Calderón(1), A.J. Calderón(1), A. Ramiro(2), J.F. González(2), I. González(1)

1. Department of Electrical Engineering. E.I.I. Extremadura University. Spain

2. Department of Applied Physics. E.I.I. Extremadura University. Spain

281 Selective harmonics elimination PWM with self-balancing DC-link capacitors in five-level inverter

K. Imarazene(1), H. Chekireb(2), E.M. Berkouk(2)

1. Laboratoire des Systèmes Electriques et Industriels. U.S.T.H.B University. Algeria

2. Laboratoire de Commande des Processus. Department de Génie Electrique. ENP School. Algeria

282 Comparative study of NPC and cascaded converters topologies

Mamadou Baldé(1), Mamadou Lamine Doumbia(1), Ahmed Chériti(1), Chellali Benachaiba(2)

1. Department of Electrical and Computer Engineering, Université du Québec à Trois-Rivières.

Canada

2. Department of Technologies, University Center of Bechar. Algeria

285 Agricultural by-products and waste biomass energy potential in Latvia 2005-2009

Janis Kalnacs(1), Ruta Bendere(1), Dace Arina(1), Vilis Dubrovskis(2)

1. State Research Institute, Institute of Physical Energetics, Riga. Latvia

2. Latvia University of Agriculture, Jelgava. Latvia

286 A comparison of desing methodologies for journal bearings under pulsatile loads

C. Herapath, S.M. Barrans, W. Weston

Department of Engineering and Technology, School of Computing and Engineering University of Huddersfield. United Kingdom

288 Performance and efficiency of a biogas CHP system utilizing a stirling engine

Ahmad Pourmovahed, Terance Opperman, Brenda Lemke

Mechanical Engineering Department, Kettering University, Flint, Michigan. U.S.A

289 Performance and efficiency of a bi-fuel bio methane/gasoline vehicle

Brenda Lemke, Nolan McCann, Ahmad Pourmovahed

Mechanical Engineering Department, Kettering University, Flint, Michigan. U.S.A

290 Feasibility of wind power generation for the reduction of power costs in residential buildings

Rômulo Monteiro Callado(1,2), João Reinaldo Imbiriba de Rocha Junior(1), Antonio Felisberto P. Amorim(1)

1. Department of Electronic Engineering, Edson Queiroz Foundation. Fortaleza University. Brazil

2. Normatel Engenharia Ltda, Fortaleza. Brazil

293 Analysis, voltage control and experiments on a self excited induction generator

Birendra Kumar Debta, Kanungo Barada Mohanty

Department of Electrical Engineering, National Institute of Technology, Rourkela. India

297 Utilization of synthetically generated hourly wind speed data in the optimization of wind-batteries stand-alone systems

Rodolfo Dufo López, José L. Bernal Agustín, Juan Lujano, José Antonio Domínguez Navarr
 Department of Electrical Engineering, Zaragoza University. Spain

298 Fault simulation environment for power distribution networks with protection operation

J. Faig, J. Meléndez, S. Herraiz
 Institut d'Informàtica i Aplicacions (IliA) University of Girona. Spain

299 Dynamic interaction of renewable hybrid power plant with grid

Ranjay Das(1), Prabodh Bajpai(1), A.K. Sinha(2)
 1. Department of Electrical and Electronics Engineering, Don Bosco College of Engineering and Technology, Assam. India
 2. Department of Electrical Engineering, Indian Institute of Technology Kharagpur West Bengal. India

301 The influence of wind power on the small signal stability of a power system

T.R. Ayodele, A.A. Jimoh, J.L. Munda, J.T. Agee
 Department of Electrical Engineering, Tshwane University of Technology, Pretoria. South Africa

302 Self-start performance evaluation in Darrieus-type vertical axis wind turbines: Methodology and computational tool applied to symmetrical airfoils

N.C. Batista(1), R. Melício(1,2), J.C.O. Matias(1), J.P.S. Catalão(1,2)
 1. University of Beira Interior, Covilhã. Portugal
 2. Center for Innovation in Electrical and Energy Engineering, Instituto Superior Técnico Lisboa. Portugal

305 Quantitative assessment of distributed generation benefits to improve power system indices

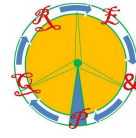
Mehdi S. Naderi(1), Mohammad S. Naderi(2) K. Rahmani(3), G.B. Gharehpetian(1,3), L.Zahedi(3)
 1. Iran Grid Secure Operation Research Centre (IGSORC)
 3. Department of Electrical Engineering Department, Amirkabir University of Technology. (AUT), Tehran. Iran
 2. School of Electrical Engineering and Telecommunications, University of New SouthWales (UNSW), Sydney. Australia

306 Interphase power controller application to mitigate transmission network short circuit level

L. Zahedi(1), Mehdi S. Naderi(2), Mohammad S. Naderi(3), G.B. Gharehpetian(1,2) E. Babaei(4),
 1. Electrical Engineering Department, Amirkabir University of Technology (AUT), Tehran. Iran
 2. Iran Grid Secure Operation Research Centre (IGSORC) Amirkabir University of Technology (AUT), Tehran. Iran
 3. School of Electrical Engineering and Telecommunications, University of New South Wales (UNSW), Sydney. Australia
 4. Faculty of Electrical and Computer Engineering, University of Tabriz. Iran

307 New hybrid power filter for power quality improvement in industrial network

Ivo Pecha(1), Josef Tlustý(2) Z. Müller(2), Viktor Valouch(3)
 1. Elektro, Ltd. Bouzov. Czech Republic
 2. Department of Electric Power Engineering, Faculty of Electrical Engineering, CTU, Prague. Czech Republic
 3. Institute of Thermomechanics, Academy of Sciences of the Czech Republic



310 Design and implementation of renewable hydrogen fuel cell vehicles

Kary Thanapalan(1), Jonathan Williams(2), Giuliano Premier(1), Alan Guwy(1)

1.Sustainable Environment Research Centre (SERC), Renewable Hydrogen Research & Demonstration Centre, University of Glamorgan. United Kingdom

2.Advanced Energy Systems Centre, Faculty of Advanced Technology, University of Glamorgan.United Kingdom

312 Experimental results analysis of the energy conversion efficiency of thermoelectric generators

Patrizia Richner, Pedro Dinis Gaspar, Luís Carrilho Gonçalves, David Almeida

Electromechanical Engineering Department, Engineering Faculty, University of Beira Interior, Covilhã. Portugal

314 Investigating the power quality of an electrical distribution system stressed by non-linear domestic appliances

Haroon Farooq(1), Chengke Zhou(1), Malcolm Allan(1), Mohamed Emad Farrag(1), R.A. Khan(2), M. Junaid(2)

1. School of Engineering & Computing, Glasgow Caledonian University. United Kingdom

2. Rachna College of Engineering & Technology, Gujranwala. Pakistan

315 Simulation and modeling of systems in engineering education for the sustainability. The renewable energy case

Edmundo Guerra, Yolanda Bolea, Antonio Grau

Automatic Control Department, Technical University of Catalonia, UPC, Barcelona. Spain

318 Global prospective electricity systems generation to the year 2025

J. Molina, J. Pérez, E. Muela

Department of Electrical Engineering, University of La Salle, Bogotá. Colombia

319 Study and analysis of voltage dips in a adjustable speed drives

C. Olarte, J. González, J. Pérez

Department of Electrical Engineering, University of La Salle, Bogotá. Colombia

320 Two distinct regions in a pulsed-axisymmetric jet

Hariyo P.S. Pratomo(1), Klaus Bremhorst(2)

1. Department of Mechanical Engineering, Petra Christian University. Indonesia

2. Department of Mechanical Engineering, University of Queensland. Australia

321 Design and experimental study of a novel two-stage brushless hybrid excitation synchronous machine

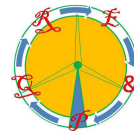
Zhu Shushu, Liu Chuang, Yihao Xu, Ma Yundong

Aero-Power Sci-Tech Center, Nanjing University of Aeronautics and Astronautics, Nanjing. China

322 γ -Stirling engine- The effect of different working gases and pressures

S. Oberweis, T.T.Al- Shemmeri

Faculty of Computing, Engineering and Technology, Staffordshire University. United Kingdom



323 The Italian MV network dip performance characterization by contour charts as defined by UIE/CIGRE'/ CIRED WG-C4.110

R. Chiameo, C. Gandolfi, L. Garbero, L. Tenti
RSE- Ricerca Sul Sistema Energetico, Milano. Italy

325 Analysis of the electric arc in low voltage circuit breakers

A.Iturregui(1). E. Torres(2), I. Zamora(2)
1. Department of Electrical Engineering, EUITMOP, University of the Basque Country, Barakaldo. Spain
2. Department of Electrical Engineering, ETSI, University of the Basque Country, Bilbao.Spain

327 Application of new tools in the thermal behavior study of electrical machines

P.M. García, V. Moreno, J.J. Molina, A. Olano
Department of Electrical Engineering, University of the Basque Country, San Sebastián. Spain

328 Synthetic diesel from biomass by fischer-tropsch synthesis

A. Sauciuc(1), A. Potetz(2), G. Weber(3), R. Rauch(2), H. Hofbauer(2), L. Dumitrescu(1)
1. Department of Renewable Energy Systems and Recycling, Transilvania University of Brasov. Romania
2. Institute of Chemical Engineering, Vienna University of Technology. Austria
3. Bioenergy2020, Güssing. Austria

