

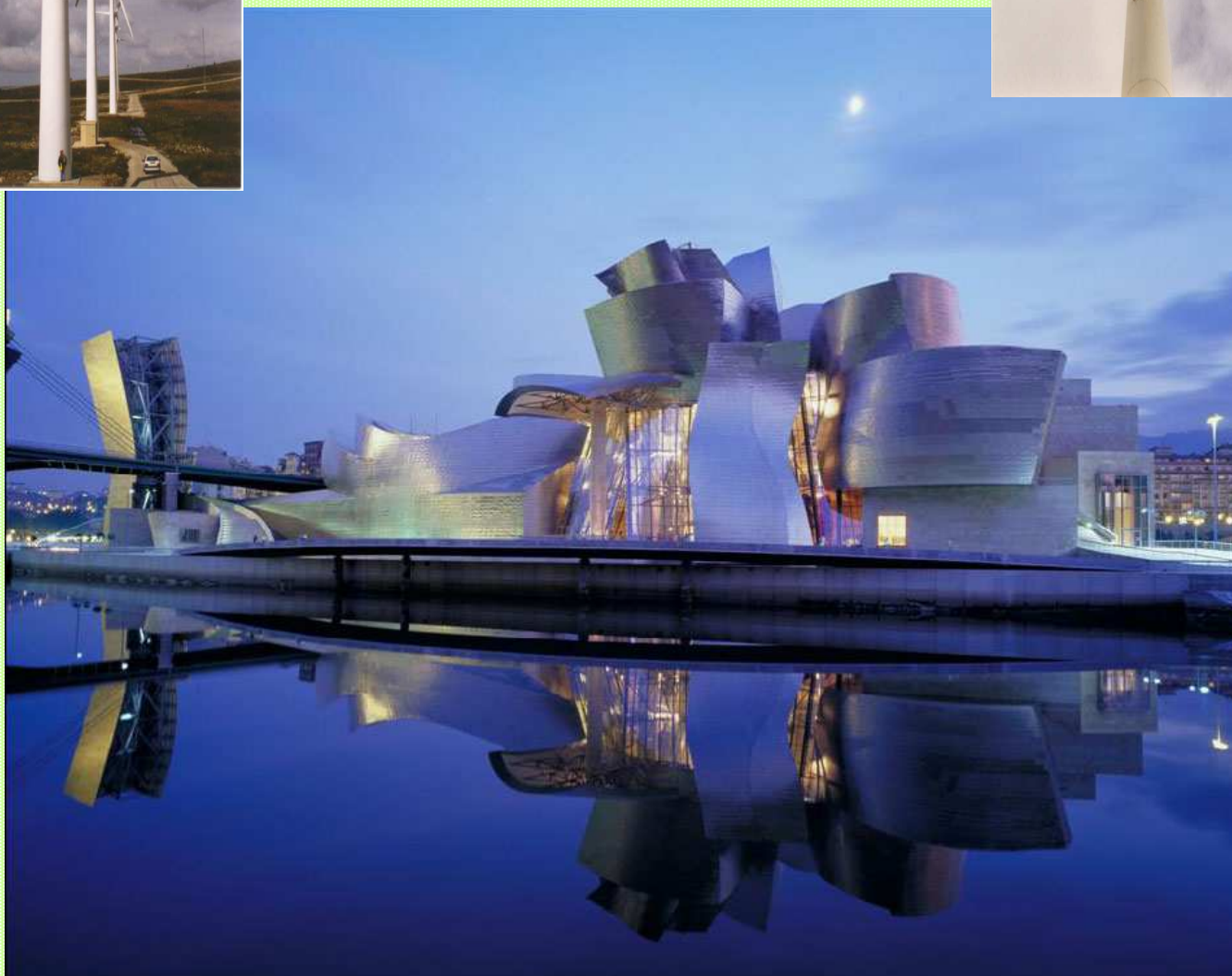
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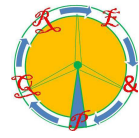
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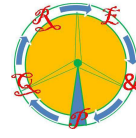


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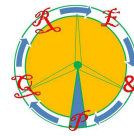


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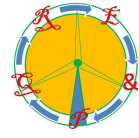
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327 Energy Planning Methodologies

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328 Control Strategy of PWM Rectifiers Connected to Unbalanced Grids

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330 Interaction of fault ride through requirements and loss of mains protection

