

- 458 **High voltage circuit breakers: SF6 vs. Vacuum**
A. Iturregi, E. Torres, I. Zamora, O. Abarategui
Department of Electrical Engineering. UPV-EHU. Barakaldo. Spain
- 459 **Optimization of SnO₂- Si heterostructure elaborated by APCVD for solar energy conversion**
D. Hocine, Ms. Belkaid, K. Lagha
Faculty of Electrical and Computer Engineering. The University Mouloud Mammeri. Tizi-Ouzou. Algeria
- 465 **Supply security and the reliability of the Spanish generator system in the next two decades based on the costs of fossil fuels and nuclear option**
F. Delgado, A. Ortíz, C.J. Renedo, S. Pérez, M. Mañana
Department of Electrical and Energy Engineering. E.T.S.I.I., Cantabria University, Spain
- 466 **Eucalyptus globulus waste as fuel in a power plant**
S. Pérez, C.J. Renedo, A. Ortíz, M. Mañana, C. Tejedor, N. Sanke, F. Delgado
Department of Electrical and Energy Engineering. E.T.S.I. Industrial and Telecommunication, University of Cantabria, Spain
- 467 **Environmental/economic power dispatch of microgrid using multiobjective optimization**
Faisal A. Mohamed¹, Heikki N. Koivo²
¹ Department of Electrical Engineering. Omar Al-Mukhtar University. Libya
² Department of Automation and Systems Technology. Helsinki University of Technology. Finland
- 468 **Asynchronized turbogenerators and compensators for improving the electric power quality**
N.D. Pinchuk, O.V. Antoniuk, M.B. Roytgarts
Branch ELECTROSILA of the JSC Power Machines, St. Petersburg. Russia
- 469 **Effects of flow direction and thermal short-circuiting on the performance of coaxial ground heat exchangers**
Enzo Zanchini, Stefano Lazzari, Antonia Priarone
Dipartimento di Ingegneria Energetica, Nucleare e del Controllo Ambientale, Università di Bologna, Bologna. Italy
- 472 **Micro grid stabilization using the virtual synchronous machine (VISMA)**
Ralf Hesse, Dirk Turschner, Hans-Peter Beck
Institute of Electrical Power Engineering. Clausthal-Zellerfeld. Germany
- 476 **Velocity-controlled piezoelectric switching energy harvesting device**
Yuan-Ping Liu^{1,2}, Dejan Vasic¹, François Costa^{1,3}, Wen-Jong Wu², C.K. Lee^{2,4,5}
¹ Système et Application des Technologies de l'Information et de l'Energie, Universud, Ecole Normale Supérieure de Cachan, France
² Department of Engineering Science and Ocean Engineering, National Taiwan University, Taipei, Taiwan
³ IUFM de Créteil, Université Paris 12, St Denis, France
⁴ Institute of Applied Mechanics, National Taiwan University. Taiwan
⁵ Industrial Technology Research Institute of Taiwan
- 477 **Development of switchable transformer research at University of South Australia**
H.A. Dharmawan, A.M. Ali
School of Electrical and Information Engineering, University of South Australia, Adelaide, South Australia

Predictable impact of lighting control on the energy consumption of a building through computational simulation

H. Bernardo^{1,3}, S. Leitão², L. Neves^{1,3}, P. Amaral^{1,3}

534 ¹ Departamento of Electrical Engineering, School of Technology and Management, Polytechnic Institute of Leiria, Portugal

² Department of Engineering, University of Trás-os-Montes and Alto Douro. Portugal

³ Institute for Systems and Computer Engineering at Coimbra, Portugal.

Thursday 16th April 2009

11:45-13:00 Oral Session A3

ROOM A “Iberdrola”

Chairman: Lieven Valdevelde

Stand-alone wind power system operating with a specific storage structure

M. Druga¹, C. Nichita¹, G. Barakat¹, E. Ceanga²

332 ¹ Department of Electrical Engineering. GREAH-Groupe de Recherche en Electrotechnique et Automatique du Havre, University of Le Havre, France

² Department of Electrical Energy Conversion Systems, Faculty of Electrical Engineering, “Dunarea de Jos” University of Galati, Romania

DC-bus voltage controllers for a three-phase voltage-source inverter for distributed generation