333 Wind potencial evaluation in the Canary Islands using GIS

Julieta Schallenberg Rodríguez(1), Jesús Notario del Pino(2)
1. Department of Process Engineering Universidad de Las Palmas de Gran Canaria. Spain
2. Department of Soil Science and Geology, University of La Laguna. Spain

334 Review on hydrogen production technologies from solar energy

M.A. Suárez González, A.M. Blanco Marigorta, J.A. Peña Quintana
Department of Process Engineering, University of Las Palmas de Gran Canaria. Spain

336 Pilot scheme for the use of low power wind turbines for electricity generation in the Municipality of Las Palmas de Gran Canaria

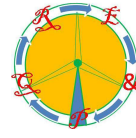
Ignacio de la Nuez Pestana(1), Francisco Javier García Latorre(1), Alejandro Ramos Martín(2)
1. Agencia Local Gestora de la Energía de Las Palmas de Gran Canaria. Spain
2. Escuela de Ingenierías Industriales y Civiles, University of Las Palmas de Gran Canaria. Spain

337 Status of the development of renewable energy projects in the Republic of Panama

Sebastiano Giardinella, B. Alberto Baumeister, C. Ysmael da Silva
INELECTRA A PETROTIGER COMPANY. Panama

338 Power quality analysis of gas metal arc welding process operating under different drop transfer modes

E.F. da Silva(3), J.R. Macedo(1), A. Scotti(2), J.C. de Oliveira(1)
1. Faculty of Electrical Engineering, Federal University of Uberlândia. Brazil
2. Faculty of Mechanical Engineering, Federal Univeresity of Uberlândia. Brazil
3. Instituto Federal de Educação, Ciência e Tecnologia de Goiás. Brazil

**339 Simulation of a solar cell considering single-diode equivalent circuit mode**

E.M.G. Rodrigues(1), R. Melício(1,2), V.M.F. Mendes(3), J.P.S. Catalão(1,2)

1. University of Beira Interior, Covilhã. Portugal

2. Center for Innovation in Electrical and Energy Engineering, Instituto Superior Técnico. Lisboa. Portugal

3. Instituto Superior de Engenharia de Lisboa. Portugal

340 Wavelet based feature extraction for classification of power quality disturbances

Sudipta Nath, Priyanjali Mishra

Department of Electrical Engineering, Netaji Subhash Engineering College, Garia, Kolkata. India

341 Design and test of a 300Wh composites flywheel energy storage prototype with active magnetic bearings

Xingjian Dai, Kai Zhang, Zhang, Xiao-zhang Zhang

Department of Engineering Physics, Tsinghua University. Beijing. China

343 Comparison of gabor-wigner transform and SPWVD as tools of harmonic computation

M. Szmajda(1), J. Mroczka(2)

1. Faculty of Electrical Engineering, Automatic Control and Informatics, Opole University of Technology. Poland

2. Faculty of Electronics, Wrocław University of Technology. Poland

345 Output power of linear generators under reactive control in regular waves

Agustín García Santana(1), Dan El Montoya Andrade(2), Antonio de la Villa Jaén(3)

1. Departamento Eléctrico. AG Ingeniería

2. Escuela de Ingeniería Eléctrica, Universidad Central de Venezuela

3. Departamento de Ingeniería Eléctrica, University of Sevilla. Spain

346 Sizing stand-alone hybrid generation for seasonal irrigation pumping

Javier Carroquino(1), Rodolfo Dufo López(2), José L. Bernal Agustín(2)

1. C.P.S.-E.U.I.T.Z. University of Zaragoza. Spain

2. Electrical Engineering Department, University of Zaragoza. Spain

347 Investigation of three-phase thyristor converters under generalized impedance unbalance

Manuel Weiland, Gerhard Herold

Institute of Electrical Power Systems, University of Erlangen-Nuremberg. Germany

349 Experimental measurements about harmonic current mitigation of electric vehicle battery charges

L. Sainz(1), J. Balcells(2)

1. Department of Electrical Engineering. E.T.S.E.I.B, Technical University of Catalonia. Spain

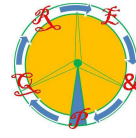
2. Department of Electronics Engineering. E.T.S.E.I.T, Technical University of Catalonia. Spain

350 On electric vehicle battery charger modeling

L. Sainz(1), J.J. Mesas(1), J. Balcells(2)

1. Department of Electrical Engineering. E.T.S.E.I.B, Technical University of Catalonia. Spain

2. Department of Electronics Engineering. E.T.S.E.I.T, Technical University of Catalonia. Spain



351 Currents' physical components (CPC) concept in wind farm harmonic current studies

L. Sainz(1), J. Cunill Solà(2)

1. Department of Electrical Engineering. E.T.S.E.I.B, Technical University of Catalonia. Spain
2. Department of Electrical Engineering. E.P.S.E.M, Technical University of Catalonia. Spain

352 Spanish microgrids: current problems and future solutions

G. Fernández(1), M. Trujillo(1), J.F. Sanz(1,2), J. Sallán(1,2)

1. Renewable Energy Integration Group CIRCE Foundation, University of Zaragoza. Spain
2. Electrical Engineering Department, University of Zaragoza. Spain

353 Grounding system impedance characterization using FEM

José M^a Bueno Barrachina, S. Catalán Izquierdo, César S. Cañas Peñuelas
Institute of Electrical Technology, Universidad Politécnica de Valencia. Spain

354 Visualization of the power waveforms frequency fluctuations with the use of the constant length time window

Jaroslav Zygarlicki(1), Janusz Mroczka(2)

1. Department of Electrical, Control and Computer Engineering, Opole University of Technology. Poland
2. Electronic and Photonic Metrology, Wrocław University of Technology. Poland

355 Short-term hourly load forecasting of a hospital using an artificial neural network

Daniel Moriñigo Sotelo(1), Oscar Duque Pérez(1), Luís Angel García Escudero(2), Miguel Fernández Temprano(2), Pablo Fraile Llorente(1), Manuel V. Riesco Sanz (1), A.L. Zorita Lamadrid(1)

1. Department of Electrical Engineering. University of Valladolid. Spain
2. Department of Statistics and Operational Research. University of Valladolid. Spain

356 A photovoltaic power unit providing ancillary services for smart distribution networks

A. Filgueira Vizoso(1), L. Piegari(2), P. Tricoli(3)

1. Industrial Engineering II Department, University of La Coruña, Ferrol. Spain
2. Department of Electrical Engineering, Politecnico di Milano. Italy
3. Department of Electrical Engineering, University of Naples Federico II. Italy

359 Advantages and barriers for the development of the use of renewable energy sources in Latvia

P. Shipkovs(1,2), G. Kashkarova(1), K. Lebedeva(1), L. Migla(1,2), J. Shipkovs(1), M. Pankars(2)

1. Institute of Physycal Energetics. Latvia
2. Riga Technical University. Latvia

360 Latvian experience of energy supply in the environment-friendly buildings in biosphere reservation

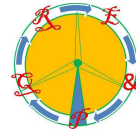
P. Shipkovs(1,2), G. Kashkarova(1), L. Migla(1,2), A. Ikaunieks(2), M. Jirgens(1)

1. Institute of Physycal Energetics. Latvia
2. Riga Technical University. Latvia

361 Investigation of solar collector's in Latvian conditions

P. Shipkovs(1,2), G. Kashkarova(1), A. Snegirjovs(1,2), M. Vanags(1), K. Lebedeva(1), J. Shipkovs(1), L. Migla(1,2)

1. Institute of Physycal Energetics. Latvia
2. Riga Technical University. Latvia



362 Development and characterization of a multi-platform data acquisition system for power quality metrological certification

M. Caciotta, S. Giarnetti, G. Lattanzi Cinquegrani, F. Leccese, D. Trinca
Department of Electronic Engineering, Roma III University. Italy

364 Study on flow characteristic of lubricant in the main Shaft of transmission in commercial vehicle

Ji Hun Yun(1), Jeong Se Suh(2), Chung Seob Yi(2), Chul Ki Song(2), In Guk Jeong (1), Joong Hwan Park(3)

1. Graduate School of Mechanical Engineering, Gyeongsang National University, Jinju, Gyeongnam. Korea

2. School of Mechanical and Aerospace Engineering, Gyeongsang National University, Jinju, Gyeongnam. Korea

3. S&T Dynamics, Seongsan-gu, Changwon, Gyeongnam, Korea

366 Computer simulation of power balance of a solar vehicle depending on its parameters and outside factors

G. Frydrychowicz-Jastrzębska(1), E. Pérez Gómez(2)

1. Poznań University of Technology, Institute of Industrial Electrical and Electronical Engineering. Poznań. Poland

2. Universidad Politécnica de Cartagena. Spain

367 The effect of spatial orientation of solar energy receiver on the energetic gain

G. Frydrychowicz-Jastrzębska

Poznań University of Technology, Institute of Industrial Electrical and Electronical Engineering. Poznań. Poland

370 Solar radiation increase over a capturing surface considering Rb factor, for Braşov urban area

C. Şerban, L. Coste

Department of Renewable Energy Systems and Recycling, Transilvania University of Braşov. România

