

**INTERNATIONAL CONFERENCE
ON RENEWABLE ENERGY AND
POWER QUALITY
(ICREPQ'08)**

WELCOME TO ICREPQ'08

On behalf of the Steering Committee and the Local Organizing Committee we want to give you a very warm welcome to ICREPQ'08 and to Santander.

Our International Programme Committee has selected a high quality 208 papers (among 314 proposals) from which 182 will be presented at the Conference, 44 at oral sessions and 138 at poster sessions (dialogue), along the three days of the ICREPQ'08. All of these papers are included in the final programme. Also, seven special papers, three in plenary sessions and four in invited sessions, will be presented.

ICREPQ'08 covers the whole range of problems and solutions especially concerning renewable energies and power quality and all the papers have direct relation with these two fields of research and practical work.

We would like to thank all the authors, session chairmen, participants without papers and the International Program Committee members who have made important contributions by reviewing the proposals.

In addition to the technical sessions, a number of social events have been arranged. On Wednesday evening (12th March, 20:00 H) we will hold a Civic Reception with aperitif and on Thursday (13th March, 20:30 H) the Conference Banquet at "El Gran Casino de Santander" where we will deliver presents to those companies/institutions that collaborate with the organisation of the Conference and on Friday (14th of March from 15:00 H to 19:00 H) we have arranged a Cultural Excursion to Santillana del Mar and Comillas.

We hope that you will find the conference intellectually stimulating, that you will make many fruitful personal contacts here and that you will thoroughly enjoy your visit to Santander and the surrounding area.

Best regards,

Prof. Manuel Pérez-Donsión
Chairman of the Steering Committee

Prof. Mario Mañana Canteli
Chairman of the Local Committee

OBJECTIVES AND TOPICS

The intention of the organisers is to give an opportunity to academics, scientists, engineers, manufacturers and users from all over the world to come together in a pleasant location to discuss recent development in the areas of Renewable Energy and Power Quality.

The International Conference on Renewable Energy and Power Quality (ICREPQ'08) will be structured in:

- **Plenary Sessions:** speech of 45 minutes in one room for all the participants
- **Invited Sessions:** speech of 45 minutes simultaneously with an Oral Session
- **Oral Sessions:** speech of 15 minutes for each paper. Renewable Energy and Power Quality sessions simultaneously in two rooms or with an invited session.
- **Posters Sessions:** In 45-minute periods during the coffee breaks.

1. RENEWABLE ENERGY:

Topics include, but are not limited to:

- Wind Energy, Small Hydro Energy, Solar Energy, Photovoltaic Energy, Ocean Energy, Geothermal, Biomass,...
- Classical and special electrical generators: Theory, design, analysis, losses, efficiency, heating and cooling, vibration and noise, modelling and simulation, control strategies, protection systems, maintenance, mechanical behaviour, new methods of testing, parallel operation, stability,...
- Power plants. Distributed generation. Fuel cells. Co-generation. Hybrid Systems. Original solutions,...
- Energy conversion, conservation and energy efficiency.
- Energy saving policy. Energy storage. Batteries,...
- Energy and the environment. Ecological balance. Ecosystem,...
- Application of the renewable energy. Best practice projects.
- Legislation in the area of renewable energies.
- Biomass combustion techniques. The energy use of agricultural and forest residues. Production and energy exploitation of bio-gas. Environment. Social importance...
- Interconnection and transport problems.
- Planning and control of the power system take into account the renewable energy. Stability. Protection...
- Economic analysis of the power system taking into account the renewable energy.
- Regulation/des-regulation of the power market. Influence of the renewable energy.
- Models and simulation of the power systems. Models and estimation of loads. Software tools.
- Application of the telecommunications, internet, artificial intelligence for the renewable energy.
- Security assessment and risk analysis in renewable energy.
- Electric vehicles.
- Power electronics. Control strategies.
- Sensors and actuators.
- Renewable Energies Teaching

2. POWER QUALITY:

Topics include, but are not limited to:

- Electromagnetic compatibility (EMC)
- Power Quality in Transport and Distribution.

- Economic Studies of the Power Quality
- Low-frequency conducted disturbances: Voltage deviations, voltage fluctuations/flicker, voltage dips and short interruptions, harmonics and inter-harmonics, transient over-voltages, voltage unbalance (imbalance), temporary power-frequency variations.
- Sources, effects and mitigation methods of the disturbances.
- Measurements of the power quality in networks, industrial installations and Laboratories. Equipment, procedures and measurement methods. Standards.
- Modelling and simulation of the power quality. Software tools.
- Transmission of the disturbances
- Filtering techniques
- Power factor compensation. Capacitor switching techniques
- Optimization techniques
- Telecommunication, internet and artificial intelligence.
- Permanent monitoring techniques and online diagnosis
- Intelligent energy delivery systems. Uninterrupted power supplies
- Expert systems applications
- Devices, equipment and power systems. Control centres
- Specific problems and studies cases
- Power quality influence in deregulated markets
- High frequency disturbances (radiated)
- Data security and electromagnetic pulses.
- Protection against natural and intentional EMI

INTERNATIONAL PROGRAM COMMITTEE

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Göl, Ozdemir (Australia)	Vitale, Gianpaolo (Italy)
Güemes Alonso, J.A. (Spain)	Wiak, Slawomir (Poland)
Hermoso Alameda, B. (Spain)	Zamora Belver, I. (Spain)

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Mariano Sanz-Badía
Debora Coll-Mallor

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Mario Mañana Canteli (Chairman)
Alfredo Ortiz Fernández
Carlos Renedo Estebañez
Delfín Silió Salcines
María de los Angeles Cavia Soto

SPONSORSHIP

Sincere thanks are expressed to the organisations listed below who have given valuable support to ICREPQ'08:

- Gobierno de Cantabria
- University of Cantabria
- Iberdrola
- Schneider Electric Española, S.A.
- ABB
- Circutor
- Ministerio de Educación y Ciencia (MEC)
- Ayuntamiento de Santander
- AEDIE (Asociación Española para el Desarrollo de la Ingeniería Eléctrica)
- EA4EPQ (European Association for the Development of Renewable Energies, Environment and Power Quality)

SOCIAL EVENTS

- **Civic Reception and Aperitif:** 12th March at 18:00 H

- **Conference Banquet:** 13th March at 20:30 H at “El Gran Casino de Santander”

Tuesday 11th March 2008	
17:00 – 19:00	Registration “ICREPQ'08 Secretariat”

Wednesday 12th March 2008							
9:00 – 10:45	Registration “ICREPQ’08 Secretariat”						
10:45 – 11:30	Opening Ceremony ROOM A “Iberdrola”						
11:30-12:15	PL1	The renewables in the new energetic global horizont Carlos Gascó Travesedo. Head of the Prospective Unit. Iberdrola Renewable Energies. Spain					
	EXTRA TIME FOR DISCUSSION						
12:15 – 13:00	Posters Session at Room C “ ABB ” (Session C1) Coffee Break			<i>Poster Session C1</i>			
				200	210	211	215
				217	218	219	221
				222	223	224	225
				228	229	230	231
				233	236	237	238
				239	242	245	249
				250	253	255	256
				257	260	261	262
287	341	347					
13:00 – 15:00	Welcome Lunch Room D “Gobierno de Cantabria. IDICAN”						
15:00 – 16:00	ROOM A “Iberdrola”			ROOM B “Schneider”			
	<i>Oral Session A1</i>			<i>Oral Session B1</i>			
	244	252	302	220	235	246	
	309			365			
	EXTRA TIME FOR DISCUSSION						
16:00 – 16:45	Poster Session at Room C “ ABB ” (Session C2) Coffee Break			<i>Poster Session C2</i>			
				265	266	268	269
				270	271	273	274
				277	278	279	280
				281	283	284	285
				286	289	290	291
				292	293	296	303
				306	315	316	317
				322	324	355	358
379	401	408					
16:45 – 17:45	ROOM A “Iberdrola”			ROOM B “Schneider”			
	<i>Oral Session A2</i>			<i>Oral Session B2</i>			
	275	295	439	258	267	362	
	443			444			
	EXTRA TIME FOR DISCUSSION						
18:00 – 20:00	Welcome Civic Reception						

Thursday 13th March 2008						
9:00 – 9:15	ROOM A “Iberdrola”					
	Opening Ceremony (XVIIIIGIE)					
	Invited Sessions IS1 and IS2					
9:15 – 10:45	IS1	Renewable Energy – Panacea for Climate Change?. Ozdemir Göl. University of South Australia. Adelaide. Australia				
	IS2	Improving the operation and maintenance of wind farms: determination of wind turbine performance Andrés Llombart-Estopiñan. CIRCE Foundation; Department of Electrical Engineering. Zaragoza University. Spain				
	EXTRA TIME FOR DISCUSSION					
9:15 – 10:45	ROOM B “Schneider”					
	<i>Oral Session D1</i>					
	297 305 311 378 388 390					
	EXTRA TIME FOR DISCUSSION					
10:45 – 11:30	Poster Session at Room C “ABB” (Session C3) Coffee Break		<i>Poster Session C3</i>			
			325	326	327	329
			332	333	335	336
			337	338	339	340
			342	344	345	352
			354	355	359	361
			364	370	373	374
			376	381	383	386
			392	393	395	397
			398	402	404	
	ROOM A “Iberdrola” Invited Sessions IS3 and IS4					
11:30-13:00	IS3	Recent and advanced transformer applications Miguel Oliva Navarrete. ABB. Spain				
	IS4	Unified loss theory and its application on Low Voltage network András Dán, David Raisz. Department of Electrical Power Engineering. Budapest University of Technology and Economics. Hungary.				
	EXTRA TIME FOR DISCUSSION					