333 Bart Meersman, Bert Renders, Lieven Degroote, Tine Vandoorn, Lieven Vandeveldde Electrical Energy Laboratory (EELAB). Department of Electrical Energy, Systems and Automation (EESA), Ghent University, Belgium

Uninterruptible energy production in standalone power systems for telecommunications

350 E.F.F. Ribeiro¹, A.J. Marques Cardoso¹, C. Boccaletti²

¹ University of Coimbra, FCTUC/IT. Department of Electrical and Computer Engineering. Portugal

² Sapienza University of Rome. Department of Electrical Engineering. Italy

Modeling and simulation of a supervision and management system of hybrid energy systems for the pantanal region

503 Daniela Luiza Catelan Carneiro, João Onofre Pereira Pinto, Ruben Barros Godoy, Alexandra Maria A.C. Pinto

Department of Electrical Engineering. DEL. Federal University of Mato Grosso de Sul. BATLAB- Laboratory of Artificial Intelligence, Digital Systems and Power Electronics. Brasil

Fuel consumption minimization of a cogeneration system multi machines associated with a photovoltaic

508 Mélissa Dondas¹, Firas Alkhalil¹, Philippe Degobert¹, Frédéric Colas¹, Benoit Robyns²

¹ Laboratoire d'Electrotechnique et d'Electronique de Puissance de Lille (L2EP). Ecole Nationale Supérieure des Arts et Metiers (ENSAM) Lille.

² Ecole des Hautes Etudes d'Ingénieurs (HEI), L2EP Lille, France

13:00 – 15:00 Lunch

“la Vella Restaurant”

Thursday 16th April 2009

11:45-13:00 Oral Session B3

ROOM B “Circutor”

Chairman: Miguel Martínez Melgarejo

A case study of sharing the harmonic voltage distortion responsibility between the utility and the consumer

- 327 F.H. Costa, I.N. Santos, S.F.P. Silva, J.C. de Oliveira
Group of Power Quality. Faculty of Electrical Engineering, Federal University of Uberlandia. Brazil

A control strategy for combined series-parallel active filter system under non-periodic conditions

- 343 M. Ucar, S. Ozdemir, E. Ozdemir
Electrical Education Department, Technical Education Faculty, Kocaeli University, Turkey

A case study of transient and dynamic performance of saturated core reactor static Var compensator

- 353 J.A.F. Barbosa Jr¹, J.C. Oliveira¹, A.B. Vasconcellos², J.M. Pacheco²
¹ Faculty of Electrical Engineering. UFU, Federal University of Uberlândia. Brazil
² Department of Electrical Engineering, Federal University of Mato Grosso. Brazil

Design issues of redundant protection and supervision system for the special purpose power converters

- 356 Dmitri Vinnikov, Indrek Roasto, Valery Vodovozov
Department of Electrical Drives and Power Electronics Tallinn University of Technology. Tallinn. Estonia

Efficiency optimization of the high-power isolated DC/DC converters through THD and losses reduction in isolation transformers

- 359 Dmitri Vinnikov¹, Victor Bolgov²
¹ Tallinn University of Technology, Department of Electrical Drives and Power Electronics. Tallinn. Estonia
² Tallinn University of Technology, Department of Fundamentals of Electrical Engineering and Electrical Machines. Tallinn. Estonia

13:00 – 15:00 Lunch

“la Vella Restaurant”

Thursday 16th April 2009
15:00-16:30 Mesa Redonda MR1 **ROOM UPV “Sala de Juntas”**

Mesa Redonda MR1
Espacio Europeo de Educación Superior (EEES)
XIXRGIE (In Spanish)

- **Moderador:** D. Javier Rodríguez Zunzarren. Decano del Colegio de Ingenieros Industriales de Valencia.
- D. Miguel Andrés Martínez Iranzo. Director de la Escuela Técnica Superior de Ingenieros Industriales.
- D. Carlos Redondo Gil. Catedrático de Universidad de la Universidad de León.
- D. Miguel Angel Fernández Prada. Vicerrector de Estudios y Convergencia Europea.
- D. Enrique Ballester Sarrias. Director de la Escuela Técnica Superior de Ingeniería del Diseño.