371 Simulation model in trnsys of a solar house from Braşov, Romania

C. Şerban, E. Eftimie, L. Coste

Department of Renewable Energy Systems and Recycling, Transilvania University of Braşov . România

374 Empirical model for estimating global solar radiation for Braşov urban area

L. Coste, E. Eftimie, C. Şerban

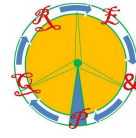
Department of Renewable Energy Systems and Recycling, Transilvania University of Braşov . România

376 A study on the cooling of electronic component by a flat heat pipe

Hamdy Hassan(1), Souad Harmand(2)

1. Mechanical Engineering Department, Faculty of Engineering, Assuit University.Egypt

2. UVHC, TEMPO-DF2T. France



378 LIFE+ zero Hytechpark: Toward a sustainable building with thermal, photovoltaic and hydrogen technology

Natalia Moreno, Alfonso Arnedo, Jesús Simon, Arturo Cabello

Foundation for the Development of New Hydrogen Technologies in Aragon. Spain

379 Hydrogen production for solar energy storage

P. Moldrik, Z. Hradilek

Department of Electrical Power Engineering FEI, VSB- Technical University of Ostrava, Poruba. Czech Republic

380 The application of trust region method to estimate the parameters of photovoltaic modules through the use of single and double exponential models

P. Rodrigues(1), J.R. Camacho(1), F.B. Matos(2)

1. School of Electrical Engineering, Universidade Federal de Uberlândia. Brazil

2. Informatics Department, Instituto Federal Goiano- Campus Urutaí. Brazil

381 Self-growing colored petri net for offshore wind turbines maintenance systems

M. Pérez, A. Correcher, E. García, F. Morant, E. Quiles

Department of Fault Diagnosis, Industrial Automation Institute (AI2). E.T.S.I.I., Universidad Politécnica de Valencia. Spain

383 Synchronization control of parametric pendulums for wave energy extraction

A.Najdecka, V. Vaziri, M. Wiercigroch

University of Aberdeen, Centre for Applied Dynamics Research, School of Engineering. United Kingdom

387 DC/DC converters as linkages between photovoltaic plants and module integrated multilevel-inverters

G. Mehlmann, F. Schirmer, M. Zeuß, G. Herold

Institute of Electrical Power Systems, University of Erlangen- Nuremberg. Germany

388 Optimal energy storage system control in a smart grid including renewable generation units

A.Andreotti, G. Carpinelli, F. Mottola

Department of Electrical Engineering, University Federico II of Naples. Italy

389 Investigation into harmonics of LVDC power distribution system using EMTDC/PSCAD software

Andrey Lana, Tero Kaipia, Jarmo Partanen

Department of Electrical Engineering.Lappeenranta University of Technology. Finland

390 Ground source heat pump on building acclimatization in Coimbra, Portugal

L. Coelho(1), J. Garcia(1), A. Almeida(2), N. Tavares(1), R. Cerdeira(1), K. Karytsas(3), D. Mendrinós(3), B. Sanner(4), E. Auzenet(5)

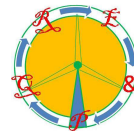
1. Polytechnic Institute of Setúbal, Escola Superior de Tecnologia de Setúbal. Portugal

2. Instituto de Sistemas e Robótica, Departamento de Engenharia Electrotécnica- Pólo II, Universidade de Coimbra. Portugal

3. Centre for Renewable Energy Sources

4. European Geothermal Energy Council (EGEC)

5. CIAT

**392 Wave energy and supply chain opportunities**

A. Álvarez(1), C. Anido(2), S. Martín(1), P.B. González(1)

1. UDC Shipbuilding Department, UDC Marine Innovation Group, E.U.P. A Coruña, University. Ferrol. Spain
2. UDC Marine Innovation Group, E.U.P. A Coruña University. Ferrol. Spain

393 Theoretical efficiency of a gear based azimuthal tracked photovoltaic platform

B. Butuc, G. Moldovean, N. Creanga

Department of Renewable Energy Systems and Recycling, Transilvania University of Braşov. Romania

394 Wind and weight induced loads on a gear azimuthal photovoltaic platform

B. Butuc, G. Moldovean, R. Velicu

Department of Renewable Energy Systems and Recycling, Transilvania University of Braşov. Romania

395 New efficient filter design for a heat sink

J. Kulanayagam(1), J. H. Hagmann(1), K. F. Hoffmann(2), S. Dickmann(1)

1. Institute for Electrical Engineering
2. Institute for Power Electronics Helmut-Schmidt-University/ University of the Federal Armed Forces Hamburg. Germany

396 Interconnection of a photovoltaic generator (PVG) to a main supply: a simulation study

Maamar Taleb

Department of Electrical and Electronics Engineering. University of Bahrain

398 Energy storage technologies for electric applications

J.I. San Martín(1), I. Zamora(2), J.J. San Martín(1), V. Aperribay(1), P. Eguía(2)

1. Department of Electrical Engineering, University of the Basque Country, Escuela de Ingeniería de Eibar. Spain
2. Department of Electrical Engineering, University of the Basque Country, Escuela Técnica Superior de Ingeniería de Bilbao. Spain

399 PEM fuel cells in applications of urban public transport

I.Zamora(1), J.I. San Martín(2), J. García(1), F.J. Asensio(1), O. Oñederra(1), J.J. San Martín(2), V. Aperribay(2)

1. Department of Electrical Engineering, University of the Basque Country, Escuela Técnica Superior de Ingeniería de Bilbao. Spain
2. Department of Electrical Engineering, University of the Basque Country, Escuela de Ingeniería de Eibar. Spain

400 Smart grid: What's news?

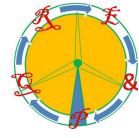
M. Cacciotta, M.D'Addazio, S. Giarnetti, M. Grossoni, F. Leccese

Department of Electronic Engineering, Roma III University. Italy

401 Battery response analyzer using a high current DC-DC converter as an electronic load

F. Ibañez, J.M. Echeverría, J.Vadillo, F. Martín, L. Fontán

CEIT and Tecnun (University of Navarra), San Sebastián. Spain



404 Minimum DC link voltages for the generator bridge converter of a SCIG based variable speed wind turbine with fully rated converters

U.I. Dayaratne, S.B. Tennakoon, J.S. Knight, N.Y.A. Shammam

Faculty of Computing, Engineering and Technology, Staffordshire University. United Kingdom

405 The effect of surface impurities on photovoltaic panels

L. Dorobantu, M.O.Popescu, Cl. Popescu, A. Craciunescu

Electrical Engineering Faculty Politehnica University of Bucharest. Romania

407 Characterization of solar panels for powering sensor applications

M. Alves(1), J.M. Dias Pereira(1,2), J.P.S. Catalão(3,4)

1. ESTSetúbal- LabIM/IPS, Setúbal. Portugal

2. Instituto de Telecomunicações, Instituto Superior Técnico, Lisboa. Portugal

3. University of Beira Interior, Covilhã. Portugal

4. Center for Innovation in Electrical and Energy Engineering, Instituto Superior Técnico, Lisboa. Portugal

408 Effect of transient flux compensation control on fault ride through of doubly fed induction generator wind turbine

A.S. Mäkinen, H. Tuusa

Department of Electrical Energy Engineering, Tampere University of Technology. Finland

410 Geothermal energy heating and hot water for a detached house project in Oviedo (Spain)

Elena M^a Fernández Rodríguez, Eunice Villicaña Ortiz, Jorge Xiberta Bernat

Department of Energy, E.T.S.I.M.O. Oviedo University. Spain

414 Advances in phase change materials for thermal solar power plants quality

I.Fernández, C.J. Renedo, S. Pérez, J. Carcedo, M. Mañana

Department of Electrical Engineering, E.T.S.I.I.T. Cantabria University. Spain

415 Time domain variable speed wind energy conversion systems modelling using ATP platform

F.H. Costa(1). E.B. Alvarenga(1), J.C. Oliveira(1), G.C. Guimarães(1), A.F. Bonelli(2), Z.S. Vitória J(3)

1. Faculty of Electrical Engineering, UFU Federal University of Uberlândia. Brazil

2. LACTEC- Institute of Technology for Development, Centro Politécnico da UFPR, Curitiba, Paraná. Brazil

3. Furnas Centrais Elétricas S.A. Cuiabá-MT. Brazil

416 Comparison of load inverter topologies in a bipolar LVDC-distribution

Jenni Rekola, Heikki Tuusa

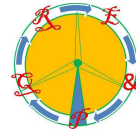
Department of Electrical Energy Engineering, Tampere University of Technology. Finland

417 Design of a sustainable residential microgrid system with DC and AC buses including PHEV and energy storage device

L. Roggia(1,2), L. Schuch(1), C. Rech(1), H.L. Hey(1), J.R. Pinheiro(1)

1. Power Electronics and Control Research Group GEPOC, DPEE, PPGEE, Federal University of Santa Maria. Brazil

2. Federal Institute of Rio Grande do Sul. Brazil

**418 A performance analysis of a hydrogenerator in the case of field short-circuit using FEM**

S.E. Dallas, A.N. Safacas, J.C. Kappatou

Department of Electrical and Computer Engineering, University of Patras. Greece

419 Model based controller design for hydrogen fuel cell systems

K.K.T. Thanapalan, G.C. Premier, A.J. Guwy

Sustainable Environment Research Centre (SERC), Renewable Hydrogen Research & Demonstration Centre, University of Glamorgan. United Kingdom

