

SPEEDAM SYMPOSIUM

23-26 May 2006 - Taormina (Italy)



FINAL PROGRAMME



INTERNATIONAL SCIENTIFIC COMMITTEE

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Testa A. - 2nd University of Naples - Italy
Tsuji M. - University of Nagasaki - Japan
Valla M.I. - University of La Plata - Argentina
Villermain Lecollier G. – Univ. of Reims - France
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VENUE

SPEEDAM 2006 International Symposium will be held in Taormina, at the “**Palazzo dei Congressi**” (on *V. Emanuele II* Square).

Founded in 358 B.C. by Dionysius, tyrant of Syracuse, Taormina had changing fortunes throughout its thousand years of history. Its first Greek name Tauromenion means built up in Tauro area, the mountain upon which it rose but it is also linked to the legend of Minotaur, frequently represented in ancient coins. Under Romans, Tauromenium enjoyed a great period of splendour so that many famous noble families built luxurious villas to stay there permanently.

Another evidence of its historical background is the famous "Ancient Theatre", built by the Greeks and restructured in the Roman age. During Middle Age the city was destroyed by the Arabs and in 1078 it was taken by the Normans, under whom it flourished and became the capital of Sicily. Today Taormina is famous all over the world not only for its ancient monuments and ruins of roman villas, but also for its irresistible fascination and the incomparable beauty of the landscape: eyes can space from the bay of Naxos to the Italian coast and to Etna, the most active volcano in Europe.

HOW TO REACH THE VENUE

The best way to reach Taormina is by plane, landing in **Catania Airport** (named “Fontanarossa”), which is 60 km far from Taormina. Just in front to the International Arrivals in Catania Airport you can take a bus directly to Taormina city, according to the bus timetable shown here in the following. The transfer needs about 80 minutes. The bus terminal in Taormina (on *Pirandello Street*) is about 200 meters far from **Palazzo dei Congressi** (the Conference site) and near to several hotels. Bus tickets cost 5.00 (five) euros and can be bought only on-board.

You can arrive in Taormina also by train. The railways station of “**Giardini Naxos-Taormina**” is 3 km far from downtown (bus or taxi are needed to reach either hotels or the Conference site).





Starting from the Italian peninsula, you can reach Taormina by car, before crossing the “Stretto di Messina” on the ferry and then taking the highway “Messina→Catania”; the best exit is “North Taormina” (Taormina Nord).

BUS TIMETABLE

| DEPARTURE | ARRIVAL |
|---|--|
| <i>Catania Airport Fontanarossa</i> | <i>Taormina Via Pirandello</i> |
| <i>hour</i> | <i>hour</i> |
| 6:45 | 8:00 |
| 7:45 | 9:10 |
| 8:45 | 10:10 |
| 10:45 | 12:10 |
| 12:45 | 14:10 |
| 13:45 | 15:10 |
| 15:45 | 17:10 |
| 16:45 | 18:10 |
| 19:45 | 21:10 |



←..... Catania Airport Fontanarossa km 60 from Taormina



TECHNICAL PROGRAMME

Symposium starts on Wednesday, May 24th and closes on Friday, May 26th 2006. Pre-registration is scheduled on Tuesday, May 23rd.

Scientific contributions are organised in oral or in dialogue (poster) sessions. In both cases, the presence of the authors is requested, at least one per paper.

The papers scheduled for oral sessions will be presented in **Room A – “Teatro”** (1st floor), in **Room B – “Auditorium”** (ground floor) or in **Room C – “Sala Verde”** (4th floor), according to information on the timetable. Dialogue (poster) presentations are planned in the **Poster Area** at an intermediate floor.

ORAL PRESENTATION OF THE PAPERS

Videoprojector+personal computer are available in the conference rooms “A”, “B” and “C”. Speakers can use their own laptop (mobile computer). Otherwise they can use either a DVD/CD-Rom or USB PEN-Drive on the room-computer, where Microsoft Power Point 2003 and Acrobat Reader 7.0 are installed. Please do not include audio data. All presentation files will be deleted at the end of the Symposium and no copy will be saved.

The time scheduled for each presentation is about 15 min. Questions to the authors are welcome: they can be allowed at the end of each presentation or at the end of the session, according to the decision of the chairman.

Speakers are kindly invited to fill in (typewriting or using capital letters) the form “Author/Speaker Information Sheet” available on the SPEEDAM website or at the Conference Desk. The data of this form are useful to the chairmen in order to correctly introduce the speaker of the paper to the people attending the session.