11:30-13:00	ROOM B “Schneider”	
	<i>Oral Session D2</i>	
	216	282 298 300 308 368
	EXTRA TIME FOR DISCUSSION	
13:00 – 15:00	Lunch at Room D “Gobierno de Cantabria. IDICAN”	
	ROOM A “Iberdrola” Plenary sessions PL2	
15:00 – 15:45	PL2	Nuclear Energy and the Challenge of Climate Change and Sustainable Development - Antonio González Jiménez. Mining Engineer. Director of Studies and Technical Support of the Forum of the Spanish Nuclear Industry
		EXTRA TIME FOR DISCUSSION
15:45 – 16:30	ROOM C “ABB” POSTERS XVIIIIRGIIIE Coffee Break	
	ROOM A “Iberdrola”	
16:30-17:30	Presentación de los Grupos de Investigación de Ingeniería Eléctrica	
17:30-19:00	Round Table :	
	Situación Española en relación con la Declaración de Bolonia y sus implicaciones futuras.	
	<ul style="list-style-type: none"> - Federico Gutiérrez-Solana. Rector de la Universidad de Cantabria. - Carlos Redondo Gil. Vicerrector de la Universidad de León - Mario Mañana Canteli. Director del Departamento de Ingeniería Eléctrica de la Universidad de Cantabria -Pere Andrada Gascón. Profesor de la Universidad Politécnica de Cataluña - Otros 	
20:30 -23:00	Conference Banquet at “El Gran Casino de Santander” (Optional)	

Dark colour - In Spanish

Friday 14th March 2008

9:00-9:45	ROOM A "Iberdrola" Plenary Session PL3						
	PL3	Gas Heating vs Electrical Heating using different electricity mixes					
		Fernando Nuño European Copper Institute (ECI). Leonardo ENERGY Community					
EXTRA TIME FOR DISCUSSION							
9:45-10:45	ROOM A "Iberdrola"			ROOM B "Schneider"			
	<i>Oral Session A3</i>			<i>Oral Session B3</i>			
	299	366	380	212	248	272	
	385			394			
EXTRA TIME FOR DISCUSSION							
10:45 – 11:30	Posters Session at Room C "ABB" (Session C4) Coffee Break			<i>Poster Session C4</i>			
				407	409	415	417
				419	421	423	425
				426	427	430	431
				432	434	435	437
				441	446	450	455
				461	468	473	475
				490	493	502	503
				504	505	506	510
512							
11:30-12:30	ROOM A "Iberdrola"			ROOM B "Schneider"			
	<i>Oral Session A4</i>			<i>Oral Session B4</i>			
	247	400	412	213	241	288	
	508			350			
EXTRA TIME FOR DISCUSSION							
12:30 – 13:00	ROOM A "Iberdrola"						
	Closing Session						
Conclusions and time for the next conference (ICREPQ'09) Awards for the three best posters							
13:00 – 15:00	Farewell Lunch at Room D "Gobierno de Cantabria. IDICAN"						
15:00 – 19:00	Cultural Excursion for all the participants. Excursion to Santillana del Mar and Comillas						

AUTHORS

Oral Presentations

Each speaker of an oral presentation has an available time of 15 minutes (12 minutes for the presentation and 3 minutes for questions) and must be in the session room 10 minutes before of the beginning of the session for to test the audiovisual equipment and for to exchange opinions with the Session Chairman.

Poster Presentations

The poster must be put on the pin board that you previously can chose about 15 minutes before of the beginning of the session and it must be take off 15 minutes after of the end of the session. The author(s) must be stay near the poster along the 45 minutes of the session duration for to answer all the questions that the audience or the chairmen could formulate. The maximum available surface for each poster will be 841 mm x 1189 mm (width x high).

SESSIONS CHAIRMEN

On behalf of the International Program Committee, Steering Committee and the Organising Committee of the ICREPQ'08 and take into account their eminent position in the world of science we have selected 35 session chairmen. It is an honour for us their collaboration for to chair the sessions of ICREPQ'08 and their contribution would be greatly appreciated. We wish to express our warmest thanks.

Traditionally the Chairmen of each Session are independent in organising the Session. Nevertheless it is of special importance that the different sessions chairmen prepare some questions about the papers of their session in order to get a more dynamic one. Furthermore we expect of the session chairmen the following:

Plenary/ Invited sessions

Each plenary/invited session should not exceed 45 minutes including presentation and discussion, (35 minutes for presentation and 10 minutes for questions).

Oral sessions

Each oral paper presentation should not exceed 15 minutes including presentation and discussion, (12 minutes for presentation and 3 minutes for questions).

Poster sessions

The author(s) of a poster presentation must be stay near the poster during the 45 minutes of the session duration and in order to get a more dynamic session

it is important that along this period of time each of the chairmen of the poster sessions formulate questions to the authors and check that all is OK. The chairmen also file up a sheet with puntuactions for each presented poster and then take into account these evaluations the Organizers will deliver during the Closing Session a present to the three best posters

TABLE I. Chairmen Session distribution

Wednesday 12th March, 2008		
11:00-11:45	PLENARY SESSION PL1	Inmaculada Zamora
11:45-12:30	POSTER SESSION C1	Constantin Ghita
		Agusto Fleury
		Toshihisa Funabashi
		Joao Figueiredo
		Tiberiu Tudorache
15:15-16:15	ORAL SESSION A1	Vit Brslica
	ORAL SESSION B1	Jan Rusek
16:15-17:00	POSTER SESSION C2	Peter Kiss
		Catalin Alexandru
		Janusz Buchta
		Sanke Narsimhulu
		Mircea Ion Buzdugan
17:00-18:00	ORAL SESSION A2	Chiara Boccaletti
	ORAL SESSION B2	Debora Coll
Thursday 13th March, 2008		
9:15-10:00	INVITED SESSION IS1	Mario Mañana Canteli
10:00-10:45	INVITED SESSION IS2	Jan Iwaszkiewicz
9:15-10:45	ORAL SESSION D1	Ramón Bargallo Perpiña
10:45-11:30	POSTER SESSION C3	Amadeu Leão Rodrigues
		Tuomo Lindh
		Andre Martínez
		Jürgen Stenzel
		Bogdan Miedzinski
11:30-12:15	INVITED SESSION IS3	Vicktor Valouch
12:15-13:00	INVITED SESSION IS4	Gorazd Stumberger
11:30-13:00	ORAL SESSION D2	Louis Lamarche
15:00-15:45	PLENARY SESSIONS PL2	Pere Andrada
Friday 14th March, 2008		
9:00-9:45	PLENARY SESSION PL3	Gianpaolo Vitale
9:45-10:45	ORAL SESSION A3	Ramón Bargallo
	ORAL SESSION B3	Jiri Klima
10:45-11:30	POSTER SESSION C4	A. Marques Cardoso
		Alexandru Morega
		Jože Voršic
		Murad Shibli
		Vit Brslica
11:30-12:30	ORAL SESSION A4	Carlos Redondo Gil
	ORAL SESSION B4	Jan Rusek

Wednesday 12th March 2002

ROOM A “Iberdrola”

10:45-11:30 OPENING CEREMONY

ROOM A “Iberdrola”

11:30-12:15 Plenary Session PL1

Chairwoman: Inmaculada Zamora Belver

PL1: *The renewables in the energetic global horizon.*

Carlos Gascó Travesedo. Head of the Prospective Unit. Iberdrola Renewable Energies. Spain.

ROOM C “ABB”

12:15-13:00 Poster Session C1 – Coffee Break

Chairmen: Constantin Ghita, Augusto Fleury, Toshihisa Funabashi, João Figueiredo, Tiberiu Tudorache.

