

**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 (12<sup>th</sup> March, 20:00 H) we will hold a Civic Reception with aperitif and on Thursday (13<sup>th</sup> 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 (14<sup>th</sup> 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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Ghita, Constantin (Romania)	Valouch, V. (Czech Republic)
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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Ramón Bargalló Perpiña  
Mariano Sanz-Badía  
Debora Coll-Mallor

## **LOCAL ORGANISING COMMITTEE**

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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:** 12<sup>th</sup> March at 18:00 H

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

<b>Tuesday 11<sup>th</sup> March 2008</b>	
17:00 – 19:00	<b>Registration</b> <b>“ICREPQ'08 Secretariat”</b>

<b>Wednesday 12<sup>th</sup> March 2008</b>						
9:00 – 10:45	<b>Registration “ICREPQ’08 Secretariat”</b>					
10:45 – 11:30	<b>Opening Ceremony ROOM A “Iberdrola”</b>					
11:30-12:15	<b>PL1</b>	<b>The renewables in the new energetic global horizont</b> 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 “ <b>ABB</b> ” ( <b>Session C1</b> ) 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	<b>Welcome Lunch Room D “Gobierno de Cantabria. IDICAN”</b>					
15:00 – 16:00	<b>ROOM A “Iberdrola”</b>		<b>ROOM B “Schneider”</b>			
	<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 “ <b>ABB</b> ” ( <b>Session C2</b> ) 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	<b>ROOM A “Iberdrola”</b>		<b>ROOM B “Schneider”</b>			
	<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	<b>Welcome Civic Reception</b>					

<b>Thursday 13<sup>th</sup> March 2008</b>						
9:00 – 9:15	<b>ROOM A “Iberdrola”</b>					
	<b>Opening Ceremony (XVIIIIGIE)</b>					
	<b>Invited Sessions IS1 and IS2</b>					
9:15 – 10:45	<b>IS1</b>	<b>Renewable Energy – Panacea for Climate Change?.</b> Ozdemir Göl. University of South Australia. Adelaide. Australia				
	<b>IS2</b>	<b>Improving the operation and maintenance of wind farms: determination of wind turbine performance</b> Andrés Llombart-Estopiñan. CIRCE Foundation; Department of Electrical Engineering. Zaragoza University. Spain				
	EXTRA TIME FOR DISCUSSION					
9:15 – 10:45	<b>ROOM B “Schneider”</b>					
	<i>Oral Session D1</i>					
	297   305   311   378   388   390					
	EXTRA TIME FOR DISCUSSION					
10:45 – 11:30	<b>Poster Session at Room C “ABB” (Session C3) Coffee Break</b>		<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	
	<b>ROOM A “Iberdrola” Invited Sessions IS3 and IS4</b>					
11:30-13:00	<b>IS3</b>	<b>Recent and advanced transformer applications</b> Miguel Oliva Navarrete. ABB. Spain				
	<b>IS4</b>	<b>Unified loss theory and its application on Low Voltage network</b> András Dán, David Raisz. Department of Electrical Power Engineering. Budapest University of Technology and Economics. Hungary.				
	EXTRA TIME FOR DISCUSSION					

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

Dark colour - In Spanish

**Friday 14<sup>th</sup> March 2008**

9:00-9:45	<b>ROOM A "Iberdrola" Plenary Session PL3</b>						
	<b>PL3</b>	<b>Gas Heating vs Electrical Heating using different electricity mixes</b>					
		Fernando Nuño European Copper Institute (ECI). Leonardo ENERGY Community					
EXTRA TIME FOR DISCUSSION							
9:45-10:45	<b>ROOM A "Iberdrola"</b>			<b>ROOM B "Schneider"</b>			
	<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	<b>Posters Session at Room C "ABB" (Session C4) Coffee Break</b>			<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	<b>ROOM A "Iberdrola"</b>			<b>ROOM B "Schneider"</b>			
	<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	<b>ROOM A "Iberdrola"</b>						
	<b>Closing Session</b>						
Conclusions and time for the next conference (ICREPQ'09) Awards for the three best posters							
13:00 – 15:00	<b>Farewell Lunch at Room D "Gobierno de Cantabria. IDICAN"</b>						
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