The file containing the paper presentation can be sent to the SPEEDAM secretariat by e-mail (Speedam@unina.it) not later than May 10th 2006; the e-mail “subject” must be “***papernumber* – Presentation**”. The organizers recommend speakers to bring a backup copy (DVD, CD-Rom or USB PEN-Drive) of their presentation at the conference. The presentation file can be also directly transferred on the computer storage unit at the secretariat desk during registration or at arrival time. In this case, the file must be named “***papernumber* – Presentation**” and clearly marked on the DVD/CD cover, together with the speaker name.

One the day of their presentation, speakers are also invited to contact their session-chairman at the “***chairmen meeting point***” 15 minutes before the starting of the session.

Both chairmen and speakers are requested to respect scheduled times.

DIALOGUE PRESENTATION OF THE PAPERS

The poster should be in maximum **A0** (84 cm x 120 cm) **format** and only vertically oriented. No specific guidelines are provided for preparation of the poster. Speedam organizers suggest only to clearly show the title (minimum 72 pt) and authors name + affiliation (minimum 48 pt) and to use at list a 24 pt font for the body-text and figure captions.



At list one author per paper must be present during the dialogue session (90 min). Posters have to be placed in the reserved space from 60 min to 30 min before the session starting and removed in 60 min after the session. Otherwise posters will be destroyed by organizers.

In the *Poster Area* authors will find everything they need to fix poster on their locations.

CONFERENCE LITERATURE

Each registered participant will receive a CD-ROM containing the Proceedings of SPEEDAM 2006 Symposium.

Printed copies of some papers can be requested at the Secretariat Desk.

SYMPOSIUM FEES

- *Full registration for delegates: € 700.00* (€600.00 before May 1st, 2006)

The fee includes: Attendance at all the Sessions, Symposium Proceedings on CD-ROM, Conference Materials, Welcome Cocktail, Lunches, Social Banquet, Coffees.

- *Reduced fee for students/PhD Students: € 300.00* (€250.00 before May 1st, 2006)

The reduced student fee includes: Attendance at all the Sessions, Symposium Proceedings on CD-ROM, Conference Materials, Lunches and Coffee. Student (or PhD student) reduced fee can be applied to the students who simply participate in the Symposium or are co-authors of already registered papers. If a student is the only registered author of a specific paper, a full conference fee is needed for him.

- *Accompanying persons: €200.00*

The fee includes: Ladies' /Companions' Programme, Welcome Cocktail, Social Banquet. Excursions will be organized (free of charge) for the accompanying persons, according to their number. Reservation for excursions can be made at the registration.

- *Additional Proceedings on CD-ROM: €100.00*

- *Additional banquet ticket: €100.00*

SECRETARIAT DESK

The Secretariat Desk will operate according to the following schedule:

| | | | |
|-----------|------------------|------------------|-----------------|
| TUESDAY | 23 rd | ----- | 16:00÷19:00 hrs |
| WEDNESDAY | 24 th | 8:00 ÷12:30 hrs; | 13:45÷17:00 hrs |
| THURSDAY | 25 th | 8:30 ÷12:30 hrs; | 13:45÷17:00 hrs |
| FRIDAY | 26 th | 8:30 ÷12:30 hrs; | ----- |



HOTEL AND TOURIST INFORMATION

For hotel accommodation, travel and tourist information please contact:

JOIN TEAM s.r.l.

Via R. de Sangro n. 4 - 80134 NAPOLI (Italy)

Fax: +39 081 7683223; Mobile ph.: +39 338 6732827

E-mail: info@jointeam.it

For all further information please contact:

SPEEDAM Secretariat

Dipartimento di Ingegneria Elettrica

Università di Napoli "Federico II"

via Claudio, 21 - 80125 NAPOLI (Italy)

Phone: +39 081 7683144; Fax: +39 081 7683223; Mobile ph.: +39 349 2551258

E-mail: speedam@unina.it

Local contact in Taormina:

Phone: +39 094223807 Mobile ph.: +39 338 6732827; +39 349 2551258

E-mail: speedam@unina.it

Tuesday - May 23rd 2006

16:00 Pre-Registration (at “Palazzo dei Congressi” in Taormina)

19:30 Welcome Cocktail

Wednesday - May 24th 2006

8:00 Registration

9:00 Formal Opening

9:15 WA1 - Identification Problems in Electrical Drives

[Room A]

Chairman: Balestrino A. - (Italy)