High Voltage of two batteries-two five-levels NPC voltages sources inverters cascade.Application to the DSIM drive

200

S.Arezki¹, E.M.Berkouk²

1.Université des sciences et de la Technologie Houari Boumediene. Alger

2. Laboratoire de commande des processus.Ecole National Polytechnique d’Alger

Optimitation of industrial motor-driven systems laboratories: changing concepts in engineering

210

George Alves Soares, Fernando Pinto Dias Perrone, Vanda Alves dos Santos, Bráulio Romano Motta, Carlos Aparecido Ferreira, Humberto Luiz de Oliveira, Roberto Piffer, Rodrigo Villela de Faria

Centrais Eléctricas Brasileiras. S.A.- ELETROBRÁS

Brazilian industrial energy efficiency program.: learned lessons

211

George Alves Soares, Fernando Pinto Dias Perrone, Vanda Alves dos Santos, Bráulio Romano Motta, Carlos Aparecido Ferreira, Humberto Luiz de Oliveira, Roberto Piffer, Rodrigo Villela de Faria, Carlos Henrique Moya

Centrais Eléctricas Brasileiras. S.A.- ELETROBRÁS

- 215 **Dynamic optimization of a 2-DOF pseudo-equatorial tracking in virtual prototyping concept**
C.Alexandru, M. Comsit, P.Alexandru
Product Design and Robotics Department. University "Transilvania" of Brasov. Rumania
- 217 **The strategic implantation of energy management in a multinational enterprise**
J. González de la Viuda¹, V. Romero Arauzo²
1. Department of electromechanical engineering. University of Burgos. Spain
2. L' Oreal, Capillary Products. Spain
- 218 **Comparitive study of sensible and latent heat storage systems integrated with solar water heating unit**
S.A.Vijay Padmaraju¹, M.Viginesh¹, N.Nallusamy²
1.Department of Mechanical Engineering. Sri Venkateswara College of Engineering. India
2. Head of the Department of Automobile Engineering. India
- 219 **Review of novel control strategies for UPQC**
R.Rezaeipour, A. Kazemi
Electrical Engineering Department.University of Science and Technology . Iran
- 221 **Evaluating power quality standars in power systems.**
H.Mokhtari¹, A.Saadat²,H. Golshani²,R.Pouraghababa², H.Golshani², J.Ahmadian³
1. Department of Electrical Engineering. Sharif University of Technology, Tehran. Iran
2.Project Engineers amd Management. Isfahan . Iran
3. PhD Student. Tehran. Iran
- 222 **Weighting function integrated in grid-interfacing converters for unbalanced voltage correction**
Fei Wang, Jorge L. Duarte, Marcel A.M. Hendrix
Department of Electrical Engineering. Eindhoven University of Technology. The Netherlands
- 223 **A suitable power transfer control system for interconnection converter of DC microgrids**
Mishel Mahmoodi, Reza Noroozian, Gevorg B. Gharehpetian, Mehrdad Abedi
Electrical Engineering Dept. Amirkabir University of Technology. Tehran. Iran
- 224 **Intelligent sun-tracking system for efficiency maximization of photovoltaic energy production**
João M.G. Figueiredo¹, José M.G.Sá da Costa²
1. CEM-IDMEC. Universidade Evora. Mechatronics Group. Portugal
2. IDMEC-IST- Tecnical University Lisbon, Portugal
- 225 **Implementation of a bang-bang strategy for PV system connected to the grid**
B. Efker¹, A. Martinez², H.M.Reddy³
1.Siemens AG- Osnabrück, Germany
2. Ecole d'Ingénieurs en Génie des Systèmes Industriels (EIGSI), La Rochelle, France
3. School of Engineering, University of the South Pacific, Suva, Fiji Islands
- 228 **Energy quality in voltage, current and power signals**
Tomás Yebra, Vicente Fuster
Instituto de Tecnología Eléctrica. Parque Tecnológico de Valencia. Spain

- 229 **Model based predictive current control of an asynchronous six-phase motor drive**
 R. Gregor¹, F. Barrero¹, M.J. Durán², M.R. Arahal¹, S. Toral¹
 1. Electronic & System and Automation Engineering Departments. E.S.I.I. University of Seville. Spain
 2. Electrical Engineering Department. E.S.I.I. University of Málaga. Spain
- 230 **Realization of an asynchronous six-phase induction motor drive test-rig**
 R. Gregor¹, F. Barrero¹, S. Toral¹, M.J. Durán²
 1. Electronic Engineering Departments. E.S.I. University of Seville. Spain
 2. Electrical Engineering Department. E.S.I.I. University of Málaga. Spain
- 231 **MATLAB simulation of a DSTATCOM using hysteresis current control for electric arc furnace flicker mitigation**
 S. Meschi¹, E. Hashemzadeh²
 1. Iran Grid Management Co. Tehran. Iran
 2. Ferdowsi University of Mashhad
- 233 **Design study of an electromechanical flywheel energy storage system applied to braking energy restitution in transportation vehicles**
 F. Rezeg¹, T. Zouaghi², A. Marzougui¹, A. Bouazzi¹
 1. Renewable Energy and Electrical Materials Lab. ENIT. Tunis- Tunisia
 2. Academy of Fondouk Jedid. Tunis- Tunisia
- 236 **Fault Diagnosis of tin oxide gas sensor using energy barrier and ART-2 neural network**
 In-Soo Lee¹, Chang-Hyun Shim²
 1. School of Electronics and Electrical Engineering, Sangju National University. Korea
 2. Purenanotech Co. Ltd Daegu. Korea
- 237 **Remote monitoring of wind-photovoltaic hybrid generation system using mobile phone and internet**
 Xu Zhenchao, Moon Chaejoo, Chang Younghak, Lim Jungmin, Kim Taegon
 Department of Electrical Engineering. Mokpo National University. Korea
- 238 **A study on thermoelectric battery-charger using DMFC (direct methanol fuel cell) system**
 Zhang Jingliang, Moon Chaejoo, Chang Younghak, Cheang Euiheang, Kim Taegon
 Department of Electrical Engineering. Mokpo National University. Korea
- 239 **A digital flickermeter**
 Yan Xiang-Wu, Wang Peng
 North China Electric Power University. China
- 242 **Energy efficiency modelling and estimation in petroleum refining industry- A comparison using physical data**
 A.Azadeh, S.F. Ghaderi, S.M. Asadzadeh
 Department of Industrial Engineering, Faculty of Engineering, University of Tehran. Iran
- 245 **Trigeneration systems with fuel cells**
 J.I. San Martín¹, I. Zamora², J.J. San Martín¹, V. Aperribay¹, P. Eguía²
 1. Escuela Universitaria de Ingeniería Técnica Industrial de Eibar. University of The Basque Country. Spain
 2. Escuela Técnica Superior de Ingeniería de Bilbao. University of The Basque Country. Spain

- 249 **Wireless module of localization and control for security**
 J.Luna Rodriguez¹, V. Barranco López², D. Bullejos Martín², A Sabariego Hernández¹
 1. Department of Architecture of Computers, Electronic Technology and Electronic. E.P.S. Córdoba University. Spain
 2. Department of Electrical Engineering. E.P.S. Córdoba University. Spain
- 250 **Energy Savings by means of energy efficient electric motors**
 S. Corino, E. Romero, L.F. Mantilla
 Department of Electrical Engineering and Energy. E.T.S.I.I. y T. University of Cantabria. Spain
- 253 **Distributed energy: problems, perspectives**
 Yanush Danilevich, Anatoly Kovalenko
 Academician Yanush Danilevich. Russian Academy of Sciences. Russia
- 255 **Effects of interfacial oxide layer thickness and interface states on conversion efficiency of SnO₂/ SiO₂/Si(N) solar cells**
 D.Hocine, MS. Belkaid
 Faculty of Electrical and Computer Engineering. The University Mouloud Mammeri. Algiers
- 256 **Optimal location and size of SVC and TCSC for multi-objective static voltage stability enhancement**
 R. Benabid¹, M. Boudour²
 1. Nuclear Research Center of Birine. Algiers
 2. Department of Electrical Engineering. University of Sciences & Technology Houari Boumediene. Algiers
- 257 **Comparison of fault ride through characteristics of VSI current controllers**
 J.F. Sanz, J. Sallán, M.A. Alonso
 CIRCE Foundation and Electrical Engineering Department of the University of Zaragoza. Spain
- 260 **Single phase AC power load profile emulator**
 Y. Thiaux, J. Seigneurbieux, B. Multon, H. Ben Ahmed, D. Miller
 SATIE/SETE ENS de Cachan. Antenne de Bretagne. France
- 261 **Single phase grid connected PV system used as active filter with dP/dI feedback MPPT controller**
 Seyed Hossein Hosseini¹, Saeed Danyali²
 1. Electrical Engineering Department, Islamic Azad University of Tabriz, Iran
 2. Faculty of Electrical and Computer Engineering, University of Tabriz, Iran
- 262 **New control strategy to improve power quality using a hybrid power filter**
 S.P. Litrán, P. Salmerón, R.S. Herrera, J.R. Vázquez
 Department of Electrical Engineering . Escuela Politécnica Superior, University of Huelva. Spain
- 287 **Wind tunnel assessment of small direct drive wind turbines with permanent magnets synchronous generators**
 Mihai Predescu¹, Andrei Bejinariu¹, Adrian Nedelcu¹, Octavian Mitroi¹, Catalin Nae², Mihai.Victor Pricop², Aurelian Crăciunescu³
 1. ICPE S.A.- SICE Centre. Romania
 2. INCAS. Romania
 Universitatea Politehnica București. Romania

- 341 **Performance of rotational speed controlled small-scale head-dependent hydroelectric power plant**
 Tuomo Lindh, Risto Tiainen, Jero Ahola, Markku Niemelä, Ville Särkimäki
 Lappeenranta University of Technology. Finland
- 347 **Power line carrier communications and its interest in the current power grid scenario**
 O. Abarrategui, I. Zamora, DM. Larruskain, A. Iturregi
 Department of Electrical Engineering. UPV – EHU. Spain