<b>Wednesday 12<sup>th</sup> March, 2008</b>		
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
<b>Thursday 13<sup>th</sup> March, 2008</b>		
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
<b>Friday 14<sup>th</sup> March, 2008</b>		
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 Voršič
		Murad Shibli
		Vit Brslica
11:30-12:30	ORAL SESSION A4	Carlos Redondo Gil
	ORAL SESSION B4	Jan Rusek

**Wednesday 12<sup>th</sup> 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.Arezki<sup>1</sup>, E.M.Berkouk<sup>2</sup>

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**

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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**

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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 Viuda<sup>1</sup>, V. Romero Arauzo<sup>2</sup>  
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 Padmaraju<sup>1</sup>, M.Viginesh<sup>1</sup>, N.Nallusamy<sup>2</sup>  
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.Mokhtari<sup>1</sup>, A.Saadat<sup>2</sup>,H. Golshani<sup>2</sup>,R.Pouraghababa<sup>2</sup>, H.Golshani<sup>2</sup>, J.Ahmadian<sup>3</sup>  
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. Figueiredo<sup>1</sup>, José M.G.Sá da Costa<sup>2</sup>  
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. Efker<sup>1</sup>, A. Martinez<sup>2</sup>, H.M.Reddy<sup>3</sup>  
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

- Model based predictive current control of an asynchronous six-phase motor drive**  
 229 R. Gregor<sup>1</sup>, F. Barrero<sup>1</sup>, M.J. Durán<sup>2</sup>, M.R. Arahal<sup>1</sup>, S. Toral<sup>1</sup>  
 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
- Realization of an asynchronous six-phase induction motor drive test-rig**  
 230 R. Gregor<sup>1</sup>, F. Barrero<sup>1</sup>, S. Toral<sup>1</sup>, M.J. Durán<sup>2</sup>  
 1. Electronic Engineering Departments. E.S.I. University of Seville. Spain  
 2. Electrical Engineering Department. E.S.I.I. University of Málaga. Spain
- MATLAB simulation of a DSTATCOM using hysteresis current control for electric arc furnace flicker mitigation**  
 231 S. Meschi<sup>1</sup>, E. Hashemzadeh<sup>2</sup>  
 1. Iran Grid Management Co. Tehran. Iran  
 2. Ferdowsi University of Mashhad
- Design study of an electromechanical flywheel energy storage system applied to braking energy restitution in transportation vehicles**  
 233 F. Rezeg<sup>1</sup>, T. Zouaghi<sup>2</sup>, A. Marzougui<sup>1</sup>, A. Bouazzi<sup>1</sup>  
 1. Renewable Energy and Electrical Materials Lab. ENIT. Tunis- Tunisia  
 2. Academy of Fondouk Jedid. Tunis- Tunisia
- Fault Diagnosis of tin oxide gas sensor using energy barrier and ART-2 neural network**  
 236 In-Soo Lee<sup>1</sup>, Chang-Hyun Shim<sup>2</sup>  
 1. School of Electronics and Electrical Engineering, Sangju National University. Korea  
 2. Purenanotech Co. Ltd Daegu. Korea
- Remote monitoring of wind-photovoltaic hybrid generation system using mobile phone and internet**  
 237 Xu Zhenchao, Moon Chaejoo, Chang Younghak, Lim Jungmin, Kim Taegon  
 Department of Electrical Engineering. Mokpo National University. Korea
- A study on thermoelectric battery-charger using DMFC (direct methanol fuel cell) system**  
 238 Zhang Jingliang, Moon Chaejoo, Chang Younghak, Cheang Euiheang, Kim Taegon  
 Department of Electrical Engineering. Mokpo National University. Korea
- A digital flickermeter**  
 239 Yan Xiang-Wu, Wang Peng  
 North China Electric Power University. China
- Energy efficiency modelling and estimation in petroleum refining industry- A comparison using physical data**  
 242 A.Azadeh, S.F. Ghaderi, S.M. Asadzadeh  
 Department of Industrial Engineering, Faculty of Engineering, University of Tehran. Iran
- Trigeneration systems with fuel cells**  
 245 J.I. San Martín<sup>1</sup>, I. Zamora<sup>2</sup>, J.J. San Martín<sup>1</sup>, V. Aperribay<sup>1</sup>, P. Eguía<sup>2</sup>  
 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