16:30-17:00

Café

Thursday 16th April 2009
17:00-18:30 Mesa Redonda MR2 **ROOM UPV “Sala de Juntas”**

Mesa Redonda :
La investigación en Europa. Caso de España
XIXRGIE (In Spanish)

- **Moderador:** D. Antonio Cejalvo. Director de la Agencia Valenciana de la Energía.
- D. Pedro Fito Mauopey. Director del Instituto universitario de Ingeniería de Alimentos para el Desarrollo
- D. Francisco José Mora Más. Vicerrector de Planificación e Innovación.
- D. José Francisco Duato Marín. Catedrático de Universidad.
- D. José Ganau. Colegio Oficial de Ingenieros Industriales de la Comunidad Valenciana.

20:30 -24:00

Conference Banquet at “Sorolla Palace”
(Optional)

Friday 17th April 2009

9:30-10:45 Oral Session A4

ROOM A "Iberdrola"

Chairman: Ghita Constantin

The impact of transportation costs on the profitability of heat and power generation with wood products

357 J. Parrilla¹, W. Fichtner²

¹ Chair of Energy Economics. Brandenburg Technical University of Cottbus. Germany

² Chair of Energy Economics. Institute for Industrial Production. Karlsruhe. Germany

Simulation of the aerodynamic behaviour of a micro wind turbine

368 J.M.M. Monteiro¹, J.C. Páscoa¹, F.M.R.P. Brójo²

¹ Department of Electromechanical Engineering. University Of Beira Interior. Portugal

² Department of Aerospace Sciences and Technology. University of Beira Interior. Portugal

Concept for optimization and simulation of renewable energy parks with desalination

376 D. Buschert, B. Bitzer

South Westphalia University of Applied Sciences, Campus Soest, Germany

A voltage-source inverter for microgrid applications with an inner current control loop and an outer voltage control loop

399 Tine Vandoorn, Bert Renders, Frederik De Belie, Bart Meersman, Lieven Vandevelde
Electrical Energy Laboratory (EELAB), Department of Electrical Energy, Systems and Automation (EESA). Ghent University, Belgium

European strategic energy technology plan

403 C. Redondo Gil, L.A. Esquibel, A.M. Alonso Sánchez

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

Friday 17th April 2009

9:30-10:45 Oral Session B4

ROOM B "Circutor"

Chairman: José A. Güemes Alonso

Design procedures for small synchronous generators with interior permanent magnet rotors

385 Johann Peter Bacher

Institute of Drive Technology and Electrical Machines.E.A.M, University of Technology Graz, Austria

Impact of compact fluorescent lamps on energy transmission losses and power quality

391 Gorazd Štumberger¹, Klemen Deželak¹, Sebastijan Seme¹. Mirán Rošer², Viktor Tajnšek²

¹ University of Maribor. Faculty of Electrical Engineering and Computer Science. Slovenia

² Elektro Celje d.d., Celje, Slovenia

- 444 ***A practical approach to the cogeneration system for rural appliances***
 Jan Iwaszkiewicz¹, Jacek Perz¹, C. Jaroslaw Mikielawicz²
¹ The Electrotechnical Institute, Gdansk Branch, Poland
² The Szewalski Institute of Fluid-flow Machinery. Poland

- 462 ***Performance and measurement of power quality due to harmonics from street lighting networks***
 E. R. Manzano¹, M. Carlorosi², M. Tapia Garzón³
¹ Dpto Luminotecnia, Luz y Visión, FACET, Universidad Nacional de Tucumán, Argentina
² Dpto Ingeniería Eléctrica, FACET, Universidad Nacional de Tucumán, Argentina
³ Electro Civil S.A. San Miguel de Tucumán, Argentina

- 530 ***Analysis of methodologies for the economical evaluation of power quality***
 D. Coll-Mayor¹, J. Pardo², M. Pérez Donsión³
¹ Department of Physics, University of Balearic Islands, Palma de Mallorca
² Department of Industrial Organization, ETSII, Vigo University. Spain
³ Department of Electrical Engineering, ETSII, Vigo University. Spain

| | |
|---|---------------------|
| Friday 17th April 2009 | |
| 10:45-11:30 Poster Session C4 – Coffee Break | ROOM C “ABB” |