13:00 – 15:00 Welcome Lunch

Room D “Gobierno de Cantabria. IDICAN”

ROOM A “Iberdrola”

15:00-16:00 Oral Session A1

Chairman: Vit Brslica

- 244 **Predictive-integral current controller for active-and reactive-powercontrol of wind generators**
 Pedro Roncero-Sánchez¹, Vicente Feliu¹, Aurelio García-Cerrada²
 1. Department of Electrical, Electronic, Control Engineering and Communications. E.T.S.I.I. University of Castilla- La Mancha. Spain
 2. Department of Electronics and Control Engineering. E.T.S.de Ingeniería ICAI. Universidad Pontificia Comillas. Spain
- 252 **Design and implementation of an efficient hybrid system for electricity production**
 Luís P.M. Fernandes¹, João M.G. Figueiredo²
 1.CEM, Universidade Évora. Portugal
 2. IDMEC-IST- Technical University Lisbon. Portugal
- 302 **Renewable energy supervision and real time production control in Spain**
 T. Domínguez¹, M.de la Torre¹, G. Juberías¹, E. Prieto², R. Rivas¹, E. Ruiz¹
 1. Departamento de Centro de Control Eléctrico (CECOEL). Red Eléctrica de España SA. Spain
 2. Departamento de Estudios de Red. Red Eléctrica de España SA. Spain
- 309 **Biomass for power and energy generation**
 Narsimhulu Sanke¹, D.N. Reddy
 1. Dept. of Mechanical Engineering, University College of Engineering, Osmania University. India
 2. Center for Energy Technology, University of Engineering, Osmania University. India

Wednesday 12th March 2002

ROOM B “Schneider”

15:00-16:00 Oral Session B1

Chairman: Jan Rusek

- 220 **Electromagnetic interferences in inverter-fed induction motor drives**
Stanislav Bartos, Ivo Dolezel, Jakub Necesany, Jiri Skramlik, Viktor Valouch
Institute of Thermomechanics ASCR. Praha. Czech Republic
- Quality of electricity supply as a service**
Erwin Seršen¹, Jože Voršič²
- 235 1. The Energy Agency of the Republic of Slovenia, Slovenija
2. Faculty of Electrical Engineering and Computer Science. University of Maribor, Slovenija.
- 246 **A device for improving the immunity of ac contactors during voltage dips**
P. Andrada, J.I. Perat, G. Navarro
Universitat Politecnica de Catalunya (UPC) Spain
- 365 **Generalized fourier series – a useful mathematical tool in power electronics**
A.Jan Iwaszkiewicz¹, B. Jacek Perz¹, Manuel Pérez Donsión²
1. The Electrotechnical Institute, Gdansk Branch. Poland
2. Electrical Engineering Department. Vigo University. Spain

ROOM C “ABB”

16:00-16:45 Poster Session C2 – Coffee Break

Chairmen: Peter Kiss, Catalin Alexandru, Janusz Buchta, Sanke Narsimhulu, Mircea Ion Buzdugan

- 265 **Current control of distributed generation power inverters for losses reduction in the distribution network**
E.Belenguer, Héctor Beltrán, Néstor Aparicio, E. Pérez
Department of Industrial Engineering and Design. Universitat Jaume I. Spain
- 266 **Energy storage device as a part of electric energy production system based on renewable energy sources**
Sebastijan Seme, Gorazd Štumberger, Jože Voršič
University of Maribor, Faculty of Electrical Engineering and Computer Science. Slovenia

- 268 **Experimental study of a PEM reversible fuel cell**
S. Rabih, O. Rallieres, C. Turpin, S. Astier
University of Toulouse- Laboratory LAPLACE. France
- 269 **Biogas situation and development in Thai Swine Farm**
Wongkot Wongsapai¹, Poon Thienburanathum², Prasert Rerkkriengkrai³
1. Department of Mechanical Engineering. Faculty of Engineering, Chiang Mai University. Thailand
2. Department of Civil Engineering. Chiang Mai University, Chiang Mai. Thailand
3. Energy Research and Development Institute, Chiang Mai University. Thailand
- 270 **SolarEnergy: A framework for simulations of solar energy applications**
Guidoni, G., Song, M., Yoshioka, S., Reis, I., Papatella, F., Zarate, L., Pereira, E.
Pontificia Universidade Católica de Minas Gerais (PUC-Minas)
- 271 **Biodiesel technology and management from used cooking oil in Thailand rural areas**
Pongsiri Jaruyanon¹, Wongkot Wongsapai²
1. Faculty of Engineering and Industrial Technology, Silpakorn University, Nakorn Prathom, Thailand
2. Faculty of Engineering, Chiang Mai University, Chiang Mai, Thailand
- 273 **Digital filter simulation for development of digital flicker meter**
Attila Unhauzer¹, Angéla Váradi²
1. Department of Electrical and Electronic Engineering, University of Miskolc. Hungary
2. Department of Electrical and Electronic Engineering. University of Miskolc. Hungary
- 274 **A survey on voltage dip events in power systems**
V. Barrera-Núñez, J. Meléndez-Frigola, S. Herraiz-Jaramillo
Institute of Informatics and Applications of the University of Girona, Spain
- 277 **Wind generation and power system interaction analysis using probabilistic techniques**
Marco Ortiz, Juan Rios, Manuel Acosta
Transmission Planning Department. CVG EDELCA. Venezuela
- 278 **A simple neural network solar tracker for optimizing conversion efficiency in off-grid solar generators**
Marius Alexandru Panait, T. Tudorache
Polytecnic University of Bucharest. Romania
- 279 **Harmonic source identification of a distributed generator, and compensation the voltage change caused by changing generation**
Bálint Hartmann, András Dán
Department of Electric Power Engineering Budapest University of Technology and Economics. Hungary
- 280 **Contemporary approach to determination of magnetic induction in wind generator air gap**
A. Elez¹, B. Tomičić², B. Takać¹
1. Končar- Electric Engineering Institute Inc. Zagreb. Croatia
2. Končar- Generators and Motor Inc. Zagreb. Croatia

Improving the incremental conductance control method of a solar energy conversion system

Janine Kouta¹, Ali El-Ali¹, Nazih Moubayed¹, Rachid Outbib²

- 281
1. Department of Electrical and Electronic Engineering, Lebanese University, Tripoli. Lebanon
 2. Laboratory of Sciences in Information and Systems (LSIS), Aix-Marseille III University, Marseille. France

Numerical interpolation methods applied in electromagnetic interference problems

Dan D. Micu¹, Andrei Ceclan¹, Iosif Lingvay², Emil Simion¹

- 283
1. Department of Electrical Engineering, Technical University of Cluj- Napoca. Romania
 2. INCDIE ICPE- Cercetări Avansate, ICPE SA Bucuresti. Romania

Multi-level representation for the control design of a super capacitor storage system for a microgrid connected application

Peng Li^{1,2}, Philippe Degobert², Bruno François¹, Benoît Robyns³

- 284
1. Ecole Centrale de Lille (L2EP). France
 2. Ecole National Supérieure d' Arts et Métiers. Lille. France
 3. Hautes Etudes d' Ingénieur. Lille. France

Unified power quality conditioner (UPQC) with voltage dips and over-voltages compensation capability

Victor M. Moreno¹, Alberto Pigazo¹, Marco Liserre², Antonio Dell' Aquila²

- 285
1. Department of Electronic and Computers. University of Santander. Spain
 2. Dipartimento di Elettrotecnica ed Elettronica.Politecnico di Bari. Italy

Power systems disturbance classification using modular neural networks with multilayers experts

R.M.Magalhães, C.K.S. Santos, J.D. Melo, M.F.de Medeiros, A.D. Dória Neto
Intelligent Systems Laboratory, Federal University of Rio Grande do Norte, Natal, Brasil.

286

Graphic tools for analysing the influence of noise and aperiodic components in the performance of digital filters: a case study

J. Lázaro¹, M.A. Zorrozua², J.F. Miñambres², M.I. Sánchez¹, B. Larrea¹, I. Antiza³

- 289
1. Department of Applied Mathematics. E.T.S.I.Basque Country University. Spain
 2. Department of Electrical Engineering. E.T.S.I. Basque Country University. Spain
 3. GE Multilin. Zamudio. Spain

Dynanic power flow tool development for low voltage networks analysis with penetration level of distributed generation

A.Milo¹, A. Martinez¹, M. Rodriguez², A. Goikoetxea²

- 290
1. Department of Control Engineering. IKERLAN, Technological Research Centre. Spain
 2. Faculty of Engineering, University of Mondragon. Spain

Bond graph model of a PEM fuel cell stack

S. Rabih, C. Turpin, S. Astier
University of Toulouse – Laboratory LAPLACE Site ENSEEIHT. France

291

A new modulation approach to decrease total harmonic distortion of the SPWM voltage waveform using genetic optimization technique