421 Testing and evaluation of wind power plant protection system

M. Kezunovic, B. Matic Cuka

Department of Electrical and Computer Engineering, Texas A & M University. USA

422 Buck converter design for photovoltaic generators with supercapacitor energy storage

Dariga Meekhun(1), Vincent Boitier(1,2), Jean Marie Dilhac(1,2), Stéphane Petibon(1,2), Corinne Alonso(1,2), Bruno Estibals(1,2)

1. CNRS; LAAS. Toulouse. France

2. Université de Toulouse; UPS, INSA, INP,ISAE; LASS. France

424 Three-dimensional numerical simulation of rear point contact crystalline silicon solar cells

M. Zanuccoli(1), H.W. Guo(2), E. Sangiorgi(1), C. Fiegna(1)

1. ARCES-DEIS, University of Bologna and IUNET, Cesena. Italy

2. APPLIED MATERIALS, Inc. USA

425 Hydrogen production by aluminium corrosion: experimental investigation and mathematical modelling

C.B. Porciúncula, N.R. Marcilio, I.C. Tessaro, M. Gerchmann

Department of Chemical Engineering, UFRGS, Federal University of Rio Grande do Sul. Brazil

426 Induction motor capacitances calculation using FEA for common mode current studies in ATP

C.S. Chaves(1), J.R. Camacho(1), H.de Paula(2), M.L.R. Chaves(1), E. Saraiva(1)

1. Electromagnetic Transients Laboratory, School of Electrical Engineering, Universidade Federal de Uberlândia-UFU. Brazil

2. Industrial Applications Laboratory, Universidade Federal de Minas Gerais-UFMG. Brazil

428 Nowcasting of Wind speed using support vector regression. Experiments with time series from Gran Canaria

I.Espino, M. Hernández

Institute for Intelligent Systems (SIANI), University of Las Palmas de Gran Canaria. Spain

429 Photoabsorption efficiency improvement for photovoltaic solar cells by using the honeycomb nanostructures

Alexander I. Fedoseyev(1), František Čajko(1,2)

1. CFD Research Corporation, Huntsville, Alabama. USA

2. FMRI Lab; University of Michigan. USA

431 Load management for price-based demand response scheduling- a block scheduling model

Ding Li, Sudharman K. Jayaweera, Olga Lavrova, Ramiro Jordan

Department of Electrical and Computer Engineering, University of New México, Albuquerque. U.S.A.

432 Modelling and analysis of electromechanical stress in transformers caused by short-circuits

Rosentino Jr. A.J.P.(1), Saraiva E.(1), Delaiba A.C(1), Guimarães R.(1), Lynce M.(1), De Oliveira J.C.(1), Fernandez Jr.D.(2),
Neves W.(2)

1. Faculty of Electrical Engineering, Federal University of Uberlândia. Brazil
2. Center of Electrical Engineering and Computer Science, Electrical Engineering. Department, Federal University of Campina Grande. Brazil

434 Research and design of fixed-pitch non-grid-connected wind power system

Ma Yundong, Wang Junqi, Yang Hong, Hu Zurong
Jiangsu Key Laboratory of New Energy Generation and Power Conversion, Nanjing University of Aeronautics & Astronautics. China

436 Optimisation of concentrator in the solar photonic optoelectronic transformer: comparison of geometrical performance and cost of implementation

F. Muhammad-Sukki(1), R. Ramirez Iniguez(1), S.G. McMeekin(1), B.G. Stewart(1), B. Clive(2)

1. School of Engineering and Computing, Glasgow Caledonian University. United Kingdom
2. Solar Empower Ltd. England. United Kingdom

437 Power quality improvement using renewable energy

Gelu Gurguiatu(1), Ionel Vechiu(2), Toader Munteanu(1)

1. Department of Control and Electrical Engineering, University "Dunărea de Jos" of Galati. România
2. ESTIA-Recherche Bidart. France

438 Human behaviorchanging based on the simulation of the temperature control of a house

Radu Bălan, Vlad Mureşan, Radu Donca, A. Bălan, Sergiu Stan

Department of Mechatronics, Technical University of Cluj-Napoca. Romania

440 Piezoresistive sensor for strain measurement on turbine blade with wireless telemetry data acquisition

P. Kulha, M. Husak

Department of Microelectronics, Czech Technical University, Prague. Czech Republic

441 Combustion characteristics of CI engine running with biodiesel blends

B. Tesfa, R. Mishra, F. Gu, A. Ball

Computing and Engineering, University of Huddersfield. United Kingdom

444 Dynamic properties of the virtual synchronous machine (VISMA)

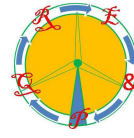
Yong Chen, Ralf Hesse, Dirk Turschner, Hans Peter Beck

Institute of Electrical Power Engineering, Clausthal-Zellerfeld. Germany

445 Performances and acoustic noise of intelligent wind power unit

K. Kubo(1,3), T. Kanemoto(2)

1. School of Engineering, Kyushu Institute of Tecnology. Japan
2. Faculty of Engineering, Kyushu Institute of Tecnology, Kitakyushu. Japan
3. Research Fellow of the Japan Society for the Promotion of Science. Japan



446 Grid Connection improvements by control strategy selection for wave energy converters

M. Santos(1), E. Tedeschi(2), P. Ricci(1), M. Molinas(2), J.L. Martín(3)

1. Tecnalia. Zamudio. Spain
2. Department of Electric Power Engineering, Norwegian University of Science and Technology, Trondheim. Norway
3. Department of Electronics and Telecommunications, University of the Basque Country. Bilbao. Spain

449 Semiactive control for floating offshore wind turbines subject to aero-hydro dynamic loads

N. Luo(1), C.L. Bottasso(2), H.R. Karimi(3), M. Zapateiro(4)

1. Institute of Informatics and Applications, University of Girona. Spain
2. Dipartimento di Ingegneria Aerospaziale, Politecnico di Milano. Italy
3. Department of Engineering, Faculty of Engineering and Science, University of Agder, Grimstad. Norway
4. Department of Applied Mathematics III, Universitat Politècnica de Catalunya, Barcelona. Spain

450 Using ANN to estimate the voltage of unobservable buses when one PMU or its communication fails

M. Gholami(1), G.B. Gharehpetian(1), B. Fahimi(2), M.J. Sanjari(1)

1. Electrical Engineering Department, Amirkabir University of Technology, Tehran. Iran
2. Electrical Engineering Department, University of Texas at Dallas

451 Voltage state estimation by ANNS with reduction of PMUS

M. Gholami(1), G.B. Gharehpetian(1), B. Fahimi(2), M.J. Sanjari(1)

1. Electrical Engineering Department, Amirkabir University of Technology, Tehran. Iran
2. Electrical Engineering Department, University of Texas at Dallas

452 Planning of power systems with distributed generation and storage

C. Ponce Corral(1), H. Bludszuweit(2), J.A. Domínguez Navarro(3)

1. Institute of Engineering and Technology, Universidad Autónoma de Ciudad Juárez.. México
2. CIRCE Research Institute, University of Zaragoza. Spain
3. Department of Electrical Engineering, C.P.S. University of Zaragoza. Spain

453 Electric vehicles and their effects on low-voltage grids

J. Teuscher, A. Götz, W. Schufft

Faculty of Electrical Engineering and Information Technology, Chemnitz University of Technology. Germany

454 A novel approach to frequency control in an islanded microgrid by load shedding scheduling

M. Kohansal, M.J. Sanjari, G.B. Gharehpetian

Electrical Engineering Department, Amirkabir University of Technology, Tehran. Iran

455 Solar panels for auger southern observatory:” SPIDERSHADOWS”

A. López Agüera(1,2), I. Rodríguez Cabo(1,2), D. Rey Rey(1,2), V. Gándara Villagoñiga(1), M. Vázquez García(1), E. Vieites Montes(1)

1. Department of Particle Physics & Galician Institute of High Energy Physics, Sustentable Energetic Applications Group. Santiago de Compostela University. Spain
2. Department of Particle Physics & Galician Institute of High Energy Physics, Astroparticle Group. Santiago de Compostela University. Spain

456 Geared linkage driven by linear actuator used for PV platform azimuth orientation

N.C. Creanga, I. Visa, D.V. Diaconescu, I.S. Hermenean, B.R. Butuc

Department Renewable Energy Systems and Recycling, Transilvania University of Braşov. Romania

459 Concept study of offshore wind and tidal hybrid conversion based on real time simulation

G. Caraiman(1), C. Nichita(2), V. Mînză(1), B. Dakyo(2), C.H. Jo(3)

1. Department of Electrical Energy Conversion System, University “ Dunărea de Jos” of Galati. Romania

2. Group of Research in Electronics and Automatics of Le Havre, University of Le Havre. France

3. Ocean Engineering Laboratory, Inha University, Korea

462 Sensorless iterative solar tracking in multiple on-grid photovoltaic generators with improved tracking strategy

Guilherme F. Cittolin, Jéssica V. Mazuroski, Rafael C. Gonçalves, Marcel G. Kroetz, Carlo A.Z. Pece, Winderson E.Santos

Laboratório de Processamento Eletrônico de Energia, Departamento Acadêmico de Eletrotécnia, Universidade Tecnológica Federal do Paraná- UTFPR. Brazil