Chairmen: Hector Beltrán San Segundo, Dirk Turschner, Gorazd Stumberger, Buzdugan Mircea-Ion, Stanislaw Kulas

- 225 ***FPGA Implementation of a multiphase space vector modulation for asymmetrical dual three-phase AC machines***
 J. Prieto¹, F. Barrero¹, S. Toral¹, M.R.Arahal¹, M.J. Durán²
¹ Electronic & System and Automation Engineering Departments. E.S.I. University of Sevilla. Spain
² Electrical Engineering Department. E.S.I. University of Málaga. Spain

- 256 ***Restrained search predictive control of dual three-phase induction motor drives***
 M.J Durán¹, M.R.Arahal², F.J. Barrero², S.L.Toral², R. Gregor²
¹ Department of Electrical Engineering. University of Málaga. Spain
² Department of Electronic and Automatic Engineering. University of Sevilla. Spain

- 446 ***Simulation of power quality disturbances effects on an induction motor with ATP/EMTP. Comparison with laboratory measurements***
 José Gonçalves¹, José Baptista¹, Luís Neves^{2,3}, Filipe Tadeu Oliveira^{2,3}
¹ University of Trás-os Montes e Alto Douro. Portugal
² School of Technology and Management. Polytechnic Institute of Leiria, Portugal
³ INESC Coimbra, Portugal

- 478 ***Design and operation of a local cogeneration plant supplying a multi-family house (9,5 kW electrical/ 35 kW thermic power) - a field report***
 Thomas Schuster
 Department of Electrical Drives and Machines, Graz, University of Technology, Austria

- 480 ***Capacitor switching techniques***
 S.J. Kulas
 Faculty of Electrical Engineering, Warsaw University of Technology, Poland

- 482 **Germany's new code for generation plants connected to medium-voltage networks and its repercussion on inverter control**
Antonio Notholt
Institut für Solare Energieversorgungstechnik. División Engineering and Power Electronics. Kassel, Germany
- 483 **On the evaluation of power quality indices in distribution systems with dispersed generation**
A. Bracale¹, G. Carpinelli², A. Di Fazio³, D. Potro²
¹ Department for Technologies, University of Naples Parthenope, Italy
² Department of Electrical Engineering, University of Naples Federico II, Italy
³ Department of Industrial Engineering, University of Cassino, Italy
- 485 **Improved method for detection and classification of transients and waveform distortions using sine fitting algorithms**
T. Radil¹, P.M. Ramos^{1,2}, A.C. Serra^{1,2}
¹ Instituto de Telecomunicações, Lisbon, Portugal
² Department of Electrical and Computer Engineering, Instituto Superior Técnico, Technical University of Lisbon, Portugal
- 487 **Energy saving policy in water distribution networks**
M. Giugni¹, N. Fontana², D. Portolano³
¹ Department of Hydraulic, Geotechnical and Environmental Engineering, University of Naples Federico II. Italy
² Department of Engineering, University of Sannio, Benevento, Italy
³ Centre of Environmental Research C.I.R.AM. University of Naples Federico II, Naples. Italy
- 488 **Benefits of distributed energy storage working in parallel to distributed energy resources**
A. Goikoetxea¹, J.A. Barrena¹, M.A. Rodríguez², G. Abad¹
¹ Faculty of Engineering, University of Mondragón, Spain
² Ingeteam Transmission & Distribution S.A. Protección y Control de Redes Eléctricas. Basauri. Spain
- 490 **Integral management system for the energy efficiency improvement in commercial facilities: application to the Polytechnic University of Valencia**
G. Escrivá, M. Alcázar, C. Alvarez
Instituto de Ingeniería Energética. Universidad Politécnica de Valencia, Spain
- 491 **Stabilisation of the electricity production of a wind park using a biomass gasification plant**
A. Pérez Navarro, D. Alfonso, C. Alvarez, F. Ibañez, J. Safont, C. Sánchez, I. Segura
Instituto de Ingeniería Energética. Universidad Politécnica de Valencia, Spain
- 492 **GIS based advanced biomass integral optimization model for energy applications**
D. Alfonso, C. Perpiñá, A. Pérez Navarro, E. Peñalvo
Instituto de Ingeniería Energética (IIE). Universidad Politécnica de Valencia. Spain
- 493 **Tools for assessing the robustness variation of power system against voltage dips**
P. Caramia², C. di Perna¹, P. Varilone¹, P. Verde¹,
¹ Dipartimento di Ingegneria Industriale. University of Cassino, Italy
² Dipartimenti per le Tecnologie. University of Napoli Parthenope, Italy