N. Tutkun
Department of Electrical & Electronic Eng. Faculty of Eng. Karaelmas University. Turkey

292

- Reduction in induction motor heating fed by a new PWM technique: results obtained in laboratory experiments**
 293 M.J. Meco-Gutiérrez¹, A. Ruiz González¹, F. Vargas-Merino¹, J.R. Heredia-Larrubia²
 1. E.T.S. Ingenieros Industriales. Electric Engineering Department. Spain
 2. Electronic Technology Department. University of Málaga
- Design of an electrical drive for motorized bicycles**
 296 C.Boccaletti, G. Duni, P. Petrucci, E. Santini
 Department of Electrical Engineering. University of Rome“La Sapienza”. Italy
- Model of integrated pool/conventional/alternative electricity market operation using pay-as-bid pricing**
 303 Fabio Stacke¹, Pablo Cuervo²
 1. Brazilian Electricity Regulatory Agency- ANEEL. Brasil
 2. University of Brasília. Brasil
- Mutiphase inverters and drives with continuous voltage synchronization**
 306 V. Oleschuk, G. Griva, F. Profumo, A. Tenconi
 Department of Electrical Engineering, Politecnico di Torino. Italy
- On the dependence between the step orientation and the received direct solar radiance of a PV panel. Part I: the step azimuthal orientation**
 315 Ion Visa, Dorin Diaconescu, Valentina Popa
 Product Design Centre for Sustainable Development, Transilvania University of Brasov. Romania
- On the dependence between the step orientation and the received direct solar radiance of a PV panel. Part II: the pseudo-equatorial orientation**
 316 Dorin Diaconescu, Ion Visa, Bogdan Burduhos, Radu Saulescu
 Product Design Centre for Sustainable Development, Transilvania University of Brasov. Romania
- Wind energy systems and power quality: matrix versus two-level converters**
 317 R. Melício¹, V.M.F. Mendes¹, J.P.S. Catalão²
 1. Instituto Superior de Engenharia. Lisbon. Portugal
 2. Univesity of Beira Interior, Covilhã, Portugal
- Super-capacitor integration into hybrid vehicle power source**
 322 V. Bršlica
 Department of Electrical Engineering. University of Defence in Brno. Czech Republic
- Power factor improvement of DC/DC converter of micro-turbines**
 324 H.R. Baghaee¹, M. Mirsalim², .M.Ale-Emran¹, M. Abedi¹, G.B. Gharehpetian¹
 1. Electrical Engineering Department Amirkabir University of Technology . Tehran. Iran
 2. Electrical Engineering Department at St. Mary’s University, San Antonio, TX,US
- Application of phase change material for cooling a protruding mounted power electronic components**
 355 M. Faraji, H. El Qarnia
 Université Cadi Ayyad. Faculté des Sciences Semlalia. Department de Phisique. Marrakech. Morocco
- A fuzzy logic based controller for shunt active filter**
 358 M.T. Lamchich, M. Raoufi
 University Cadi Ayyad. Faculty of Sciences Semlalia. Department of Physics, Electronics and Instrumentation Laboratory. Marrakech. Morocco

- 379 **Optimizing consumption and emission in gas fuel consuming power applying DEA model**
Samaneh Shokravi, Farid Ghaderi
Department of Industrial Engineering. Faculty of Engineering, University of Theran. Iran
- 401 **Comparison of control techniques for three-phase distributed generation based on VOC and DPC**
Graziella Giglia, Marcello Pucci, Calogero Serporta, Gianpaolo Vitale
ISSIA-CNR. Palermo. Italy
- 408 **Architectural integration of renewable energies in historical cities**
A.López Agüera, I. Rodriguez Cabo, I. Fernández, V. Gándara
Department of Particle Physics & Galician Institute of High Energy Physics. Santiago de Compostela University. Spain.

ROOM A “Iberdrola”

16:45-17:45 Oral Session A2

Chairwoman: Chiara Boccaletti

- 275 **Multi-phase generators viability for offshore wind farms with HVDC transmission**
M.J. Duran¹, F. Barrero², S. Toral², M. Arahál², R. Gregor², R. Marfil¹
1. Electrical Engineering Department, School of Engineering, University of Málaga (Spain)
2. Electronic & Automatic Engineering Department, School of Engineering, University of Seville (Spain).
- 295 **An overview on renewable energy technologies for developing countries: the case of Guinea Bissau**
C. Boccaletti¹, G. Fabbri¹, J. Marco², E. Santini¹
1. Department of Electrical Engineering. University of Rome “La Sapienza”. Italy
2. Department of Civil Engineering. University Politecnica of Madrid. Spain
- 439 **A switched reluctance generator behavior under variable speed and variable excitation**
Ribeiro, F.S.L., Cabral L.G., Fleury, A.
Laboratório de Máquinas Elétricas da Universidade Católica de Goiás. Brasil
- 443 **Performance comparison of an alternative converter for wind powered switched reluctance generators**
Oliveira, E.S.L., Fleury, A., Fleury-Neto, G.A.C., Oliveira, T.F.
Laboratório de Máquinas Elétricas da Universidade Católica de Goiás. Brasil

Wednesday 12th March 2002

ROOM B “Schneider”

16:45-17:45 Oral Session B2

Chairwoman: Débora Coll

- 258 **Power quality permanent monitoring systems in Romania.**
Carmen Stanescu¹, Jakob Widmer², Sorin Cristian Pispiris¹
1.Company Transelectrica. Romania
2.Landis+Gyr. Switzerland
- 267 **Evaluation of excessive transmission line losses caused by unbalanced and nonlinear three-phase loads**
Klemen Deželak, Gorazd Štumberger
University of Maribor, Faculty of Electrical Engineering and
Computer Science. Slovenia
- 362 **Diagnostic information contained in inter-harmonics of a direct and PWM supplied induction machine**
Jan Rusek
AGH University of Science and Technology. Krakow. Poland
- 444 **About phases dependence in switched reluctance generator**
Dias, R.J., Coelho, A., Fleury, A.
Departamento de Engenharia de Universidade Católica de Goiás (UCG) Brasil

18:00 – 20:00

Welcome Civic Reception

Thursday 13th March 2008

ROOM A “Iberdrola”

9:15-10:45 Invited Sessions IS1 and IS2

9:15-10:00 H

Chairman: Mario Mañana Canteli

IS1: *Renewable Energy – Panacea for Climate Change?*

Ozdemir Göl. University of South Australia. Adelaide. Australia.

10:00-10:45 H

Chairman: Jan Iwaszkiewicz

IS2: *Improving the operation and maintenance of wind farms: determination of wind turbine performance*

Andrés Llombart-Estopiñan. CIRCE Foundation; Department of Electrical Engineering. Zaragoza University. Spain.

ROOM B “Schneider”

9:15-10:45 Oral Session D1

Chairman: Ramón Bargallo Perpiña

297 **Modifying modern power systems quality by integrating grid computing technology**

R. Al-Khannak, B. Bitzer
South Westphalia University of Applied Sciences. Germany

305 **Optimal pumping in a single chamber microbial fuel cell**

A.Araújo, Maria F. Patrício, José L. Santos
CMUC, Department of Mathematics, University of Coimbra. Portugal

311 **Application of genetic algorithms to compute the magnetic field produced by electric power lines**

F. Muñoz, J.A. Aguado, F. Martín, J.J. López, A. Rodríguez, J.E. Ruiz
Department of Electrical Engineering. E.T.S.I.I.-E.U.P. Málaga. Spain

- 378 **Capacity planning for fossil fuel and renewable energy resources power plants**
Farid Ghaderi¹, Reza Tanha¹, Ahmad Karimi²
1. Department of Industrial Engineering, Tehran University. Iran.
2. Department of Mathematics, Tarbiat Modares University. Tehran. Iran
- 388 **A method to improve parallel performance of high current semiconductor switches**
B. Abdi, A.H. Ranjbar, K. Malekian, J. Milimonfared, G.B. Gharehpetian
Department of Electrical Engineering.. Amirkabir University of Technology (AUT)Theran. Iran
- 390 **Reliability enhancement of fuel cell DC-DC converter in high power applications**
H. Ranjbar, B. Abdi, J. Milimonfared, G.B. Gharehpetian
Department of Electrical Engineering Amirkabir University of Technology (AUT)
Theran. Iran

ROOM C “ABB”

10:45-11:30 Poster Session C3 – Coffee Break

Chairmen: Amadeu Leão Rodrigues, Tuomo Lindh, André Martinez, Jürgen Stenzel, Bogdan Miedzinski.