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331 Harmonic emission study of individual wind turbines and a wind park

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333 Design and Simulation of A Single Current Sensor Maximum Power Point Tracker for Solar Hydrogen System

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335 Power Quality of Supply Characterization in the Portuguese Electricity Transmission Grid

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REN – Rede Eléctrica Nacional, S.A. Sacavém. Portugal

336 GestInc- The Incidents Data Base

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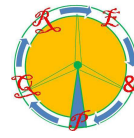
REN – Rede Eléctrica Nacional, S.A. Sacavém. Portugal

337 Solar heating system's performance for the heating season 2011/12 in Madrid

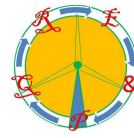
P. de Agustin, M. Izquierdo, E. Martin

Instituto de Ciencias de la Construcción Eduardo Torroja (CSIC). Madrid. Spain

- 340 Clustering daily solar radiation from Reunion Island using data analysis methods**
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 1. Department of Power Systems. University Politehnica of Bucharest. Romania
 2. University of Bergamo. Italy
 3. Politecnico di Milano. Italy
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 1. Department of Climatic Engineering, Faculty of Engineering Sciences, University Mentouri Constantine. Algeria
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 Department of Electrical and Computer Engineering Aristotle University of Thessaloniki
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- 346 Control and simulation of a stand-alone wind-hydrogen generation system**
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 1. Sustainable Environment Research Centre (SERC) Renewable Hydrogen Research and Demonstration Centre, University of Glamorgan. United Kingdom
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 1. Department of Electrical Engineering. Wrocław University of Technology. Poland
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 Electrical Energy Systems. University of Erlangen-Nuremberg. Germany
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 2. Energy Unit, Tecnalia, Parque Tecnológico de Bizkaia. Derio. Spain
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 2. Department of Architecture, University of Catania. Italy



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Interdisciplinary Centre for Security, Reliability, and Trust (SnT), University of Luxembourg
- 363 Power Quality improvement in LV smart grid by using the Open UPQC device**
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2. Politecnico di Milano, Dipartimento di Energia. Milano. Italy
- 364 Charging management for full electric vehicles in the mobility-on-demand-concept "fahrE" using local renewable energy**
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Power Systems and High-Voltage Engineering. Faculty of Electrical Engineering and Information Technology. Chemnitz University of Technology. Germany
- 366 Islanded Operation and Control of Offshore Wind Farms Connected through a VSC-HVDC Link**
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2. Department of Systems Engineering and Control, Universitat Politècnica de València. Spain
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3. Laboratory for Electricity Storage (LSE), National Institute of Solar Energy (CEA-INES) Le Bourget-du-Lac. France
- 372 Comparative Evaluation between Theoretical Models for Three-Phase Induction Motor under**



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D. L. R. Hollanda(1), M. L. S. de Almeida(1), A. L. Ferreira Filho(1), A. Goedel(2)

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374 A Compression Method for Power Quality Data

R. E. Dapper(1), C. D. P. Crovato(2), A. A. Susin(1), S. Bampi(1)

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376 Modelling and Simulation of Hierarchical Control for AC Inductive Microgrids

A. Martin Villate(1), J. Vadillo(1), J.P. Fossati(1), L. Arrizubieta(2), I. Cerro(2)

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377 Integrated Gasification of Biomass Residues (IBGCC)

Axel Kölling(1), Udo Hellwig(2), Mario Nowitzki, Nikolai Sachno, Lucca Viscuso(3)

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379 Short time voltage variations analysis for the new Brazilian distribution procedures (PRODIST) and for the IEC 61000-4-30

G. S. Wojchowski(1), C. D. P. Crovato(2), R. C. Leborgne(1)

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382 The Method of Checking Equations for Energy Resources Flows Data Validating

Vladislav O. Samoylenko, Andrew V. Pazderin

Department of Automated Electrical Systems, Boris Yeltzin Ural Federal University. Russia

383 IGCC: An Alternative to the use of Mineral Coal

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384 Efficiency Evaluation of Filters Applied in Thermoelctrics from the Analysis of Process Variables

Neto, J. M.(1), Pauletti, F.(2), Ando Junior, O. H.(1), Spacek, A. D.(1), Oliveira, M. O. (2), Schaeffer, L. (2) Bretas, A. S.(2)