463 Computational flow field analysis of a vertical axis wind turbine

G. Colley, R. Mishra, H.V. Rao, R. Woolhead

Department of Engineering & Technology, Huddersfield University. United Kingdom

465 Cost estimation of wind farm with battery-supported output power limit operation

Y. Yasuda(1), T. Funabashi(2)

1. Department of Electrical Engineering and Computer Science, Kansai University. Japan

2. Meidensha Corporation, Shinagawa-Ku, Tokio. Japan

469 Relationship between interstitial oxygen, substitutional carbon, resistivity and minority carrier lifetime in metallurgical

multicrystalline silicon

Virginie Mong-The Yen(1), Olivier Palais(1,2), Marcel Pasquinelli(1,2), Daniel Barakel(1,2), Isabelle Périchaud(1,2)

1. Aix- Marseille University, IM2NP

2. CNRS,IM2NP (UMR 6242). Faculté des Sciences et Techniques, Marseille Cedex. France

470 Design of a monitoring and test system for PV based renewable energy systems

S.Berberkic , P.J. Mather, V. Holmes,M. Sibley

School of Computing and Engineering, University of Huddersfield. United Kingdom

474 A semi-empirical procedure for the evaluation of multi-stage turbine performances

D. Barsi, R. Canepa, A. Satta

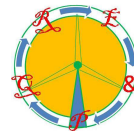
DIMSET, University of Genoa. Italy

476 Integrated ZVT cell applied to decentralized multi-string PV system

R.C. Beltrame(1), M.I. Desconzi(1), M.L.S. Martins(2), J.R. Pinheiro(1), H.L. Hey(1)

1. Power Electronics and Control Research Group, Federal University of Santa Maria. Brazil

2. Power Analysis and Processing Research Group, Federal University of Technology,Paraná. Brazil



477 Proposal for the use of solar heaters in small residences of Curitiba

Alysson M. Schuindt, Marcus A. Caldeira, Roberto C. Betini

Academic Department of Electrotechnique, Federal Technological University of Paraná. Brazil

478 Energy response of a mono-axis tracked solar thermal collector with vacuum tubes

V.E. Dombi, I. Visa, D.V. Diaconescu, M.M. Vatasescu, N.I. Tatu

Department Renewable Energy Systems and Recycling, Transilvania University of Braşov. Romania

479 Photovoltaic stand-alone power generation system with multilevel inverter

M.I. Desconzi, R.C. Beltrame, C. Rech, L. Schuch, H.L. Hey

Power Electronics and Control Research Group, Federal University of Santa Maria. Brazil

480 Optimization with genetic algorithms of PVT system global efficiency

G. Fabbri(1), M. Greppi(2), M. Lorenzini(1)

1. D.I.E.N.C.A. Dipartimento di Ingegneria Energetica, Nucleare e del Controllo Ambientale. Università degli Studi di Bologna. Italy

2. Università di Bologna Seconda Facoltà di Ingegneria. Italy

483 A single stage DC-DC converter feasible to battery charging from PV panels with high voltage step up capability

Paulo P. Praça, Gustavo A.L. Henn, Ranoyca N.A.L.S., Demercil S. Oliveira, Luiz H.S.C. Barreto
Energy and Control Processing Group- GPEC, Department of Electrical Engineering, Universidade Federal do Ceará. Fortaleza-CE. Brazil

485 Annealing of ZnO and SnO₂ transparent conductive oxides

K. Lagha (1,2), MS Belkaid(1), M. Pasquinelli(2), D. Barakel(2), L. Escoubas(2)

1. Laboratoire des Technologies Avancées du Génie Electrique, Université de Tizi-Ouzou. Algérie

2. Institut Matériaux Microélectronique Nanosciences de Provence IM2NP, Université d' Aix Marseille. France

487 Energy valuing of forest biomass residues in Bizkaia

E. Mateos(1), J.M. González(2), J.M. Eguzkiza(3)

1. Department of Chemical and Environmental Engineering

2. Department of English and German Philology

3. Department of Applied Mathematics. E.U.I.T.I., University of the Basque Country, Bilbao. Spain

488 The wind energy apply to water pumping in isolated place

Juraci Carlos de Castro Nóbrega, Thelmo Silva de Araújo

Department of Electrical Engineering, U.F.A.M. Amazonas University. Brazil

490 Modeling and power control of wind turbine driving DFIG connected to the utility grid

Karim Belmokhtar, Mamadou Lamine Doumbia, Kodjo Agbossou

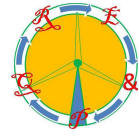
Département of Electrical and Computer Engineering, Université du Québec à Trois-Rivières. Canada

492 Direct driven axial flux permanent magnet generator for small scale wind power applications

A.P. Ferreira(1), A.F. Costa(2)

1. School of Technology and Management, Polytechnic Institute of Bragança. Portugal

2. Department of Electrical and Computer Engineering, FEUP, Porto. Portugal



494 A novel method to eliminate negative time period of SVPWM using DSP TMS320F2812

Ronad B.F, Naik R.L, Jangamshetti Suresh H.

Department of Electrical & Electronics Engineering, Basaveshwar Engineering College, Bagalkot, Karnataka. India

496 Grounding system modelling and its impact on computational refunding analysis for equipment damages

I.N. Gondim(1), J.C.de Oliveira(1), C.E. Tavares(1) , J.A.F. Barbosa(1), M.V.B. Mendonça(2)

1. Faculty of Electrical Engineering, UFU Federal University of Uberlândia. Brazil

2. Department of Electrical Engineering, UnB, University of Brasilia. Brazil

497 A computational method to optimize energy savings of tension structures set in road tunnels

L.M. Gil Martín(1), A. Peña García(2), R. Escribano(3), A. Espín Estrella(2)

1. Department of Structural Mechanics, ETSICCP, University of Granada. Spain

2. Department of Civil Engineering, ETSICCP, University of Granada. Spain

3. Department of Graphical Expression in Architecture and Engineering, ETSIE, University of Granada. Spain

498 A novel 3D TCAD simulation of a thermoelectric couple configured for thermoelectric power generation

C.A. Gould, N.Y.A. Shammass, S. Grainger, I. Taylor

Faculty of Computing, Engineering and Technology, Staffordshire University. United Kingdom

499 Dual frequency system for power-demanding measurement in the isolated areas

A. Boura, M. Husak

Department of Microelectronics, Faculty of Electrical Engineering, Czech Technical University in Prague. Czech Republic

501 Integrated interdisciplinary design. The environment as part of architectural education

Marios C. Phocas(1), Aimilios Michael(1), Paris Fokaides(2)

1. Department of Architecture, Faculty of Engineering, University of Cyprus, Nicosia. Cyprus

2. Environmental Fluid Mechanics Laboratory, Department of Civil and Environmental Engineering, Faculty of Engineering, University of Cyprus, Nicosia. Cyprus

504 Combinatorial optimization for electric vehicles management

Nora Touati-Moungla, Vincent Jost

LIX, Ecole Polytechnique, Palaiseau Cedex. France

507 Optimized gas pricing policy to have maximally peak shaving

A. Sheikhi, M. Khosravi, B. Mozafari, A.M. Ranjbar, A. Hajjam

Sharif University of Technology, Tehran. Iran

509 Some procedures in mitigating conducted electromagnetic interference

M.I. Buzdugan, H. Bălan, T.I. Buzdugan

Technical University from Cluj-Napoca. Romania

510 An optimal virtual inertia controller to support frequency regulation in autonomous diesel power systems with high penetration of renewables

Miguel Torres, Luiz A.C. Lopes

Power Electronics and Energy Research Group, Department of Electrical and Computer Engineering, Concordia University, Montreal, Quebec. Canada

511 Determination losses and estimate life of distribution transformers with three computational, measurement and simulation methods, despite harmonic loads

M.H. Amrollahi(1), S. Hasani(2)

1. Electrical Engineering Department, Urmia University of Technology, Urmia. Iran
2. West Azerbaijan Power Distribution Company, Urmia. Iran

512 Modeling, simulation and a comparative study between a single-phase switched reluctance machine (6x6) and a three-phase switched reluctance machine

R.J. Dias, D.A. Andrade, L.G. Cabral, A.W.F.V. Silveira, A.F.V. Silveira, L.C. Gomes, C.A. Bissochi
Laboratório de acionamentos elétricos, Depto de Engenharia Elétrica, Universidade Federal de Uberlândia. Brazil

517 Hysteresis loss in brushless doubly fed induction machines

M. Ahmadian, B. Jandaghi, H. Oraee

Department of Electrical Engineering, Sharif University of Technology, Tehran. Iran

518 Maximun torque per ampere operation of brushless doubly fed induction machines

M. Ahmadian, B. Jandaghi, H. Oraee

Department of Electrical Engineering, Sharif University of Technology, Tehran. Iran

520 Numerical study of performance optimization in a proton exchange membrane fuel cell

Chang-Ming Ling(1), Chun-Hua Min(2), Xiao-Long Ruan(1), Zhang-Jing Zheng(1)

1. School of Engineering, Guangkong Ocean University, Zhanjiang. China
2. School of Energy and Environmental Engineering, Hebei University of Technology, Tianjin. China

523 Thermal design and analysis of a direct-water cooled permanent magnet synchronous generator for high power

direct-drive wind turbine applications

M. Polikarpova, P. Røytä, S. Semken, J. Nerg, J. Pyrhönen

Department of Electrical Engineering, Lappeenranta University of Technology. Finland