- 325 **A green hybrid solar cell and fuel cell power plant generating electricity and water**
Hassan Moghbelli¹, Robert Vartanian²
1. Texas A & M University at Qatar. Dept of Science and Math, Doha, Qatar
2. Texas A & M University, Dept of ECE, College Station
- 326 **Mathematical Modeling and Simulation of Photovoltaic Array**
Tomas Skocil¹, M.P. Donsión²
1.- Department of Electrical Power Engineering and Ecology, Faculty of Electrical Engineering in Pilzen, University of West Bohemia, Czech Republic.
2.- Department of Electrical Engineering, Vigo University, Spain.
- 327 **An overview on short and long-term response energy storage devices for power systems applications**
Sérgio Faias¹, Patrícia Santos¹, Jorge Sousa¹, Rui Castro²
1. Instituto Superior de Engenharia de Lisboa, DEEA/ISEL. Portugal
2. Instituto Superior Técnico/Technical University of Lisbon. IST/TUL. Portugal
- 329 **Learning communities in municipal energy management.**
Energy conversion, conservation and energy efficiency
Davi Veiga Miranda, Marcio Cesar Abreu Calheiros, Maria Teresa Marques Silveira, Marcella Fuchs Salomão, Suzana Cristina do Rosário Paladino
ELETROBRÁS- Centrais Elétricas Brasileiras S.A. Rio de Janeiro-RJ-Brazil

- 332 **A case study of risk analysis due to lightning for wind power plants**
 R.B. Rodrigues¹, V.M.F. Mendes¹, J.P.S. Catalão²
 1. Instituto Superior de Engenharia. Lisbon. Portugal
 2. University of Beira Interior, Covilhã, Portugal
- 333 **Moving actuator surfaces: a new concept for wind turbine aerodynamic analysis**
 Christian Masson, Christophe Sibuet Watters
 Department of Mechanical Engineering. École de Technologie Supérieure. Canada
- 335 **Real time power disturbance characterization system based on wavelet transform and LabView platform**
 J.E. Ruiz, J. Aguado, F. Martín, F. Muñoz, J.J. López, A. Rodríguez
 Department of Electrical Engineering. E.T.S.I.I. Málaga University. Spain
- 336 **Dynamic performance of a microturbine connected to a low voltage network**
 E.Torres¹, J.M. Larragueta¹, P. Eguia¹, J. Mazón¹, J.I. San Martín², I. Zamora¹
 1. Department of Electrical Engineering .E.T.S.I.- Bilbao. Spain
 2. Department of Electrical Engineering. E.U.I.T.I.- Eibar. Spain
- 337 **Solar intensity estimation in a geographical region based on agents**
 J.A. Ramos Hernanz¹, J.J. Campayo Martín¹, I. Zamora Belver², E. Puelles Pérez¹, E. Zulueta Guerrero³
 1. Department of Electrical Engineering E.U.I. Vitoria- Gasteiz. University of The Basque Country. Spain
 2. Department of Electrical Engineering. E.T.S.I. Bilbao. University of The Basque Country. Spain
 3. Department of Systems Engineering and Automatic. E.U.I. Vitoria-Gasteiz. University of The Basque Country. Spain
- 338 **A new design approach for ground source heat pumps based on hourly load simulations**
 L. Lamarche, G. Dupré, S. Kajl
 Department of Mechanical Engineering. École de Technologie Supérieure. Canada
- 339 **Comparison of transmission and distribution systems in Czech Republic and Spain**
 F. Rajsky¹, M.P. Donsión²
 1. Department of Electrical Power Engineering and Ecology, Faculty of Electrical Engineering in Pilzen, University of West Bohemia, Czech Republic.
 2. Department of Electrical Engineering, Vigo University, Spain.
- 340 **Design of control strategies to improve grid integration in fixed speed wind energy systems with battery storage**
 A. Goikoetxea¹, M. Rodríguez¹, H. Binder², A. Milo³
 1. Faculty of Engineering. University of Mondragon. Spain
 2. Riso National Laboratory, Technical University of Denmark
 3. Department of Control Engineering, IKERLAN, Research Centre. Mondragon. Spain
- 342 **Review of methods for a hybrid energy system islanding efficient management**
 Á. Llaría¹, O. Curea¹, J. Jiménez², U. Bidarte²
 1. LIPSI. École Supérieure des Technologies Industrielles Avancées. France
 2. Departamento de Electrónica y Telecomunicaciones. University of The Basque Country. Spain

- 344 **Piezoelectric generator harvesting bike vibrations energy to supply portable devices**
Ericka Minazara¹, Dejan Vasic^{1,2}, François Costa^{1,3}
1. SATIE. Université de Cergy-Pontoise. France
2. Université de Cergy-Pontoise. France
3. IUFM. France
- 345 **Energy price-based control strategy of a small-scale head-dependent hydroelectric power plant**
Risto Tiainen, Tuomo Lindh, Jero Ahola, Markku Niemelä, Ville Särkimäki
Lappeenranta University of Technology. Finland
- 352 **How the efficiency of induction motor is measured?**
S. Corino, E. Romero, L.F. Mantilla
Department of Electrical Engineering and Energy. E.T.S.I.I. y T. University of Cantabria. Spain
- 354 **Control of series active power filter by state feedback**
S.P. Litrán, P. Salmerón, R.S. Herrera, J.R. Vázquez
Electrical Engineering Department. Huelva University. Spain
- 355 **Application of phase change material for cooling a protruding mounted power electronic components**
M. Faraji, H. El Qarnia
Université Cadi Ayyad. Faculté des Sciences Semlalia. Department de Phisque. Marrakech. Morocco
- 359 **Active power filter with matrix converter**
F.Z. Harkat, A. Boumediene, B. Mazari
University of Sciences and Technology USTO - Mohamed Boudiaf – Faculty of Electrical Engineering. USTO- Oran
- 361 **Analysis of control modes of split – phase vehicle drive with synchronized PWM**
V. Oleschuk^{1,2}, G. Griva², F. Profumo²
1. Power Engineering Institute of the Academy of Sciences of Moldova. Moldova
2. Department of Electrical Engineering Politecnico di Torino. Italy
- 364 **A dynamic model of a vertical direct expansion ground heat exchanger**
B. Beauchamp, L. Lamarche, S. Kajl
Department of Mechanical Engineering. École de Technologie Supérieure. Montreal. Canada
- 370 **Electrical charge and discharge characteristics of battery under remote control of water level with PV pumping system**
Masaki Sato, Yuhta Ohmi, Shingo Kato
Hachinohe Institute of Technology Graduate School. Japan
- 373 **Control method for the improvement of the efficiency of a fuel cell**
Radu C. Donca, Radu Bălan, Vistrian Mătieș, Olimpiu Hancu
Department of Mechanisms, Precision Mechanics and Mechatronics. Faculty of Mechanics, Technical University of Cluj- Napoca. Romania
- 374 **A multivariable model for identification of preferred location of wind plants**
Ali Azadeh, Seyed Farid Ghaderi, Mohammad Reza Nasrollahi
Faculty of Engineering, University of Theran. Iran

- 376 **Optimization of a photovoltaic installation supported with hydrogen. Study of the influence of the tilt angle of the modules**
M. Calderón¹, A. Ramiro², J.F. González²
1. Department of Electrical Engineering . E.I.I. Extremadura University. Badajoz. Spain
2. Department of Applied Physics. E.I.I. Extremadura University. Badajoz. Spain
- 381 **Olive stone: a source of energy generation and a suitable precursor for activated carbon production**
S. Román¹, J.F. González¹, J.M. Encinar²
1. Department of Applied Physics. Extremadura University. Badajoz. Spain
2. Department of Chemical Engineering and Physical Chemistry. Extremadura University. Badajoz. Spain
- 383 **Storage systems for the transition towards active and smart distribution systems**
S. Barsali¹, A. di Donato¹, R. Giglioli¹, L. Guidi², E. Pasca², S. Scalfari²
1. Università di Pisa. Dipartimento di Sistemi Elettrici e Automazione. Pisa. Italy
2. ENEL. Pisa. Italy
- 386 **Optimization of the yield of the thermal solar system**
J.L. Falagán, F.J. Diez
Department of Electrical Engineering and Systems and Automatic. University of León. Spain
- 392 **Optimal operation of paralleled power transformers**
David Trebolle¹, Baudilio Valecillos²
1. UNION FENOSA DISTRIBUCION. Spain
2. University Carlos III of Madrid. Spain
- 393 **Optimal relay performance using advanced fault diagnostic techniques**
Akinbulire, T.O., Oluseyi, P.O., Esumeh, C.I.
Department of Electrical/ Electronics Engineering. University of Lagos. Nigeria
- 395 **Integrating power quality analysis and protection relay functions**
Aleksander Lisowiec, Andrzej Nowakowski, Zdzislaw Kolodziejczyk
Tele & Radio Research Institute. Warsaw. Poland
- 397 **Possibility of application of a low frequency inductive heating to selected ferromagnetic objects**
B. Miedzinski¹, Z. Okraszewski¹, Liang-jun Xu², Xin Wang²
1. Wroclaw University of Technology. Poland
2. Beijing University of Posts and Telecommunications. China
- 398 **Speed multipliers for renewable energy systems-hydro and wind**
Codruta Jaliu, Dorin Diaconescu, Radu Saulescu
Department of Product Design and Robotics. Transilvania University of Brasov. Romania
- 402 **Photovoltaic panels labView™ controlled- a platform for educational purposes**
Nuno Faria¹, António Bonifácio¹, João Pedro Trovão^{1,2}, Paulo Tavares^{1,2}
1. Instituto Superior de Engenharia de Coimbra. Portugal
2. Instituto de Engenharia de Sistemas e Computadores de Coimbra. Portugal
- 404 **Unified power quality conditioner with electric double layer capacitor**
B. Han, H. Lee, J. Lee
Department of Electrical Engineering, Myongji University, Kyunggi-do, South Korea

Thursday 13th March 2008

ROOM A “Iberdrola”

11:30-13:00 Invited Sessions IS3 and IS4

11:30-12:15 H

Chairman: Vicktor Valouch

IS3: Recent and advanced transformer applications

Miguel Oliva Navarrete. ABB. Spain

12:15-13:00 H

Chairman: Gorazd Stumberger

IS4: *Unified loss theory and its application on Low Voltage network*

András Dán, David Raisz. Department of Electrical Power Engineering. Budapest University of Technology and Economics. Hungary.