- 19052 *Kral C., Gragger J.V., Pirker F., Pascoli G. - (Austria)*
Sensorless rotor position estimation through current signature analysis based on rotor saliency harmonic
- 19136 *Repo A., Arkkio A. - (Finland)*
Parameter estimation of induction machines using the numerical impulse method
- 19190 *Aoulkadi M., Binder A. - (Germany)*
Evaluation of different measurement methods to determine stray load losses in induction machines
- 19258 *Bellini A., Bifaretti S. - (Italy)*
A method for magnetizing curve identification in vector controlled induction motor drives
- 19296 *Stiebler M., Plotkin Y. - (Germany)*
Superposition methods for on-line determination of a.c. machine winding resistance
- 19299 *Dobrucky B., Michalik J., Spanik P., Bobek V. - (Slovak Republic)*
Virtual HF injection method (VHFIM) of rotor position estimation of PMSM under field oriented control
- 19326 *Picardi C., Rogano N. - (Italy)*
Parameter identification of induction motor based on particle swarm optimization
- 19342 *Balestrino A., Landi A. - (Italy)*
Autotuning and monitoring

Wednesday - May 24th 2006**9:15 WB1 - Drives and Converters for Railways Applications****[Room B]***Chairmen: Bocchetti G. - (Italy); Henning U. - (Germany)*

- 04328 *Accardo L., Fioretto M., Giannini G., Marino P.* - (Italy)
Techniques of PWM space vector modulation for the reduction of magnetic acoustic noise in traction motor
- 04102 *Brenna M., Foadelli F., Zaninelli D.* - (Italy)
A new concept of a light rail vehicle for city, interurban and subway services
- 04198 *Henning U., Thoolen F., Lampérth M., Berndt J., Lohner A., Jänig N.* - (Germany)
Ultra low emission traction drive system for hybrid light rail vehicles
- 04361 *Carpita M., Pellerin M., Herminjard J.* - (Switzerland)
Medium frequency transformer for traction applications making use of multilevel converter: small scale prototype test results
- 04245 *Germishuizen J., Jöckel A., Hoffmann T., Teichmann M., Löwenstein L., v.Wangelin F.* - (Germany)
Syntegra™ - next generation traction drive system, total integration of traction, bogie and braking technology
- 04359 *Giulii Capponi F., Del Ferraro L., Caricchi F., Fedeli E.* - (Italy)
Measurement of traction current harmonics on the track circuits of the Rome-Naples high-speed railway
- 04307 *Giannini G., Cascone V., Fratelli L.* - (Italy)
Dual stage converters for multi-system high power locos. Architecture of loco E403

9:15 WC1 - Generators and Converters for Renewable Sources of Energy**[Room C]***Chairman: Szentirmai L. - (Hungary)*

- 11020 *Joshi N.N., Mohan N.* - (USA)
Application of TCSC in wind farm application
- 11171 *Kasa N., Harada Y., Iida T., Bhat A.K S.* - (Japan)
Zero-current transition converters for independent small scale power network system using lower power wind turbines
- 11357 *Degobert P., Kreuawan S., Guillaud X.* - (France)
Use of super capacitors to reduce the fast fluctuations of power of a hybrid system composed of photovoltaic and micro turbine
- 11355 *Rabelo B., Hofmann W., Pinheiro L.* - (Germany)
Loss reduction methods for doubly-fed induction generator drives for wind turbines
- 11372 *Magureanu R., Albu M., Dumitrescu A.M., Priboianu M.* - (Romania)
A practical solution for grid connected dispersed generation from renewable sources: DC connection
- 11329 *Liccardo F., Marino P., Triggianese M.* - (Italy)
An efficient connection between grid and wind farm by a Synchronous active front-end
- 10033 *Silva N., Martins A., Carvalho A.* - (Portugal)
Design and evaluation of a PWM rectifier control system for testing renewable DC sources connected to the grid
- 11050 *Ghedamsi K., Aouzellag D., Berkouk E.M.* - (Algeria)
Application of matrix converter for variable speed wind turbine driving a doubly fed induction generator

11:00 Coffee Break

Wednesday - May 24th 2006**11:15 WA2 - Sensorless Control****[Room A]****Chairman: Ohsaki H. - (Japan)**

- 16060 *Chatterjee D., Ganguli A.K., Chakraborti R.N.* - (India)
A fuzzy-logic based stator resistance compensated simplified speed sensorless vector control of induction motor in the low speed region
- 16234 *Bensiali N., Chaigne C., Tnani S., Etien E., Champenois G.* - (France)
Optimal observer design for sensorless control of induction motor in regenerating-mode
- 16319 *Alonge F., Di Tommaso A.O., Miceli R., Rando C.* - (Italy)
Sensorless control of permanent magnet synchronous motors for wide speed range applications
- 16244 *Komatsuzaki A., Yoshida K., Miki I.* - (Japan)
A position sensorless drive technique considering magnetic saturation for switched reluctance motor
- 16080 *Somanatham R., Prasad P.V.N., Rajkumar A.D.* - (India)
Modeling and simulation of sensorless control of PMSBLDC motor using zero-crossing back E.M.F. detection
- 16081 *Tsuji M., Chen S., Kai T., Yamada E., Hamasaki S., Del Pizzo A.* - (Japan)
A precise torque and high efficiency control for Q-axis flux-based induction motor sensorless vector control system