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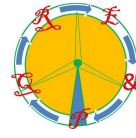
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385 Porous Ni Electrodes for Hydrogen Production from Water Electrolysis

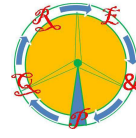
I. D. Savaris(1), C. S. Torres(1), A. M. Sheikh(1), F. Weschenfelder(2), L. Schaeffer(2), C. Malfatti(1)

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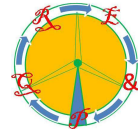
- 387 Analysis of PRIME PLC Smart Metering Networks Performance**
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- 388 An overview of ultracapacitors applicability in high power applications**
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 1. Department of Electronics Technology, Faculty of Engineering, University of the Basque Country (UPV/EHU) Bilbao. Spain
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 2. Expander-Tech, Universidad Jaume I de Castelló. Spain
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- 400 A New Cost-Effective Wind Farm Structure with HVDC Link Preserving Technical Advantages of Advanced offshore Wind Farms**
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 Center of Excellence in Power System Management and Control, Department of Electrical Engineering. Sharif University of Technology. Tehran. Iran
- 402 A Virtual Power Plant with the use of the Energy Box in a Smart Grid concept**
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 1. Deusto Institute of Technology, DeustoTech Energy.University of Deusto. Spain
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- 403 Design of a Virtual Power Plant in the presence of microrenewables and electric vehicles in a microgrid concept for real-time simulation as part of a Remote Lab**
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- 404 Wind Power and Electricity Consumption Forecasting on a Smart House Location**
 H. Eliasstam(1), K. N. Genikomsakis(2), C. S. Ioakimidis(2)
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- 405 Application of Differential Evolution as method of pitch control setting in a wind turbine**
F. Oterino-Echavarri(1), E. Zulueta(2), J. Ramos-Hernanz(3), I. Calvo(2), J.M. Lopez-Guede(2)
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- 406 Accuracy and Data Compression Trade-Offs for Power Quality Disturbance Representation with DWT and PCA techniques**
L.B. Soares(1), R. E. Dapper(3), C. Crovato(2), S. Bampi(1), A. A. Susin(1,3)
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- 409 Energetic Modeling of Ánibal Solar Vehicle for Murcia Solar Race Competition**
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Department of System Engineering and Automation, E.T.S.I.I., Technical University of Cartagena (UPCT). Spain
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Department of Chemical Engineering, EEL-USP, University of São Paulo. Brazil
- 412 Production of ethylic biodiesel from Tilápia visceral oil**
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Department of Chemical Engineering. EEL-USP, University of São Paulo. Brazil
- 415 Relationship between cetane number and calorific value of biodiesel from Tilápia visceral oil blends with mineral diesel**
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- 418 Production of Biodiesel from WVO Using Small Scale Continuous Ultrasonic Processor** Justin Wood, Jared Slayton, Seth Parrott, Ahmed EISawy
Department of Manufacturing and Engineering Technology, College of Engineering, Tennessee Technological University. USA
- 422 Construction and Comparison of the Efficiency of Water Heating Systems Using low Cost Solar Collectors**
Marcelo G. Martins(1), Francisco X. L. Silva(2), Antonio M. J. C. Neto(3), Gabriel G. da Silva(3), Francisco das Chagas Marques(4), Nélio T. Machado(5)
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5. Faculty of Chemical Engineering-UFGPA, Pará. Brazil
- 423 A Three-Phase Microgenerator Based Solution for Power Harvesting Applications**
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- 424 The Impact of Small HPP's in the Energy Balance of Albanian Power System**
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- 425 Design and Implementation of a High Temperature Control Monitoring Applied to Micro Thermoelectric Generators**
 Sandro C. S. Juca(1), Paulo C.M. Carvalho(2), Renata I.S. Pereira(2), Dmitry Petrov(3), Ulrich Hilleringmann(3)
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 2. Federal University of Ceará-UFC, Department of Electrical Engineering. Brazil
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- 428 Optimization of Biodiesel Production Process for Homogeneous Catalysis from Used Cooking Oil**