- 496 ***Detection of nacelle anemometers faults in a wind farm***
Francisco Javier Beltrán Martínez¹, Andrés LLombart^{1,2}, J.J. Guerrero³
¹ Fundacion CIRCE. Centro Politécnico Superior. Universidad de Zaragoza. Spain
² Department of Electrical Engineering. Universidad de Zaragoza. Spain
³ I3A and Dept Informática e Ingeniería de Sistemas. Universidad de Zaragoza, Spain
- 497 ***Analysis of Electrical field in a 6 kV form-wound coil with flat shape void***
C.H. Rojas, M.G. Melero, M.F. Cabanas, J.M. Cano, G.A. Orcajo, J.F. Pedrayes
Department of Electrical Engineering, University of Oviedo, Spain
- 501 ***Kalman filter and wavelets transform based three-phase power quality disturbances detection, classification and diagnosis tool implementation-hardware and software***
Alexandre A. Carniato, Ruben B. Godoy, João Onofre P. Pinto
Department of Electrical Engineering DEL, Federal University of Mato Grosso do Sul. BATLAB- Lab. of Artificial Intelligence, Digital Systems and Power Electronics. Brasil
- 502 ***A high-efficient micro-controlled buck converter with maximum power point tracking for photovoltaic systems***
P.C.M. Bernardo¹, Z.M.A. Peixoto¹, L.V.B. Machado Neto²
¹ Graduate Program in Electrical Engineering
² Group of Studies in Energy – GREEN Solar
PPGEE. Pontifical Catholic University of Minas Gerais-PUCMINAS. Brasil
- 504 ***Effect of air intake pressure drop on performance and emissions of a diesel engine operating with biodiesel and ultra low sulphur diesel (ULSD)***
Rizalman Mamat, Nick Rosli Abdullah, Hongming Xu, Miroslaw L. Wyszynski, Athanasios Tsolakis
School of Mechanical Engineering. The University of Birmingham, United Kingdom
- 505 ***Study of control methods for series FACTS devices and their effects on a wind farm***
R. Rezaeipour¹, M. Kalantar²
¹ Department of Sama Technical and Vocational Junior College of Mamagan, East Azarbayjan, Iran
² Center of Excellence for Power System Automation and Operation. Department of Electrical Engineering, Iran University of Science and Technology Narmak, Tehran, Iran
- 506 ***Features of a cycloid speed increaser with double satellite gear for small mechatronic wind and hydro systems***
C. Jaliu, D.V. Diaconescu, M. Neagoe, R. Săulescu
Product Design and Robotics Department, Transilvania University of Brasov, Romania
- 510 ***Study for the installation of offshore wind farms in the Canary Islands***
M. Martínez, A. Pulido, J. Romero, N. Angulo, F. Díaz, F. Déniz
Department of Electrical Engineering. E.T.S.I.I. Las Palmas de Gran Canaria. Spain
- 511 ***Technical and economical performance of parabolic trough collector power plant under Algerian climate***
M.L. Yousfi¹, N. Said³, A. Zaaoui², S. Elmetenani¹
¹ Unit of Development of Solar Equipments (UDES), Bouismail, Tipasa, Algeria
² Development Center of Renewable Energies (CDER), Bouzareah, Algiers, Algeria
³ University Center of Khemis Miliana, Algeria