525 New integrated converter for hydrogen buffer interfacing in distributed energy systems

D. Vinnikov, A. Andrijanoviš, I. Roasto, T. Lehtla

Department of Electrical Drives and Power Electronics, Tallinn University of Technology. Estonia

526 Quality of ashes produced in the co-combustion of coal and MBM in a fluidized bed reactor

Rui Barbosa(1), N. Lapa(1), Helena Lopes(2), Ibrahim Gulyurtlu(2), Benilde Mendes(1)

1. UBIA, Faculdade de Ciências e Tecnologia, Universidade Nova de Lisboa. Caparica. Portugal
2. LNEG, UEZ, Lisboa. Portugal

527 Renewable energy policy and market developments in Kosovo

Nysret Avdiu, Ali Hamiti

Energy Regulatory Office of Kosovo

528 Investigation on the impact of design wind speed and control strategy on the performance of fixed-pitch variable-speed wind turbines

Xiongwei Liu(1), Lin Wang(2), Xinzi Tang(1)

1. School of Computing, Engineering and Physical Sciences, University of Central Lancashire, Preston. United Kingdom
2. School of Mechanical Engineering, Xiangtan University. China

534 Artificial intelligence techniques for controlling spacecraft power system

Hanaa T.El-Madany(1), Faten H. Fahmy(1), Ninet M.A. El-Rahman(1), Hassan T. Dorrah(2)

1. Photovoltaic cells Department, Electronics Research Institute, National Research Center Building, Cairo. Egypt
2. Electrical Power & Machines Department, Cairo University. Egypt

536 Artificial intelligence techniques based on aquaculture solar thermal water heating system control

Doaa M. Atia(1), Faten H. Fahmy(1), Ninet M. Ahmed(1), Hassen T. Dorrah(2)

1. Fothovolotaic Cell Department, Electronics Research Institute, National Research Center Building, Cairo. Egypt
2. Faculty of Engineering, Department of Electrical Power Machines, Cairo University. Egypt

537 Losses comparison among carrier-based PWM modulation strategies in three-level neutral-point-clamped inverter

C.A.dos Santos, F.L.M. Antunes

Energy Processing and Control Group, Departamento de Engenharia Elétrica, Universidade Federal do Ceará, Fortaleza, Brazil

538 Comparing SCIG and DFIG for wind generating conditions in Macedonia

Sanja Vitanova, Vlatko Stoilkov, Vladimir Dimcev

Faculty of Electrical Engineering and Information Technology, Skopje. Macedonia

540 Comparative analysis of a new planetary transmission with deformable element usable in RES

O. Climescu, R. Săulescu, n C. Jaliu, D.V. Diaconescu, M. Neagoe

Department of Product Design and Robotics, Transilvania University of Braşov. Romania

541 Novel TiO₂ Microstructures for low cost dye sensitized solar cells

P. Fuierrer(1), A. Gueye(2), A. Varghese(3), B. Roy(4)

1. Department of Materials & Metallurgical Eng, New Mexico Institute of Mining & Tech, Socorro. USA
2. Pletronics, Inc. Pittsburgh. USA
3. CIRIMAT INP-CNRS, Institute National Polytechnique de Toulouse. France
4. Chemical Engineering Department, New Mexico Institute of Mining & Technology, Socorro. USA

543 Integrating high levels of wind in island systems: lessons from Hawaii

Nicholas Miller(1), Devon Manz(1), Harjeer Johal(1), Sebastian Achilles(1), Leon Roose(2), James P. Griffin(3)

1. GE Energy, Schenectady, NY. USA
2. Hawaiian Electric Company, Honolulu, HI. USA
3. University of Hawaii, Hawaii Natural Energy Institute, Honolulu, HI. USA

546 Economic-technical feasibility study of the “Sierra de Tineo” wind farm expansion. Tineo-Principality of Asturias. (Spain)

Guillermo Laine Cuervo, Yoreley Cancino Solórzano, Jorge Xiberta Bernat
Department of Energy. E.T.S.I.M.O. Oviedo University. Spain

548 Hydrogen production by means pyrolysis and steam gasification of glycerol

J.M. Encinar(1), J.F. González(2), G. Martínez(1), N. Sánchez(1), I.M. Sanguino(1)
1. Departamento de Ingeniería Química y Química Física, University of Extremadura. Spain
2. Departamento Física Aplicada, University of Extremadura. Spain

549 Synthesis and characterization of biodiesel obtained from castor oil transesterification

J.M. Encinar(1), J.F. González(2), G. Martínez(1), N. Sánchez(1), G.C González(1)
1. Departamento de Ingeniería Química y Química Física, University of Extremadura. Spain
2. Departamento Física Aplicada, University of Extremadura. Spain

550 Experimental verification of novel bi-directional qZSI based DC/DC converter for short term energy storage systems

J. Zakis(1), D. Vinnikov(1), I. Roasto(1), L. Ribickis(2)
1. Department of Electrical Drives and Power Electronics, Tallinn University of Technology. Estonia
2. Institute of Industrial Electronics and Electrical Engineering, Riga Technical University. Latvia

552 Rotating electric machine thermal study

A.I. Chirilă. C. Ghiță, A. Crăciunescu I.D. Deaconu. V. Năvrăpescu, M. Catrinoiu
Department of Electrical Engineering, University Politehnica of Bucharest. Romania

553 Optimal operation of smart grids including distributed generation units and plug in vehicles

A. Bracale(1), P. Caramia(1), D. Proto(2)
1. Department for Technologies, University Parthenope of Napoli. Italy
2. Department of Electrical Engineering, University Federico II of Naples. Italy

557 Magnetic field density analysis in switchgears

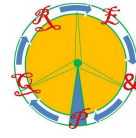
J.A. Güemes(1), J. Izagirre(2), L.del Rio(2), J.E. Rodríguez Seco(3), A.M. Iraolagoitia(1), P. Fernández(4)
1. Department of Electrical Engineering, Escuela Universitaria de Ingeniería Técnica Industrial. Bilbao.
2. Ormazabal Corporate Technology. Spain
3. Unidad de Energía, Tecnalia Research & Innovation. Derio. Spain
4. Department of Electronics and Telecommunications. Escuela Universitaria de Ingeniería Técnica Industrial. Bilbao. Spain

558 ULISES: Autonomous mobile robot using ultracapacitors-storage energy system

J.S. Artal, R. Bandrés, G. Fernández
Department of Electrical Engineering, Escuela de Ingeniería Técnica Industrial. University of Zaragoza. Spain

560 Preliminary study for the implementation of the “Wave Dragon” in Gran Canaria, Canary Islands, Spain

A. Miguel Sagaseta de Ilurdoz Cortadellas(1), B. Miguel Angel Guerra Rodríguez(1), C. Raquel Ramos Pereda(2), Pedro D. Cuesta Moreno(3)
1. E.I.I.C., Las Palmas de Gran Canaria University- ULPGC. Spain
2. RALEY Estudios Costeros S.C.P. Las Palmas de Gran Canaria. Spain
3. Department of Mathematics Engineering, E.I.I.C, Las Palmas de Gran Canaria-ULPG. Spain



564 Perspectives of demand-side management in a smart metered environment

A. Dán, D. Divényi, B.Hartmann, P. Kiss, D. Raisz, I. Vokony

Department of Electric Power Engineering, Budapest University of Technology and Economics.
Hungary

569 The technical & economic feasibility of energy recovery in water supply networks

A. McNabola(1), P. Coughlan(2), A.P. Williams(3)

1. Department of Civil, Structural & Environmental Engineering, Trinity College, Dublin. Ireland

2. School of Business, Trinity College, Dublin. Ireland

3. School of the Environment, Natural Resources and Geography, Bangor University. Wales. United Kingdom

572 Real heating-value based cost-accounting method with networking capabilities in natural gas distribution systems

G. Barta, T. Csubák

Department of Control Engineering and Information Technology, Budapest University of Technology and Economics. Hungary

577 Comprehensive utilization of energy in sugar factory using renewable energy sources, maximizing the power cogeneration

E. Gil Illescas, L.A. Bujedo Nieto, L. Gorostiaga Canepa

Fundación CARTIF, Valladolid. Spain

579 Neural networks applications for fault detection on wind turbines

R.F. Mesquita Brandão(1), J.A. Belezza Carvalho(1), F.P. Maciel Barbosa(2)

1. Department of Electrical Engineering, ISEP, Oporto Polytechnic Institute. Portugal

2. Department of Electrical Engineering, FEUP & INESC. Oporto University. Portugal

580 Analysis of remote islanding detection methods for distributed resources

A. Etxegarai, P. Eguía, I. Zamora

Department of Electrical Engineering, University of the Basque Country. Escuela Técnica Superior de Ingeniería de Bilbao. Spain

582 Increase of the annual energy output in hydraulic powerplants through active flow control

M.V. Magnoli, R. Schilling

Institute of Fluid Mechanics, Munich University of Technology, Garching. Germany

583 Evaluation of reactive power capability by optimal control of wind-vanadium redox battery stations in electricity market

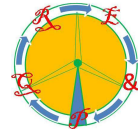
Aouss Gabash, Pu Li

Department of Simulation and Optimal Processes, Institute of Automation and Systems Engineering, Ilmenau University of Technology. Germany