- Wireless module of localization and control for security**  
 249 J.Luna Rodriguez<sup>1</sup>, V. Barranco López<sup>2</sup>, D. Bullejos Martín<sup>2</sup>, A Sabariego Hernández<sup>1</sup>  
 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
- Energy Savings by means of energy efficient electric motors**  
 250 S. Corino, E. Romero, L.F. Mantilla  
 Department of Electrical Engineering and Energy. E.T.S.I.I. y T. University of Cantabria. Spain
- Distributed energy: problems, perspectives**  
 253 Yanush Danilevich, Anatoly Kovalenko  
 Academician Yanush Danilevich. Russian Academy of Sciences. Russia
- Effects of interfacial oxide layer thickness and interface states on conversion efficiency of SnO<sub>2</sub>/ SiO<sub>2</sub>/Si(N) solar cells**  
 255 D.Hocine, MS. Belkaid  
 Faculty of Electrical and Computer Engineering. The University Mouloud Mammeri. Algiers
- Optimal location and size of SVC and TCSC for multi-objective static voltage stability enhancement**  
 256 R. Benabid<sup>1</sup>, M. Boudour<sup>2</sup>  
 1. Nuclear Research Center of Birine. Algiers  
 2. Department of Electrical Engineering. University of Sciences & Technology Houari Boumediene. Algiers
- Comparison of fault ride through characteristics of VSI current controllers**  
 257 J.F. Sanz, J. Sallán, M.A. Alonso  
 CIRCE Foundation and Electrical Engineering Department of the University of Zaragoza. Spain
- Single phase AC power load profile emulator**  
 260 Y. Thiaux, J. Seigneurbieux, B. Multon, H. Ben Ahmed, D. Miller  
 SATIE/SETE ENS de Cachan. Antenne de Bretagne. France
- Single phase grid connected PV system used as active filter with dP/dI feedback MPPT controller**  
 261 Seyed Hossein Hosseini<sup>1</sup>, Saeed Danyali<sup>2</sup>  
 1. Electrical Engineering Department, Islamic Azad University of Tabriz, Iran  
 2. Faculty of Electrical and Computer Engineering, University of Tabriz, Iran
- New control strategy to improve power quality using a hybrid power filter**  
 262 S.P. Litrán, P. Salmerón, R.S. Herrera, J.R. Vázquez  
 Department of Electrical Engineering . Escuela Politécnica Superior, University of Huelva. Spain
- Wind tunnel assessment of small direct drive wind turbines with permanent magnets synchronous generators**  
 287 Mihai Predescu<sup>1</sup>, Andrei Bejinariu<sup>1</sup>, Adrian Nedelcu<sup>1</sup>, Octavian Mitroi<sup>1</sup>, Catalin Nae<sup>2</sup>,  
 Mihai.Victor Pricop<sup>2</sup>, Aurelian Crăciunescu<sup>3</sup>  
 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-Sánchez<sup>1</sup>, Vicente Feliu<sup>1</sup>, Aurelio García-Cerrada<sup>2</sup>  
 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. Fernandes<sup>1</sup>, João M.G. Figueiredo<sup>2</sup>  
 1.CEM, Universidade Évora. Portugal  
 2. IDMEC-IST- Technical University Lisbon. Portugal
- 302 **Renewable energy supervision and real time production control in Spain**  
 T. Domínguez<sup>1</sup>, M.de la Torre<sup>1</sup>, G. Juberías<sup>1</sup>, E. Prieto<sup>2</sup>, R. Rivas<sup>1</sup>, E. Ruiz<sup>1</sup>  
 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 Sanke<sup>1</sup>, 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 12<sup>th</sup> 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 Seršen<sup>1</sup>, Jože Voršič<sup>2</sup>
- 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 Iwaszkiewicz<sup>1</sup>, B. Jacek Perz<sup>1</sup>, Manuel Pérez Donsión<sup>2</sup>
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 Wongsapai<sup>1</sup>, Poon Thienburanathum<sup>2</sup>, Prasert Rerkkriengkrai<sup>3</sup>  
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 Jaruyanon<sup>1</sup>, Wongkot Wongsapai<sup>2</sup>  
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 Unhauzer<sup>1</sup>, Angéla Váradi<sup>2</sup>  
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. Elez<sup>1</sup>, B. Tomičić<sup>2</sup>, B. Takać<sup>1</sup>  
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 Kouta<sup>1</sup>, Ali El-Ali<sup>1</sup>, Nazih Moubayed<sup>1</sup>, Rachid Outbib<sup>2</sup>  
 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. Micu<sup>1</sup>, Andrei Ceclan<sup>1</sup>, Iosif Lingvay<sup>2</sup>, Emil Simion<sup>1</sup>  
 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<sup>1,2</sup>, Philippe Degobert<sup>2</sup>, Bruno François<sup>1</sup>, Benoît Robyns<sup>3</sup>  
 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. Moreno<sup>1</sup>, Alberto Pigazo<sup>1</sup>, Marco Liserre<sup>2</sup>, Antonio Dell' Aquila<sup>2</sup>  
 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  
 286     Intelligent Systems Laboratory, Federal University of Rio Grande do Norte, Natal, Brasil.
- Graphic tools for analysing the influence of noise and aperiodic components in the performance of digital filters: a case study**  
 J. Lázaró<sup>1</sup>, M.A. Zorrozuá<sup>2</sup>, J.F. Miñambres<sup>2</sup>, M.I. Sánchez<sup>1</sup>, B. Larrea<sup>1</sup>, I. Antiza<sup>3</sup>  
 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.Milo<sup>1</sup>, A. Martinez<sup>1</sup>, M. Rodriguez<sup>2</sup>, A. Goikoetchea<sup>2</sup>  
 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  
 291     University of Toulouse – Laboratory LAPLACE Site ENSEEIHT. France
- A new modulation approach to decrease total harmonic distortion of the SPWM voltage waveform using genetic optimization technique**  
 N. Tutkun  
 292     Department of Electrical & Electronic Eng. Faculty of Eng. Karaelmas University. Turkey