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 1. Chemical Engineering and Mechanical, Master in Environmental Engineering PhD in Chemical Engineering. Associate Professor, Universidad Nacional de Colombia.
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 1. Department of Electrical Engineering, Sharif University of Technology, Tehran. Iran
 2. Department of Energy, Sharif University of Technology, Tehran. Iran
- 431 Distributed Generation Penetration Impact on Distribution Networks Loss**
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- 433 Cross-sectional temperature field of a solar collector's absorber in the case of annular pipe**
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 1. Energy Resources Laboratory. Institute of Physical Energetics, Riga. Latvia
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- 435 A Review and Comparison of FACTS Optimal Placement for Solving Transmission System Issues**
 A. Hernandez(1), M.A. Rodriguez(1), E. Torres(2), P. Eguia(2)
 1. Department of Power Grid Automation – Power Electronics, Ingeteam Power Technology - Technology. Parque Tecnológico Bizkaia. Spain
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- 436 Testing and Validation of a 200 kVA SSSC Prototype for Power Flow Control**
 A. Hernandez(1), M.A. Rodriguez(1), E. Torres(2), P. Eguia(2)
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- 437 i.Sare: The Future Grid**
 Luis Galo Corzo(1), Ibon Cerro(1), Eneko Sansinenea(1), Giovanna Santamaría(1) Joseba Zubizarreta(2), Leire Arrizubieta(1)
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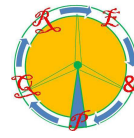
- 439 A Case Study on High Power Compensator of the Power Grid Irregularities for Industrial Appliances**
 A. Jan Iwazskiewicz(1), B. Jacek Perz(1), C. Leszek Wolski(1), M. Perez Donsión(2)
 1. The Electrotechnical Institute, Gdansk Branch, Poland
 2. Electrical Engineering Department, Vigo University, Spain
- 440 Modelling solar data: reasons, main methods and applications**
 M. de Simón-Martín(1), M. Díez-Mediavilla(2), C. Alonso-Tristán(2)
 1. Department of Electrical Engineering and Systems and Automatics, E.I.I.I., León University. Spain
 2. Department of Electromechanical Engineering, E.P.S., Burgos University. Spain
- 442 Modular Multilevel Converter Control Strategy with Fault Tolerance**
 Remus Teodorescu(1), Emanuel-Petre Eni(1), Lazslo Mathe(1), Pedro Rodríguez(2)
 1. Aalborg University.
 2. Abengoa. Spain
- 445 Study of Dynamic Viscosity and Density of Aprotic Solvents for Lithium – ion Batteries**
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 Department of Electrical and Electronic Technology, Brno University of Technology. Czech Republic
- 446 Test rig for stand-alone small power wind turbine emulation for variable wind and load**
 C. Vlad, A. Burlibaşa, T. Munteanu, G. Gurguiatu, M. Barbu
 Automatic Control and Electrical Engineering Department, Faculty of Automatic control, Computers, Electrical Engineering and Electronics “Dunărea de Jos” University of Galaţi. Romania
- 447 Prospects of Solar Power Generation in Dry Regions: The case of Arar in KSA**
 S.A. Sawalha(1), J.O. Jaber(2), T. Abu Mansour(1)
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 2. Faculty of Engineering Technology, Al-Balqa’ Applied University, Amman. Jordan
- 449 Comparative study of power transmission modelling in large scale AGC power system**
 Elyas Rakhshani(1), Toni Mir Cantarellas(1), Pedro Rodriguez(1,2), Remus Teodorescu(3)
 1. ABENGOA Research. Spain
 2. Technical University of Catalonia, Department of Electrical Engineering. Spain
 3. Aalborg University. Department of Energy Technology. Denmark
- 450 Application of a Hybrid Energy System Combining RES and H2 in an Office Building in Lavrion Greece**
 I. Paspaliaris(1), M. Taxiarchou(1), A. Peppas(1), P.G. Benardos(1), S. Carosio(2), G. Urbano(2), A. Monero(2), R. De Laurentiis(2)
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 2. D’Appolonia S.p.A, Genoa. Italy
- 452 Turkey’s Municipal Solid Waste and Urban Waste Water Treatment Sludge Electrical Energy Potential**
 M. Ozcan(1), S. Ozturk(1), M. Yıldırım(2)
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 2. Faculty of Technical Education, Electronics and Computer Education Department
 Kocaeli University. Turkey
- 454 Field Measurement Based PLS Model for Dynamic Rating of Overhead Lines in Wind Intensive Areas**
 Sobhy M. Abdelkader, D. John Morrow, Jiao Fu, Stephen Abbot
 School of Electronics, Electrical Engineering & Computer Science, Queen’s University Belfast.