585 Smart meter based energy management system

Péter Kádár

Óbuda University, Department of Power Systems, Budapest. Hungary

**586 Economic viability of bamboo dust based gasification plant for a paper mill**

A.K. Sinha, Meghna Barkakat , Dibakar Nath, Saurav Kumar Sarma, Uday Reddy, Abhinav Verma, Kranthi Kiran Ch

Department of Electrical Engineering, National Institute of Technology Silchar Assam. India

587 Creating public awareness of renewable energy by combining of a photovoltaic system and nature

Arnold Knott(1), Dorthe Hedensted Lund(2), Thomas Andersen(1)

1. Technical University of Denmark, DTU Elektro. Denmark

2. University of Copenhagen, Forest & Landscape, Faculty of Life Sciences. Denmark

589 Energy efficiency in data processing centers: Technical-economic viability study for a trigeneration

Carlos Redondo Gil(1,2), Alvaro Fernández González(1)

1. Castile and León Technological Center for Supercomputing (FCSC) University of León. Spain

2. Electrical Engineering & Systems Engineering and Automatic Control Department, Faculty of Industrial and Computer Engineering, University of León. Spain

590 Stabilized power AC-DC-AC converter using polygon transformer

Mona F. Moussa, Nermeen Biomy, Yasser G. Dessouky

Arab Academy for Science and Technology, AASTMT, Alexandria. Egypt

591 Design of a trigeneration system for a hospital complex in Gran Canaria

C.M. González Navarro, A.M. Blanco Marigorta, J.A. Peña Quintana

Department of Process Engineering, University of Las Palmas de Gran Canaria. Spain

593 Dynamic voltage stability of an electric power network with double fed induction wind power generators

R.M. Monteiro Pereira(1), C. Machado Ferreira(1), F.P. Maciel Barbosa(2)

1. ISEC, College of Engineering of Coimbra/ DEE. Portugal

2. Faculty of Engineering of the University of Porto. Portugal

594 Reliability analysis of residential photovoltaic systems

Alfredo Garro, F. Barrara

Department of Electronics, Computer and System Science, D.E.I.S., University of Calabria, Rende. Italy

595 Comparison between the short-term observed and long-term estimated wind power density using artificial neural networks. A case study

S. Velázquez(1), JA Carta(2)

1. Department of Electronics and Automatics Engineering, University of Las Palmas de Gran Canaria. Spain

2. Department of Mechanical Engineering, University of Las Palmas de Gran Canaria. Spain

597 Filtering and processing IR images of PV modules

S. Vergura, O. Falcone

Dipartimento di Elettrotecnica ed Elettronica, Politecnico di Bari. Italy

598 Cumulative statistical analysis to monitor the energy performance of PV plants

S. Vergura

Dipartimento di Elettrotecnica ed Elettronica, Politecnico di Bari. Italy

601 The effect of substrate temperature on the active layer for spray-deposition process in organic solar cells

Jin-Ju Bae(1), Kyu-Jin Kim(1), Byoung-Ho Kang(1), Se-Hyuk Yeom(1), Dae-Hyuk Kwon(2), Hak-Rin Kim(3), Shin-Won Kang(3)

1. Department of Electrical Engineering and Computer Science, Kyungpook National University, Daegu. Korea
2. School of Electronic Information and Communication Engineering, Kyungil University Republic of Korea
3. School of Electronics Engineering, College of IT Engineering, Daegu. Republic of Korea

603 Is it economically possible repowering wind farms. A general analysis in Spain

L. Castro(1), A. Filgueira(1), M^a A. Seijo(1), E. Muñoz(1), L. Piegiari(2)

1. Department of Industrial Engineering II University of A Coruña, Ferrol. Spain
2. Department of Electrical Engineering. Politecnico di Milano, Milan. Italy

604 Online thevenin's equivalent using local PMU measurements

Sobhy M. Abdelkader

School of Electronics, Electrical Engineering & Computer Science, Queen`s University Belfast. United Kingdom

606 Cell method and modified nodal method in eddy current electromagnetic problems

L. Simón Rodríguez, J.M. Monzón Verona

Department of Electrical Engineering, University of Las Palmas de Gran Canaria. Spain

607 Fuzzy multi-agent based voltage and reactive power control

Bessie Monchusi, Adedayo Yusuff, Josiah Munda, Adisa Jimoh

Department of Electrical Engineering, Tshwane University of Technology, Pretoria. South Africa

609 Meat and bone meal as a renewable energy source in cement kilns: investigation of optimum feeding rate

W.K.H. Ariyaratne(1), M.C. Melaaen(1), Kristin Eine(2), L.A. Tokheim(1)

1. Department of Process, Energy & Environmental Technology, Telemark University College, Porsgrunn. Norway
2. Norcem AS Brevic. Norway

610 Comparative study of biodiesel production from ethanol and babassu oil using mechanical agitation and ultrasounds

Eduardo J. Mendes de Paiva, Jayne Carlos S. Barboza, Maria Lucia Caetano Pinto da Silva, Heizir Ferreira de Castro, Domingos Sávio Giordani

Department of Chemical Engineering, School of Engineering of Lorena, University of São Paulo. Brazil

615 Optimization of the electric power generated by a brake of water

E. Martínez Prado, P. Lara Santillán, A. Falces de Andrés, M. Mendoza Villena, A. Yangüas Peña

Department of Electrical Engineering, E.T.S.I.I. La Rioja University, Logroño. Spain

617 Survey on knowledge based methods to assist fault restoration in power distribution networks

Youssef Oualmakran(1), Joaquím Meléndez(1), Sergio Herraiz(1), Mercedes López Perea(2), Eloy González(2)

1. Department of Informatics and Applications, Research GroupeXiT, Girona University. Spain
2. Indra Software Labs, Madrid. Spain

618 Effect on rain on vertical axis wind turbines

B.C.Al(1), C. Klumpner(2), D.B. Hann(1)

1. Energy and Sustainability Division and Electrical Systems and Optics Division, University of Nottingham. United Kingdom
2. Electrical Systems and Optics Division, University of Nottingham. United Kingdom

619 Fault causes analysis in feeders of power distribution networks

Oscar A. Quiroga, Joaquim Meléndez, Sergio Herraiz

Institute of Informatics and Applications, University of Girona. Spain

620 Notes on the solar map of Asturias

J.I. Prieto J.C. Martínez García, D. García, R. Santoro

Department of Physics. University of Oviedo, Polytechnic School of Engineering, Gijón. Spain

622 Control with floating- and fixed- point DSPs of a low-cost flexible platform for a photovoltaics grid-connected system working as an agent in a distributed generation structure

Alexis B. Rey-Boué(1), F. Ruz Vila(2), José M. Torrelo(3), Salvador Subiela(3)

1. Departamento de Electrónica, Tecnología de Computadores y Proyectos, Universidad Politécnica de Cartagena, Murcia. Spain
2. Departamento de Ingeniería Eléctrica, Universidad Politécnica de Cartagena, Murcia. Spain
3. Instituto de Tecnología Eléctrica (ITE), Valencia. Spain

623 High frequency modelling of cables in PWM motor drives by using polynomial functions based parameters

M.C Di Piazza, A. Ragusa, G. Vitale

Consiglio Nazionale delle Ricerche, Istituto di Studi sui Sistemi Intelligenti per L'Automazione, (ISSIA-CNR) Palermo. Italy

625 An integral and flexible wireless power monitoring system

S. Blanc, P. Yuste, A. Lorente, J.J. Serrano

Department of Computer Engineering, Universitat Politècnica de València. Spain

628 Mechanically stacked solar cells for concentrator photovoltaics

Ian Mathews(1), Donagh O'Mahony(1), Weiwei Yu(1), Declan Gordan(1), Nicolas Cordero(1), Brian Corbett(1), Alan P. Morrison(1,2)

1. Tyndall National Institute UCC, Lee Maltings, Prospect Row, Cork. Ireland
2. Department of Electrical and Electronic Engineering, University College, Cork. Ireland

630 Parallel-connected legs in a grid-tied inverter system for distributed generation

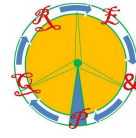
G.J. Capellá(1), J. Pou(1), J.Zaragoza(1), S. Ceballos(2), I. Gabiola(2), E. Robles(2)

1. Department of Electronical Engineering, Technical University of Catalonia, Terrassa. Spain
2. Tecnalia Technology Corporation, Energy Unit, Zamudio-Bizkaia. Spain

633 Prediction system based on domestic weather sensors for the energy production of solar power plants

Domingo Benítez, Carlos González Muñoz, José F. Medina

SIANI University Institute, University of Las Palmas de Gran Canaria. Spain



635 The implementation of the low voltage ride-through curve on the protection system of a wind power plant

R.P.S. Leão(1), J.B. Almada(1), P.A. Souza(2), R.J. Cardoso(1), R.F. Sampaio(1), F.K.A. Lima(1), J.G. Silveira(2), L.E.P. Formiga(2)

1. Department of Electrical Engineering, Federal University of Ceará, Fortaleza. Brazil
2. Companhia Energética do Ceará, Fortaleza. Brazil

637 Doubly fed induction generator and convencional synchronous generator based power plants: operation during grid fault

M.C Salles(1), A.P. Grilo(2), J.R. Cardoso(1)