- Reduction in induction motor heating fed by a new PWM technique: results obtained in laboratory experiments**  
 293 M.J. Meco-Gutiérrez<sup>1</sup>, A. Ruiz González<sup>1</sup>, F. Vargas-Merino<sup>1</sup>, J.R. Heredia-Larrubia<sup>2</sup>  
 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 Stacke<sup>1</sup>, Pablo Cuervo<sup>2</sup>  
 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. Melício<sup>1</sup>, V.M.F. Mendes<sup>1</sup>, J.P.S. Catalão<sup>2</sup>  
 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. Baghaee<sup>1</sup>, M. Mirsalim<sup>2</sup>, .M.Ale-Emran<sup>1</sup>, M. Abedi<sup>1</sup>, G.B. Gharehpetian<sup>1</sup>  
 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. Duran<sup>1</sup>, F. Barrero<sup>2</sup>, S. Toral<sup>2</sup>, M. Arahál<sup>2</sup>, R. Gregor<sup>2</sup>, R. Marfil<sup>1</sup>  
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. Boccaletti<sup>1</sup>, G. Fabbri<sup>1</sup>, J. Marco<sup>2</sup>, E. Santini<sup>1</sup>  
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 12<sup>th</sup> March 2002**

**ROOM B “Schneider”**

**16:45-17:45 Oral Session B2**

**Chairwoman:** Débora Coll

- 258 **Power quality permanent monitoring systems in Romania.**  
Carmen Stanescu<sup>1</sup>, Jakob Widmer<sup>2</sup>, Sorin Cristian Pispiris<sup>1</sup>  
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 13<sup>th</sup> 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 **Modifyng modern power systems quality by integrating grid computing technology**