- Neural network based model for a PEM fuel cell system**
 I. Zamora¹, J.I. San Martín², J.J. San Martín², V. Aperrribay², P. Eguía¹
 518 ¹ Department of Electrical Engineering. University of the Basque Country. Escuela
 Técnica Superior de Ingeniería de Bilbao. Spain
² Escuela Universitaria de Ingeniería Técnica Industrial de Eibar. Spain
- Prediction of photovoltaic generation for distribution network planning**
 Miguel Ramón Marín¹, Andreas Sumper², Roberto Villafáfila Robles², Carlos
 520 González de Miguel²,
¹ Endesa Distribucion Eléctrica D.L. Planificación y Calidad de la Red. Barcelona,
 Spain
² E.U.d' Enginyeria Tècnica Industrial de Barcelona, Dpto. de Ingeniería Eléctrica,
 Barcelona. Spain
- The review and analysis the destructive effects of harmonics on a sample
 MV/LV transformers**
 523 Saeed Mousavi, Bahman Tavan, Homayoun Bakhtiari
 Lorestan Electric Power Distribution Company, LEPDC. Iran
- Wind energy potential assessment in Republic of Macedonia**
 524 V. Dimcev, K. Najdenkoski, V. Stoikov, Z. Zokolanski
 Faculty of Electrical Engineering and Information Technologies. Skopje. Republic of
 Macedonia
- Virtual instrument as a tool for teaching power quality**
 525 Vladimir Dimcev, Zivko Kokolanski, Cvetan Gavrovski, Mare Srbnovska
 Faculty of Electrical Engineering and Information Technologies, Dept. of Electrical
 Measurements. Skopje. Republic of Macedonia
- Dispatch merit order-the place of renewable energy**
 527 Nuno Domingues
 ISEL, Instituto Superior de Engenharia de Lisboa, Portugal
- The fundamental particle and energy quanta of dark matter and dark energy:
 Boltzmann particles and utilization its energy**
 528 Murad Shibli
 Mechanical Engineering Department. College of Engineering, United Arab Emirates
 University, Al- Ain, United Arab Emirates
- Influence of slot opening width and rotor pole radius on the torque of PMSM**
 J.A. Güemes¹, P.M. García², A.M. Iraolagoitia¹, J.J. Ugartemendia²
 532 ¹ Department of Electrical Engineering. E.U.I.T.I. University of the Basque Country.
 Bilbao. Spain
² Department of Electrical Engineering. Escuela Universitaria Politécnica. University
 of the Basque Country. San Sebastián. Spain
- Harmonic elimination in a single phase inverter output voltage with bipolar
 notches in a half cycle by the HGA**
 533 N. Tuşkun, Y. Türkkun, M. Ibrahimbas
 Department of Electrical & Electronic Engineering. Zonguldak Karaelmas University.
 Zonguldak. Turkey

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| Friday 17th April 2009 |
| 11:30-12:15 Plenary Session PL4 |
| ROOM A “Iberdrola” |

Chairman: Mihai Predescu

Future Perspectives for Nuclear Energy

Antonio González Jiménez. Mining Engineer. Director of Studies and Technical Support of the Forum of the Spanish Nuclear Industry

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| Friday 17th April 2009 |
| 12:15-13:00 Closing Session |
| ROOM A “Iberdrola” |

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| CLOSING SESSION |
| <ul style="list-style-type: none"> ▪ Juan Juliá Igual. Rector of Polytechnical University of Valencia (UPV) ▪ Alfredo Quijano. Manager of the Institute of Electrical Technology (ITE) ▪ Manuel Pérez Donsión. Chairman of the ICREPQ Steering Committee ▪ Francisco Cavallé Sesé. Chairman of the ICREPQ Local Organizing Committee |
| Conclusions and time for the next conference (ICREPQ’10) Awards for the three best posters |

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| 13:00 – 15:00 | Farewell Lunch at “la Vella Restaurant” |
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| 15:00 – 18:00 | CULTURAL EXCURSION FOR ALL THE PARTICIPANTS Excursion in two Tourist Buses for to see the most interesting places of Valencia and finally a visit to the City of Arts and Sciences |
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AFTER THE ICREPQ’09 CONFERENCE

In order to contribute to your paper diffusion around the world, after the ICREPQ’08 conference all the presented papers will be included in “.pdf” format on the website of the ICREPQ conferences: <http://www.icrepq.com> and also in the “Renewable Energy & Power Quality Electronic Journal” where some one interested can download free of charge some paper.

On the other hand, sometimes technical journals and magazines are interested in some of the papers and in this case we deliver the authors addresses in order to facilitate a more direct and fruitful contact.

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The International Secretariat of the ICREPQ'09, for to send the digests, full papers, invited papers, registration, invoices and for everything concerning authors and their works, international program committee members, etc. is:

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Development of Renewable Energies,
Environment and Power Quality

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