ROOM B “Schneider”

11:30-13:00 Oral Session D2

Chairman: Louis Lamarche

216 Effect of large scale wind farms on the Egyptian power system dynamics

M.EL-Sayed¹, Effat Moussa²

1. Electrical Power Engineering. Dept. Cairo University

2. Egyptian Electricity Holding Company.

282 Analysis of a single phase inverter for photovoltaic systems operating in a weak electric grid

Gorazd Štumberger, Sebastijan Seme, Klemen Deželak, Andrej Hanžič, Jože Voršič
University of Maribor, Faculty of Electrical Engineering and Computer Science.
Slovenia

Association of PV, gas micro turbine and short term storage system to participate un frequency control

Herbreteau J.^{1,4}, Courtecuisse V.^{1,2}, Peng L.^{1,3}, Degobert Ph^{1,4}, Robyns B.^{1,2}, Francois B.^{1,3}

298

1. Laboratoire d'Electrotechnique et d'Electronique de Puissance de Lille. France
2. Ecole des Hautes Etudes d'Ingénieur. Lille. France
3. Ecole Centrale de Lille. France
4. Ecole National Supérieure des Arts et Métiers. Lille. France

Unit commitment and generation dispatch of a hydropower plant in a competitive electricity market

300

Juan I. Pérez, José R. Wilhelmi, Luis A. Arévalo
Departamento de Ingeniería Civil: Hidráulica y Energética. E.T.S.I. de Caminos, Canales y Puertos. Technical University of Madrid. Spain

Influence of capacitances on the impedance-based methods for SLG fault location in distribution networks

308

S. Herraiz¹, J. Meléndez¹, J. Sánchez²
1. Institute of Computer Science and Applications, University of Girona. Spain
2. ENDESA DISTRIBUCIÓN. Spain

Fuel cell inverters used for unbalance compensation in low voltage distribution systems

368

Héctor Beltrán, Néstor Aparicio, E. Belenguer, C. Cervelló García
Department of Industrial Engineering Systems and Design. Universitat Jaume I. Castelló de la Plana. Spain

13:00 – 15:00 Lunch

Room D “Gobierno de Cantabria. IDICAN”

ROOM A “Iberdrola”

11:30-12:15 Plenary Session PL2

Chairman: Pere Andrada

PL2: Nuclear Energy and the Challenge of Climate Change and Sustainable Development

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

20:30 -23:00

Conference Banquet at “El Gran Casino de Santander”
(Optional)

Friday 14th March 2008

ROOM A “Iberdrola”

9:00-9:45 Plenary Session PL3

Chairman: Gianpaolo Vitale

Gas Heating vs Electrical Heating using different electricity mixes

Fernando Nuño. European Copper Institute (ECI). Leonardo ENERGY Community

ROOM A “Iberdrola”

9:45-10:45 Oral Session A3

Chairman: Ramón Bargalló Perpiña

Modeling and implementation of renewable energy sources to distribution systems

Josef Tlustý¹, Viktor Valouch²

299 1.Department of Power Engineering. Faculty of Electrical Engineering, CTU. Czech Republic

2.Department of Electric Machines, Drives and Power Electronics/ Institute of Thermomechanics. Czech Republic

Influence of converter – connected distributed generation on distribution network losses

366 Lieven Degroote, Bert Renders, Bart Meersman, Lieven Vandeveld

Electrical Energy Laboratory (EELAB).Department of Electrical Energy, Systems and Automation (EESA) Ghent University. Belgium

Wave power conversion systems for electrical energy production

380 A. Leão Rodrigues

Department of Electrical Engineering. Faculty of Science and Technology Nova University of Lisbon. Portugal

Energy policy of the European Union: Impact of the renewable energies and perspectives for the year 2020

385 C. Redondo Gil¹, L.A. Esquibel¹, A.M. Alonso Sánchez¹, F.J. Velasco²

1. Department of Electrical Engineering& Systems Engineering and Automatic Control. University of Leon. Spain

2. Department of Electronic Technology. University of Cantabria. Spain

Friday 14th March 2008

ROOM B “Schneider”

9:45-10:45 Oral Session B3

Chairman: Jiri Klima

A minimal-order observed based control method for PV generator to reduce frequency deviations of power system

- 212 Tomonobu Senjyu¹, Manoj Datta¹, Atsushi Yons¹, Toshihisa Funabashi², Chul-Haw Kim³
1. Department of Electrical and Electronics Engineering. University of Ryukyus. Japan
 2. Meidensha Corporation. Japan
- School of Electrical and Computer Engineering, Sungkyunkwan University, Korea

Investigation methods for power quality problems in large scale LV network

- 248 P.R. Wilczek, M.C. Benhabid, J.A.A. Myrzik, J.L. Duarte
- Department of Electrical Engineering, Eindhoven University of Technology. The Netherlands

Multichannel online quality and efficiency power network diagnostic according to IEC standards

- 272 Richárd Bátorfi
- Department of Electrical and Electronic Engineering, University of Miskolc. Hungary

The application of active filters supported by Pulse Width Modulated Inverters in the harmonic simulation of the high power electric traction

- 394 Peter Kiss¹, Attila Balogh², András Dán¹, István Varjasi²
1. Budapest University of Technology and Economics. Department of Electric Power Engineering Power Systems and Environment Group. Hungary
 2. Budapest University of Technology and Economics. Department of Automation and Applied Informatics. Hungary

Friday 14th March 2008

ROOM C “ABB”

10:45-11:30 Poster Session C4 – Coffee Break

Chairmen: A. Marques Cardoso, Alexandru Morega, Jože Voršic, Murad Shibli, Vit Brslica.

First results of the anomalies identification method for PV systems

- 407 A.López Agüera¹, I. Rodríguez Cabo¹, Eduardo Fernández¹, C.M. Torres Costa²
1. Department of Particle Physics & Galician Institute of High Energy Physics. Santiago de Compostela University. Spain.
2. Department Chemical Engineering. Aula Enerxias Renovables. Santiago de Compostela University. Spain

Permanent Magnet Synchronous Motors (PMSM). Parameters influence on the synchronization Process of a PMSM

- 409 J. Rais¹, M.P. Donsión²
1.- Department of Electromechanics and Power Electronics, Faculty of Electrical Engineering in Pilzen, University of West Bohemia, Czech Republic.
2.- Department of Electrical Engineering, Vigo University, Spain.

Pyrolysis and catalytic steam gasification of olive oil waste in two stages

- 415 J. M. Encinar¹, J.F. González², G. Martínez¹, M.J. Martín¹
1. Dpto Ingeniería Química y Química Física. UEX. Badajoz. Spain
2. Dpto Física Aplicada. UEX. Badajoz. Spain

Classification of voltage sags base on k-NN in the principal component space

- 417 J. Meléndez¹ X. Berjaga¹, S. Herraiz¹, J. Sánchez,² M. Castro²
1. Institut d'Informàtica I Aplicacions Universitat de Girona. Spain
2. Power Quality Department of Endesa Distribución, Barcelona. Spain

Parabolic trough solar collecr for local remote areas electrificaion-option for Sudan

- 419 E.A. Mohamed
Department of Mechanical Engineering. University of Nyala. Sudan

Major technical trends in the worlwide solar thermal heaters offer

- 421 Bennouna Amin
Istichar – Consulting in Energy. Marrakech. Morocco

Improving the environmental sustainability of hotel buildings through the analysis of its life cycle. Case study: Balearic Islands

- 423 **B. Roselló, A. Moia, A. Cladera, V. Martínez**
Department of Physics-Mechanical Engineering Group. University of Balearic Islands. Spain