R. Al-Khannak, B. Bitzer  
South Westfhalia 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 Ghaderi<sup>1</sup>, Reza Tanha<sup>1</sup>, Ahmad Karimi<sup>2</sup>  
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 Moghbelli<sup>1</sup>, Robert Vartanian<sup>2</sup>  
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 Skocil<sup>1</sup>, M.P. Donsión<sup>2</sup>**  
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 Faias<sup>1</sup>, Patrícia Santos<sup>1</sup>, Jorge Sousa<sup>1</sup>, Rui Castro<sup>2</sup>  
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. Rodrigues<sup>1</sup>, V.M.F. Mendes<sup>1</sup>, J.P.S. Catalão<sup>2</sup>  
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.Torres<sup>1</sup>, J.M. Larragueta<sup>1</sup>, P. Eguia<sup>1</sup>, J. Mazón<sup>1</sup>, J.I. San Martín<sup>2</sup>, I. Zamora<sup>1</sup>  
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 Hernanz<sup>1</sup>, J.J. Campayo Martín<sup>1</sup>, I. Zamora Belver<sup>2</sup>, E. Puelles Pérez<sup>1</sup>, E. Zulueta Guerrero<sup>3</sup>  
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. Rajsky<sup>1</sup>, M.P. Donsión<sup>2</sup>  
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. Goikoetxea<sup>1</sup>, M. Rodríguez<sup>1</sup>, H. Binder<sup>2</sup>, A. Milo<sup>3</sup>  
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. Llaría<sup>1</sup>, O. Curea<sup>1</sup>, J. Jiménez<sup>2</sup>, U. Bidarte<sup>2</sup>  
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 Minazara<sup>1</sup>, Dejan Vasic<sup>1,2</sup>, François Costa<sup>1,3</sup>  
 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 Phisique. 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<sup>1,2</sup>, G. Griva<sup>2</sup>, F. Profumo<sup>2</sup>  
 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. Calderón<sup>1</sup>, A. Ramiro<sup>2</sup>, J.F. González<sup>2</sup>  
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. Román<sup>1</sup>, J.F. González<sup>1</sup>, J.M. Encinar<sup>2</sup>  
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. Barsali<sup>1</sup>, A. di Donato<sup>1</sup>, R. Giglioli<sup>1</sup>, L. Guidi<sup>2</sup>, E. Pasca<sup>2</sup>, S. Scalfari<sup>2</sup>  
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 Trebolle<sup>1</sup>, Baudilio Valecillos<sup>2</sup>  
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. Miedzinski<sup>1</sup>, Z. Okraszewski<sup>1</sup>, Liang-jun Xu<sup>2</sup>, Xin Wang<sup>2</sup>  
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 Faria<sup>1</sup>, António Bonifácio<sup>1</sup>, João Pedro Trovão<sup>1,2</sup>, Paulo Tavares<sup>1,2</sup>  
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 13<sup>th</sup> 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-Sayed<sup>1</sup>, Effat Moussa<sup>2</sup>

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.<sup>1,4</sup>, Courtecuisse V.<sup>1,2</sup>, Peng L.<sup>1,3</sup>, Degobert Ph<sup>1,4</sup>, Robyns B.<sup>1,2</sup>, Francois B.<sup>1,3</sup>

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. Herraiz<sup>1</sup>, J. Meléndez<sup>1</sup>, J. Sánchez<sup>2</sup>  
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 14<sup>th</sup> 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 Tlustý<sup>1</sup>, Viktor Valouch<sup>2</sup>

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 Gil<sup>1</sup>, L.A. Esquibel<sup>1</sup>, A.M. Alonso Sánchez<sup>1</sup>, F.J. Velasco<sup>2</sup>