1. LMAG- Laboratory of Applied Electromagnetism, PEA-Polytechnic School, University of São Paulo.
2. Engineering, Modelling and Applied Social Science Center, Federal University of ABC, Great São Paulo. Brazil

639 Issues about monitoring the energy performance of a PV plants constellation

S. Vergura

Dipartimento di Elettrotecnica ed Elettronica, Politecnico di Bari. Italy

640 Orientation system of solar panels based on a robot manipulator

Ahmed Chaïb, Dalila Acheli, Mohamed Kesraoui

Applied Control Laboratory, University of Boumerdes. Algeria

642 Cornice modular wind collector © for collection and amplification of the vertical wind component in buildings for generation of small wind electric energy

J.C. Sáenz Díez Muro(1), J.M. Blanco Barrero(1), E. Jiménez Macías(1), J. Blanco Fernández(2), M. Pérez de la Parte(2)

1. Department of Electrical Engineering
2. Department of Mechanical Engineering. E.T.S.I.I., La Rioja University, Logroño. Spain

643 Comparison in the application of the exploitation by optimal head model to hydroelectric power station in run-of-the-river systems equipped with different types of turbines

J.M. Blanco Barrero(1), J.C. Sáenz Díez Muro(1), E. Jiménez Macías(1), J. Blanco Fernández(2), M. Pérez de la Parte(2)

1. Department of Electrical Engineering
2. Department of Mechanical Engineering. E.T.S.I.I., La Rioja University, Logroño. Spain

646 Large scale integration of wind power-influence of geographical allocation

L.Reichenberg L. Göransson, F. Johnsson, M. Odenberger

Department of Energy and Environmental Chalmers University of Technology, Göteborg. Sweden

649 Analysis of current-bidirectional buck-boost based switch-mode audio amplifier

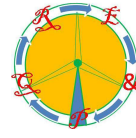
Gert Bolten Maizonave(1), Michael A.E. Andersen(1), Claus Kjaergaard(1), Kristian L. Lund(2), Lars B.R. Hansen(2)

1. Department of Electrical Engineering, Technical University of Denmark, Lyngby. Denmark
2. Bang & Olufsen ICEpower a/s. Denmark

650 Isolated bidirectional DC-DC converter for supercapacitor applications

Sayed Mohammad Dehghan Dehnavi(1), Gokhan Sen(2), Ole C. Thomsen(2), Michael A.E. Andersen(2), Lars Møller(3)

1. Power Electronic & Protection Lab. Faculty of Electrical and Computer Engineering, Tarbiat Modares University, Tehran. Iran
2. Department of Electrical Engineering, Technical University of Denmark
3. H2 Logic A/S. Denmark

**651 On the search of efficient uses for glycerine: steam gasification**

J.F. González(1), G. Engo(1), S. Román(1), M.C. Rayo(1), F.J. Masa(1), J.M. Encinar(2)

1. Department of Applied Physics, University of Extremadura. Spain
2. Department of Chemical Engineering and Physical Chemistry, University of Extremadura, Badajoz. Spain

652 Probabilistic model for distributed generation expansion in distribution power network

C.Ponce Corral(1), H. Bludszweit(2), J.A. Domínguez Navarro(3)

1. Institute of Engineering and Technology, Universidad Autónoma de Ciudad Juárez.. México
2. Electrical Engineering Division, CIRCE Foundation, Zaragoza. Spain
3. Department of Electrical Engineering, C.P.S., University of Zaragoza. Spain

656 Control design of a two degree of freedom combined with repetitive controller applied to a single phase inverter power generation in the context of microgrids

R. Ortega(1,2), E. Figueres(2), G. Garcerá(2), O. Carranza(1,2), C.L. Trujillo(1,3)

1. Escuela Superior de Cómputo, Instituto Politécnico Nacional. México
2. Departamento de Ingeniería Electrónica, UPV, Valencia. Spain
3. Department of Electronic Engineering, Universidad Distrital Francisco José de Caldas. Bogotá. Colombia

658 On-line cable diagnostic possibilities in an artificial aging environment

Christian Freitag, Christian Weindl, Ivana Mladenovic

Institute for Electrical Power Systems, University of Erlangen- Nuremberg. Germany

660 Energy consumption and CO2 emissions evaluation for electric and internal combustion vehicles using a LCA approach

Sérgio Faias(1,2), Jorge Sousa(1,2) Luís Xavier(3), Pedro Ferreira(3)

1. ISEL. Instituto Superior de Engenharia de Lisboa. Portugal
2. Cle, Center for Innovation in Electrical and Energy Engineering, Technical University of Lisboa. Portugal
3. EDP, Energias de Portugal, Lisboa. Portugal

662 Equipment safety in renewable energies exploitation

Blaise Nsom(1), Karim Bouchlaghem(1,2)

1. Université de Bretagne Occidentale, LBMS EA. France
2. Unité de Recherche "Energétique et Environmental", Sousse Ibn Khaldoun. Tunisia

663 Practical experience with electricity production from unused energy at the water management company

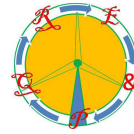
M. Gono(1), M. Kyncl(1), R. Gono(2)

1. Sm VaK a.s. Ostrava. Czech Republic
2. Department of Electrical Power Engineering, FEECS, VSB, Technical University of Ostrava, Poruba. Czech Republic

671 A comparison of transformer HF models and their application to PQ analysis

C. Capellán, M. Mañana, A. Arroyo, L.M. Muñoz, F. Delgado

Department of Electrical Engineering, E.T.S.I.I.T., University of Cantabria, Santander. Spain

**672 Laboratory platform for small wind energy generators**

A. Arroyo(1), M. Mañana(1), L.M. Muñoz(1), C.J. Renedo(1), S. Pérez(1), I. Fernández(1), C. Gómez(2), R. Prieto(2)

1. Department of Electrical Engineering, E.T.S.I.I.T., University of Cantabria, Santander. Spain
2. Instituto de Ingeniería y Tecnología de Cantabria (ITEC), Santander. Spain

674 Increasing penetration of renewals in isolated power systems using energy storage systems

L. Rouco(1), I. Azpiri(2), I. Gómez de Olea(2), J. Tabernero(1)

1. Universidad Pontificia de Comillas, Madrid. Spain
2. Iberdrola Renovables, Madrid. Spain

675 Optimal dispatch of a multiple energy carrier system equipped with a CCHP

A. Sheikhi, A.M. Ranjbar, F. Safe

Department of Electrical Engineering, Sharif University of Technology, Tehran. Iran

676 Providing an added-value to biodiesel by-products: pyrolysis of glicerol.**Thermogravimetric study and analysis of sulphur emissions**

J.F. González(1), G. Engo(1), S. Román(1), J.I. Arranz(2), J.M. Encinar(3)

1. Department of Applied Physics
2. Department of Mechanical, Energetics and Materials Engineering
3. Department of Chemistry Engineering and Physical Chemistry, University of Extremadura. Spain

682 Active balancing circuit for advanced lithium-ion batteries used in photovoltaic application

J.F. Reynaud(1,2), C.E. Carrejo(1), O. Gantet(1), P. Aloïsi(1), B. Estibals(1,2), C. Alonso(1,2)

1. CNRS; LAAS, Toulouse. France
2. Université de Toulouse; UPS, INSA, INP, ISAE; LAAS. France

683 Control laws to improve efficiency and average life time of an adaptive multi-phases converter dedicated to photovoltaic applications

A. Berasategi(1,2,3), Y. El Basri(1,2,3), C. Cabal(1), B. Estibals(1,2), M. Vermeersch(3), C. Alonso(1,2)

1. CNRS; LAAS, Toulouse. France
2. Université de Toulouse; UPS, INSA, INP, ISAE; LAAS. France
3. Department Solar & New Energies, TOTAL S.A.. France

685 Synchronization of a single-phase wind energy generator with the low-voltage utility grid

Nader Anani(1), Omar AL-Kharji AL-Ali(1), P. Ponnappalli(1), S.R.AL-Araji(2), M.AL-Qutayri (2)

1. School of Engineering, Division of Electrical and Electronic Engineering, Manchester Metropolitan University. United Kingdom
2. College of Engineering, Khalifa University of Science, Tech, and Research. UAE

686 Modernisation of high power laboratory to fulfill the technical and qualitative conditions for tests according to standards in force

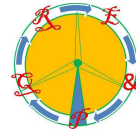
George Curcanu, Corneliu Chiciu, Constantin Ilinca, Horia Ionescu

R&D National Institute ICMET-Craiova. Romania

695 A step-by-step tracking program for a string of photovoltaic modules

N.I. Tatu, C. Alexandru, V.E. Dombi

Department of Renewable Energy Systems and Recycling, Transilvania University of Braşov. România

**696 Mono-axis vs Bi-axis tracking for a string of photovoltaic modules**

N.I. Tatu, C. Alexandru

Department of Renewable Energy Systems and Recycling, Transilvania University of Braşov.
România**697 A review on existing efficiency indications on sustainable energy**

R. M. Robles(1), V. Barranco(1), A. M. Castillo(2) , J. M. Ramirez(3) , F.R. Lara(1)

1. Department of Electrical Engineering. University of Córdoba. Spain

2. Department of Economy Applied. University of Córdoba. Spain

3. EATCO Research Group. University of Córdoba. Spain