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- 455 Obtaining the characteristics curves of a photocell by different methods**
 JA. Ramos Hernanz(1), JJ. Campayo(1), E. Zulueta(2), O. Barambones(2), P. Eguía(3) I. Zamora(3)
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 3. Department of Electrical Engineering. E. T. S. de Ingeniería de Bilbao, University of the Basque Country. Spain
- 456 Control of an active filter based three level grid connected converter for wind turbine applications**
 Antoni Mir Cantarellas(1), Cristian Sintamarean(2), Elyas Rakhshani(1), Pedro Rodriguez(1,3), Remus Teodorescu(2)
 1. ABENGOA Research. Spain
 2. Department of Energy Technology. Aalborg University. Denmark
 3. Department of Electrical Engineering. Technical University of Catalonia. Barcelona. Spain
- 459 A New, Ultra-Low-Cost Power Quality and Energy Measurement Technology –Bringing SmartGrid on the Factory and Automation Floor**
 A. Alex McEachern, B.Andreas Eberhard
 Power Standards Lab (US)
- 460 On the Possibility of Using CHP from a 1.4 MW Direct Fuel Cell at Kettering University Engineering Building – A Demonstration Study**
 Etim U. Ubong(1), Uwem Ubong(2), Vipul Laddha(1), Pouyan Pourmovahed(1)
 1. Mechanical Engineering Department, Center of Fuel Cell Research & Powertrain Integration, Flint, MI. USA
 2. Department of Environmental Chemistry, University Of Technology, A'lbom State Uyo. Nigeria
- 461 Combined Heat and Power (CHP) studies at the Flint Bio-Gas Complex Using a 1.4 MW Direct Fuel Cell – A Demonstration Study**
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- 465 Wind speed forecasting using Singular Systems Analysis**
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- 468 Electric Power Generation Using Buoyancy-Induced Vortices**
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- 469 Automatic Analysis System of Network Incidents**
 J. Javier Ferro(1), Hugo Gurendez(2), David MacDonald(2), Javier Amantegui(2), Cesáreo Fernández(3)
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- 470 Comparison of the Harmonic Distortion of Current Source and Voltage Source Inverters**
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- 471 Electric drives for light e-scooters**
P. Andrada, B. Blanqué, E. Martinez, M. Torrent, J.A. Sánchez, J.I. Perat
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Escola Politècnica Superior d'Enginyeria de Vilanova i la Geltrú (EPSEVG).
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- 472 Assessment of the Performance and Defect Investigation of PV Modules after Accelerated Ageing Tests**
J.A. Tsanakas(1), M. Karoglou(2), E.T. Delegou(2), P.N. Botsaris(1), A. Bakolas(2), A. Moropoulou(2)
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- 477 Effect of Numerous PV Inverters on Power Quality Connected to the Same LV Network in a Suburban Area**
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- 478 Power electronics applied to voltage control in rural distribution networks with penetration of distributed generation**
J. Arrinda(1), J. A. Barrena(1), M. A. Rodriguez(2), S. Malo(2)
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- 479 PMSGs Solutions for Gearless Wind Conversion Systems with Battery Storage**
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2. National Institute for R&D in Electrical Engineering (ICPE-CA), Bucharest. Romania
- 480 Energy Simulation of Marine Currents through Wind Tunnel with use of Electromagnetic Brake**
Aldo A. Belardi, Antônio H. Piccinini
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- 482 Single or dual axis trackers, control systems and electric drive losses for photovoltaic applications**
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- 483 Impact of the new electric arc furnace on the level of flicker in surrounding transmission and distribution power system**
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- 485 Analysis of the Energy Quality in a Building Acclimated Through a System of Evaporative Cooling Operated by Frequency Converters**
Arnulfo Barroso de Vasconcellos(1), Douglas Pinto Sampaio Gomes(1),



Jéssica Romeiro de Carvalho(1), Manoel Alexandre de Oliveira(1), Teresa Irene Ribeiro de Carvalho Malheiro(2)

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486 Energy Efficiency and Power Quality in Low Income Consumer Units

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487 Analisis of Energy Efficiency and Power Quality in Use of LEDs in Traffic Signaling System: The Case Study- Cuiabá- Mato Grosso

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489 Energy Storage Requirements to match Wind Generation and Demand applied to the UK network

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490 Power Quality versus Electromagnetic Compatibility in Adjustable Speed Drives