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

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

**Friday 14<sup>th</sup> 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 Senju<sup>1</sup>, Manoj Datta<sup>1</sup>, Atsushi Yons<sup>1</sup>, Toshihisa Funabashi<sup>2</sup>, Chul-Haw Kim<sup>3</sup>
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 Kiss<sup>1</sup>, Attila Balogh<sup>2</sup>, András Dán<sup>1</sup>, István Varjasi<sup>2</sup>
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 14<sup>th</sup> 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 Agüera<sup>1</sup>, I. Rodríguez Cabo<sup>1</sup>, Eduardo Fernández<sup>1</sup>, C.M. Torres Costa<sup>2</sup>  
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. Rais<sup>1</sup>, M.P. Donsión<sup>2</sup>  
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. Encinar<sup>1</sup>, J.F. González<sup>2</sup>, G. Martínez<sup>1</sup>, M.J. Martín<sup>1</sup>  
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. Meléndez<sup>1</sup> X. Berjaga<sup>1</sup>, S. Herraiz<sup>1</sup>, J. Sánchez,<sup>2</sup> M. Castro<sup>2</sup>  
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 López<sup>1</sup>, E. Jiménez Macías<sup>1</sup>, M. Pérez de la Parte<sup>2</sup>  
 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 Muro<sup>1</sup>, J.M. Blanco Barrero<sup>1</sup>, E. Jiménez Macías<sup>1</sup>, M. Pérez de la Parte<sup>2</sup>  
 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. Notholt<sup>1</sup>, D. Coll- Mayor<sup>2</sup>  
 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 Rodrigo<sup>1</sup>, José Ignacio Garate Añibarro<sup>1</sup>, Javier Monsalve Kägi<sup>2</sup>  
 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. Morega<sup>1</sup>, Juan C. Ordóñez<sup>2</sup>, Mihaela Morega<sup>1</sup>  
 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. Ramiro<sup>1</sup>, F.J.Moral<sup>2</sup>, F.J.Masa<sup>1</sup>, A. Sordo<sup>1</sup>  
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-Emran<sup>1</sup>, M. Forghani<sup>2</sup>, M. Abedi<sup>1</sup>, G.B. Gharehpetian<sup>1</sup>  
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 Hagh<sup>1</sup>, A.Roshan Milani<sup>2</sup>, A.Lafzi<sup>2</sup>  
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 Hojo<sup>1</sup>, Kota Amo<sup>1</sup>, Toshihisa Funabashi<sup>2</sup>, Yoshinobu Ueda<sup>2</sup>  
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<sup>1,2</sup>, A. Madureira<sup>3</sup> and M. P. Donsión<sup>4</sup>

503 <sup>1</sup> School of Technology and Management, Polytechnic Institute of Leiria, Portugal

<sup>2</sup> INESC Coimbra, Portugal

<sup>3</sup> Power Systems Unit of INESC Porto, Portugal

<sup>4</sup> Department of Electrical Engineering, E.T.S.I.I., University of Vigo

**New efficient design for air-air heat pumps**

C.J. Renedo<sup>1</sup>, A. Ortiz<sup>2</sup>, M. Mañana<sup>2</sup>, F. Delgado<sup>2</sup>, S. Pérez<sup>1</sup>, D. Silició<sup>2</sup>, F.Ortiz<sup>2</sup>

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.Tejedor<sup>1</sup>, S. Pérez<sup>2</sup>, C.J. Renedo<sup>2</sup>, A. Ortiz<sup>2</sup>, M. Mañana<sup>2</sup>, D.Silió<sup>2</sup>

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 Klima<sup>1</sup>, Jiri Skramlik<sup>2</sup>, Viktor Valouch<sup>2</sup>

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 14<sup>th</sup> 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. Tudorache<sup>1</sup>, L. Melcescu<sup>1</sup>, M. Popescu<sup>2</sup>, M. Cistelecan<sup>2</sup>  
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. Lodz. Poland.

**Friday 14<sup>th</sup> 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 Senjyu<sup>1</sup>, Manoj Datta<sup>1</sup>, Atsushi Yona<sup>1</sup>, Toshihisa Funabashi<sup>2</sup>, Chul-Hwan Kim<sup>3</sup>

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

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

## **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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## **INTERNATIONAL SECRETARIAT.**

The International Secretariat of the ICREPQ'08, to send the digests, full papers, two pages summaries, invited papers, registration, invoices and for everything concerning authors and their works, international program committee members, etc. is:

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