- 425 **Study and comparison of technologies in home and building electronic systems by fuzzy logic**
R. Sáenz López¹, E. Jiménez Macías¹, M. Pérez de la Parte²
1. Department of Electrical Engineering. E.T.S..I.I. University of La Rioja. Spain
2. Department of Mechanical Engineering. E.T.S.I.I. University of La Rioja. Spain
- 426 **Micro-hydraulic energy system for electric power production and DSM in buildings**
J.C. Sáenz-Díez Muro¹, J.M. Blanco Barrero¹, E. Jiménez Macías¹, M. Pérez de la Parte²
1. Department of Electrical Engineering. E.T.S..I.I. University of La Rioja. Spain
2. Department of Mechanical Engineering. E.T.S.I.I. University of La Rioja. Spain
- 427 **Modelization of earth electrode excited by atmospheric discharges based on FEM**
J.M. Bueno Barrachina, C.S. Cañas Peñuelas, S. Catalán Izquierdo, A. Quijano López
Instituto de Tecnología Eléctrica. Valencia. Spain
- 430 **Development of micro grid model for stability assessment**
I. Vokony, A. Faludi, A. Dán
Faculty of Electrical Engineering, Budapest University of Technology and Economics. Hungary
- 431 **Performance limitations of B6 inverters during unsymmetrical voltage sag conditions**
A. Notholt¹, D. Coll- Mayor²
1. Institut für solare Energieversorgungstechnik. Germany
2. University of Balearic Islands, Physics Department. Spain
- 432 **Circunstances affecting the protection against electrode potential rise (EPR)**
József Ladányi, György Varjú
Budapest University of Technology and Economics, Department of Electric Power Engineering. Hungary
- 434 **Ultra low quiescent consumption isolated PFM power supplies under no-load condition**
José Miguel de Diego Rodrigo¹, José Ignacio Garate Añibarro¹, Javier Monsalve Kägi²
1. UPV, Escuela Técnica Superior de Ingeniería. Bilbao. Spain
2. Maxim Integrated Products, Inc.
- 435 **Robust control of STATCOM based on sliding mode technique**
Mohammadali Abbasian, A. Salarvand, H. Saghafi, M. Ershadi
Engineering Faculty, Azad University of Khorasgan, Isfahan. Iran
- 437 **Two-dimensional analytical modelling of passive-feed direct methanol fuel cells**
Piergiorgio Alotto, Massimo Guarnieri, Federico Moro
Dipartimento di Ingegneria Elettrica, Università di Padova. Italy
- 441 **A constructal approach to power distribution networks design**
Alexandru M. Morega¹, Juan C. Ordóñez², Mihaela Morega¹
1. Politehnica University of Bucharest, Romania
2. Department of Mechanical Engineering, Florida State University . USA

- 446 **Statistical inter-comparison study of empirical models to estimate the monthly-average daily global irradiation on tilted south oriented surfaces**
A. Ramiro¹, F.J.Moral², F.J.Masa¹, A. Sordo¹
1. Department of Applied Physics. Extremadura University. Spain
2. Department of Graphical Expression. Extremadura University. Spain
- 450 **Optimal design of a PV-wind system for water pumping**
José L. Bernal- Agustín, Rodolfo Dufo- López, José A. Dominguez Navarro, José M. Yusta-Loyo
Electrical Engineering Department. University of Zaragoza. Spain
- 455 **Design tool governing over-voltages in motors fed from long cable PWM drives**
Saïd Amarir, Kamal Al-Haddad
École de Technologie Supérieure. Canada
- 461 **The equation of state of dark energy and dark matter: boltzmann constant and the unified entity: the utilization of space energy**
Murad Shibli
College of Engineering, American University of Sharjah, United Arab Emirates
- 468 **Combined operation of UPQC and fuel cell with common DC bus**
S.A.Ale-Emran¹, M. Forghani², M. Abedi¹, G.B. Gharehpetian¹
1. Electrical Engineering Department, Amirkabir University of Technology, Tehran. Iran
2. Department of Electrical and Computer Engineering, Tehran. Iran
- 470 **Dynamic stability improvement of a wind farm connected to grid using STATCOM**
M.Tarafdar Hagh¹, A.Roshan Milani², A.Lafzi²
1. Center of Excellence for Mechatronics, University of Tabriz. Iran
2. Faculty of Electrical and Computer Engineering, University of Tabriz. Iran
- 473 **Alternative methods for internal arc tests on 12 kV and 24 kV metal-enclosed switchgears with compact rmu**
George Curcanu, Constantin Ilinca, Ilie Sboru
ICMET. Craiova. Romania
- 475 **Analysis the islanding mode of combined operation of DG and UPQC in unbalanced distribution system**
S.M-Ale-Emran, H.R.Baghaee, M.Abedi, G.B.Gharehpetian
Electrical Engineering Department, Amirkabir University of Technology, Tehran. Iran
- 490 **Making the power system intelligent**
Péter Kádár
Budapest Tech. Dept of Power Systems. Hungary
- 493 **Virtual instrumentation for fuzzy logic controller simulation**
Andrei Cziker, Mircea Chindris, Anca Miron
Electrical Power Systems Department, Technical University of Cluj-Napoca. Romania
- 502 **A control method of parallel inverter for smart islanding of a local power system**
Mashahide Hojo¹, Kota Amo¹, Toshihisa Funabashi², Yoshinobu Ueda²
1. The University of Tokushima, Japan
2. Meidensha Corporation, Japan

Sampling frequency and time window influence on flicker measurements significance. A case study.

F. Oliveira^{1,2}, A. Madureira³ and M. P. Donsión⁴

503 ¹ School of Technology and Management, Polytechnic Institute of Leiria, Portugal

² INESC Coimbra, Portugal

³ Power Systems Unit of INESC Porto, Portugal

⁴ Department of Electrical Engineering, E.T.S.I.I., University of Vigo

New efficient design for air-air heat pumps

C.J. Renedo¹, A. Ortiz², M. Mañana², F. Delgado², S. Pérez¹, D. Silició², F.Ortiz²

504 1. Department of Electrical and Energy Engineering, ETS Náutica, University of Cantabria, Santander, Spain.

2. Department of Electrical and Energy Engineering, ETSI Industriales y Telecomunicación, University of Cantabria, Santander, Spain

Energy implications of the mycosphaerella sp. in eucalyptus globules stands

C.Tejedor¹, S. Pérez², C.J. Renedo², A. Ortiz², M. Mañana², D.Silió²

505 1. Bosques 2000, S.L., Grupo Sniace, Ganzo, Torrelavega, Spain.

2. Department of Electrical and Energy Engineering, ETSI Industriales y Telecomunicación, University of Cantabria, Santander, Spain

Methodology for harmonic distortion level determination

506 L.I. Eguiluz, J.C. Lavandero, M. Odrizola, V:M. López

Department of Electrical Engineering, Catabria University. Spain

A novel carrier-based PWM method for THD reduction in asymmetric multi-level inverter

510 M.G. Hosseini Aghdam, S.H. Fathi, G.B. Gharehpetian

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

Analytical modelling and implementation of a new four-switch hybrid power filter topology.

512 Jiri Klima¹, Jiri Skramlik², Viktor Valouch²

1. Department of Electrical Engineering and Automation Technical Faculty of CZU in Prague. Czech Republic

2. Institute of Thermomechanics, Academy of Sciences of the Czech Republic

Friday 14th March 2008

ROOM A “Iberdrola”

11:30-12:30 Oral Session A4

Chairman: Carlos Redondo Gil

- 247 **Wind turbine permanent magnet synchronous generator magnetic field study**
A.Ghiță, A.-L. Chirilă, I-D. Deaconu, D.-I. Ilina
Department of Electrical Engineering. University Politehnica of Bucharest. Romania
- 400 **Speed multipliers for renewable energy systems-hydro and wind**
Codruta Jaliu, Dorin Diaconescu, Radu Saulescu
Department of Product Design and Robotics. Transilvania University of Brasov.
Romania
- 412 **Finite element analysis of cogging torque in low speed permanent magnets
wind generators**
T. Tudorache¹, L. Melcescu¹, M. Popescu², M. Cistelecan²
1. University Politehnica of Bucharest, Electrical Engineering Faculty. Romania
2. Research Institute for Electrical Machines (ICPE-ME). Romania
- 508 **An assessment of renewable energy generation in a conventional steam power
plant with geothermal feedwater preheating**
Janusz Buchta
Technical University of Lodz. Institute of Electrical Power Engineering. Lozd. Poland.

Friday 14th March 2008

ROOM B “Schneider”

11:30-12:30 Oral Session B4

Chairman: Jan Rusek

PV output power fluctuations smoothing and optimum capacity of energy storage system for PV power generator

213 Tomonobu Senjyu¹, Manoj Datta¹, Atsushi Yona¹, Toshihisa Funabashi², Chul-Hwan Kim³

1.Department of Electrical and Electronics Engineering. University of Ryukyus. Japan

2.Meidensha Corporation. Japan

3.School of Electrical and Computer Engineering, Sungkyunkwan University, Korea

Electromagnetic interference at the mains ports of an equipment

241 Mircea Ion Buzdugan, Horia Bălan, Emil E. Simion, Tudor Ion Buzdugan
Technical University of Cluj- Napoca, Romania

The occurrence of faults in permanent magnet synchronous motor drives and its effects on the power supply quality

288 J. O. Estima, A.J. Marques Cardoso
University of Coimbra. FCTU/IT. Portugal

Wind energy integration into 380 kV system- impact on power quality of MV and LV networks

350 Elda Vilchez, Jürgen. Stenzel
Technische Universität Darmstadt. Germany

	ROOM A “Iberdrola”
	Closing Session
12:30 – 13:00	Conclusions and time for the next conference (ICREPQ'09) Awards for the three best posters
13:00 – 15:00	Farewell Lunch at Room D “Gobierno de Cantabria. IDICAN”
15:00 – 19:00	Cultural Excursion for all the participants. Excursion to Santillana del Mar and Comillas

AFTER THE ICREPQ'08 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 anyone interested can download free of charge any paper. Also, the best papers of this conference and the following two editions of ICREPQ conferences will be included in a book about Renewable Energy & Power Quality.

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.

LOCAL SECRETARIAT.

The contact person of the local secretariat of the International Conference on Renewable Energy and Power Quality (ICREPQ'08) is:

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