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491 Finite Element Analysis of a Three Speed Induction Machine

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492 Comparison between active power filter with selective control and conventional control for Harmonic in photovoltaic systems

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493 New Approach to Assess Unbalance and Harmonic Distortion in Power Systems

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494 Control strategy to improve the power factor with a hybrid filter

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495 A New Approach in Defining Harmonic Indices in Utility Application

H. Mokhtari(1), A. Shahab(1), M. Poshtan(2)

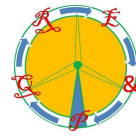
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496 Impact of Corrective Switching in Wind Farms Operation

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- 498 New algorithms for estimating the impact of wind turbines on telecommunication services**
I. Cascón(1), J. Cañizo(1), I. Angulo(1), D. de la Vega(1), D. Guerra(1), Y. Wu(2), A. Arrinda(1), I. Fernández(1), P. Angueira(1)

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- 499 Conducting Organic Polymers Modified by Incorporation of Semiconductor (POC/SM)-Synthesis and Electrochemical characterization of composite materials**

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- 500 Solar-driven gas turbine power plants**

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- 504 High-resolution CFD modelling of Lillgrund Wind farm**

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- 505 Cooperative Voltage Control of Distributed Generation and Grid Connected Converter in DC Microgrid**

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- 506 A Computational Contribution to Analyse the Connection of Independent Power Producer at the Grid**

L. M. Peres(1), M. L. R. Chaves(1), G. C. Guimarães(1), F. A. M. Moura(2)

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- 507 Back-pass non-perforated unglazed solar collector: performance and evaluation**

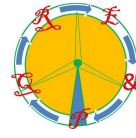
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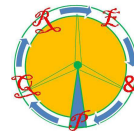
- 509 Voltage Balance Monitoring Based on Voltage's Instantaneous Space Phasor Geometrical Loci**

Aurelian Crăciunescu(1), Gloria Ciumbulea(1), Cătălina Necula Dumitrică(2), Mihai Predescu(3)

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- 510 Experimental Assessment of PV Panels Front Water Cooling Strategy**
Loredana Dorobanțu, Mihai Popescu, Claudia Popescu, Aurelian Crăciunescu
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- 512 Implementation of a controller for a static VAR compensator in large industrial networks**
Lj. Spasojević, I. Papič, B. Blažič
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- 514 Energetic sustainability of the building substitution: the rewards and the facilitations of the Italian Piano Casa**
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- 515 Fluid Structure Interaction of a loaded Darrieus Marine Current Turbine**
M. Belhache(1), S. Guillou(1), P. Grangeret(1), A. Santa-Cruz(1), F. Bellanger(2)
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- 516 Measurement of Power Quality Effects and Energy Efficiency of Various Light Technologies**
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- 518 Oscillating rotary electrical machine for Stirling cycle heat pump and other devices of renewable energy**
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- 520 Effects of geometries on flow characteristics and reforming performance of a steam-methane reformer**
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- 521 Stability Analysis of Distributed Multi-Converter System**
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- 522 Predictive Maintenance for intensive energy consuming plants, serviced by under-qualified staff. Case study**
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- 525 Content and Properties of Mechanically Sorted Municipal Wastes and Their Suitability for Production of Alternative Fuel**
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- 527 Applicability Analysis of Single-Machine Equivalent Method for Modeling Wind Farm Containing Full-Converter Wind Turbine Generators with PMSG**
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- 528 Development of a new mixed 5-level inverter for 3 kW household photovoltaic applications**
A. Caldeira, S. Jacques, A. Schellmanns, J.-C. Lebunetel, N. Batut, L. Gonthier
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- 529 The impact of feeders in closed-loop arrangement on harmonic distortion and power losses**
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- 532 Computational Performance Analysis of an Electromagnetic Dynamic Voltage Restorer: Physical Conception and Operational Approaches**
T. V. da Silva, F. P. Santilio, L. E. Vasconcelos, J. C. Oliveira
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- 534 Who pays for harmonic network losses caused by PV inverters?**
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- 540 Analysis of Importance of Components in Power Systems using Time Sequential Simulation**
G. Vancells, S. Herraiz, J. Melendez
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- 542 Modelling and Design of Indirect Solar Dryers for Batch Drying**
L. Blanco-Cano, A. Soria-Verdugo, L.M. García-Gutiérrez, U. Ruiz-Rivas
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- 544 Rural Smart Grids: planning, operation and control**
I. Zubia, I. Arrambide, O. Azurza, P.M. García, J.J. Ugartemendia
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- 545 A real site application of a diagnose method at Estimating Insulated Cables Degradation using Non Linearity Indicators**
L. N. Velasco(1), A. Reis(1), J. C. Oliveira(1), L. C. G. Freitas(1), A. P. Finazzi(2), F. N. Lima(2), H.C. Martins(3), W. J. Araújo(3), J. M. Borges(3)
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- 546 Medium-voltage distribution feeders in closed-loop arrangement – neutral point grounding**
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- 548 Power Flow Analysis of Distribution Systems with Large-Scale Wind and Conventional Energy Generation**
A. González(2), A. Madrazo(1), R. Robles(1), R. Domingo(1), M. Mañana(1), A. Arroyo(1), M.A. Cavia(1)

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549 Increasing Grid Integration of Wind Energy by using Ampacity Techniques

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550 Mapping of wind climate in urban environment

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552 Small wind in urban sectors.Review of literature and dynamic model implementation

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553 Harmonic Distortion Index for Stationary and Transient States

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555 Case study of energy efficiency and electric power quality

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558 Developing a Supervisory Controller for Hybrid Power System: Fernando de Noronha Island Case

Pedro Rosas(1), Caarem Studzinski, Vicente Simoni, Francisco Neves, Alécio Fernandes, Luiz H. A. Medeiros, Fabricio Bradaschia, Gustavo Azevedo, Felipe Guimaraes, Jimens Lima, André Victor, Lucas Cabral, Jose Arimateia, Carlos Soares(2)

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561 Computational Assessment of Control Strategy for PMSG Wind Turbines aiming at Voltage Regulation on Connection Point

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564 Fluid-thermal analysis of the cooling capacity of a commercial natural ester in a power transformer

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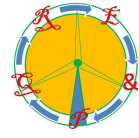
565 Design of Reactive Power Compensation Devices on the Base of Dynamical Simulation of Steelmaking Process

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566 Filtering Techniques: An historical overview and summary of current status

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567 Guide Vanes for Darreus Water Turbine in Tidal Current

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570 Low Voltage Ride Through Characterization of Wind Energy Conversion Systems

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572 Influence of flux estimation in performance of direct torque control of PMSM

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573 Harmonic Penetration Analyses for DC-Link Frequency Converter Drive Systems by Considering the Motor-Side Converter as an Ideal Current Generator

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574 The Effect of Ply Waviness for the Fatigue Life of Composite Wind Turbine Blades

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575 New trends in datacenter energy efficiency: beyond PUE

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576 Reduction of Zero Sequence Components in Three-Phase Transformerless Multiterminal DC-link based on Voltage Source Converters

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578 Limit Cycle Oscillation Analysis on the Design of Wind Power Harvester with Fluttering Aerofoil

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579 Efficiency Comparison of Grid Side Converters for DC Distribution Systems

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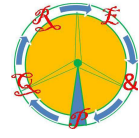
Consiglio Nazionale delle Ricerche, CNR – ISSIA UOS Palermo. Italy

582 Influence of the Fictitious Grid on Flicker Assessment of Grid Connected Wind Turbines

K. Redondo, A. Lazkano, P. Saiz, J.J. Gutierrez, I. Azcarate, L.A. Leturiondo

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- 584 Load Dispatch and Replacing Diesel by Gas Power Plant to Reduce Production Cost of Power Generation in Bali Island**
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- 585 Wind Power Determination for maximum Power Point Tracking in Lab-scale Multi-MW Wind Energy Systems**
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- 588 Effect of Acceptance angle on the design and performance of a heat pipe based compound parabolic collector at Kano, Nigeria**
B. Abdullahi, R.K. AL-Dadah, S. Mahmoud
School of Mechanical Engineering, University of Birmingham. United Kingdom
- 589 Strategic Quality Control Measures to Reduce Defects in Composite Wind Turbine Blades**
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- 591 Design and installation of a novel multi-point measurement system for a renewable energy grid**
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- 592 High efficiency Bridgeless Unity Power factor CUK converter Topology**
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- 594 In-Cylinder Heat Transfer in an Ericsson Engine Prototype**
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- 598 Study of optimization design criteria for stand-alone hybrid renewable power systems**
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