11:15 WB2 - Electromagnetic Compatibility and Power Quality in Traction Systems**[Room B]****Chairman: Capasso A. - (Italy)**

- 05024 *Lucca G., Pagani A., Moro M., Zucchelli L.* - (Italy)
Measurement of magnetic field produced by the 25kV-50Hz Italian high speed railway line
- 05077 *Falvo M.C., Fedeli E., Stellin M., Vannini E.* - (Italy)
Signalling system interferences due to railway electric substation failures on Italian conventional railway networks
- 05212 *Falvo M.C., Fedeli E., Lamedica R.* - (Italy)
A measurement campaign on audio frequency track circuits of Italian high speed railway systems
- 05371 *Acampora G., Landi C., Luiso M., Pasquino N.* - (Italy)
Optimization of energy consumption in a railway traction system
- 05025 *Lucca G., Moro M., Zucchelli L.* - (Italy)
A survey of the 50 Hz interference impact of the Italian high speed railway line on extended metallic structures
- 05388 *Tortia A.M.L.* - (Italy)
Turin-Milan high-speed railway-line, 2x25 kV 50 Hz AC electrified. EMC problems in earthing of exposed conductive parts

11:15 WC2 - PWM Active Front-Ends/ Active Filtering**[Room C]****Chairman: Hofmann W. - (Germany)**

- 10330 *Liccardo F., Marino P., Triggianese M.* - (Italy)
Design criteria for a synchronous active front-end in high power applications
- 10266 *Timbus A.V., Teodorescu R., Liserre M., Dell'Aquila A.* - (Denmark-Italy)
Independent synchronization and control of three phase grid converters

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- 10256 *Tnani S., Coirault P.* - (France)
Output feedback control strategy of parallel filters
- 10179 *Ordoñez R., Sadarnac D., Mohamad O.* - (France)
Three-phase four-branch active filter for non-active power compensation under non-sinusoidal conditions
- 10362 *Dell'Aquila A., Monopoli V.G., Lecci A., Marinelli M.* - (Italy)
A study on different modulation techniques in presence of resonant controllers applied to active power filters
- 10043 *Mingtao Y., Jianye C., Weian W., Zanji W.* - (China)
A double tuned filter based on controllable reactor

12:45 Lunch**14:15 WA3 - PM Brushless Motor Drives****[Room A]***Chairmen: Miki I. - (Japan); Lipo T. - (USA)*

- 13262 *Gatto G., Marongiu I., Perfetto A., Serpi A.* - (Italy)
Performance improvement of brushless dc motor drive controlled by a predictive algorithm
- 13191 *Hörz M., Herzog H-G., Mendler N.* - (Germany)
System design and comparison of calculated and measured performance of a bearing less BLDC-drive with axial flux path for an implantable blood pump
- 13072 *de Sousa M.A.T.F., Caux S., Fadel M.* - (France)
Controllers' robust design for PMSM drive fed with PWM voltage inverter with elastic joint and inertia load variation
- 13119 *Chun Y.D., Koo D.H., Cho Y.H., Cho W.Y.* - (Korea)
Cogging torque reduction in a novel axial flux PM motor
- 13209 *Carmeli M.S., Castelli Dezza F., Mauri M.* - (Italy)
Electromagnetic vibration and noise analysis of an external rotor permanent magnet motor

14:15 WB3 - Converter Control**[Room B]***Chairmen: Attaianese C. - (Italy); Mohan N. - (USA)*

- 02341 *Balestrino A., Corsanini D., Landi A.* - (Italy)
Pulse width modulation and pulse ratio modulation: experimental comparison in DC/DC conversion
- 02294 *Grandi G., Serra G., Tani A.* - (Italy)
Space vector modulation of a seven-phase voltage source inverter
- 02034 *Zhang X.F., Yu F., Li H.S., Song Q.G.* - (China)
A novel discontinuous space vector PWM control for multiphase inverter
- 02257 *Bellini A., Bifaretti S.* - (Italy)
A simple control technique for three-phase four-leg inverters
- 02235 *Kömürcügil H., Kükrer O., Doğanalp A.* - (Turkey)
Optimal control for single-phase UPS inverters based on linear quadratic regulator approach

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- 02346 *Hofmann W., Zitzelsberger J.* - (Germany)
PWM-control methods for common mode voltage minimization - a survey

14:15 WC3 - Diagnostics in Electrical Drives**[Room C]****Chairman: Filippetti F. - (Italy)**

- 18105 *Beneduce L., Iovienco S., Masucci A., Picardi A.* - (Italy)
Detection broken rotor bar in cage induction motor
- 18272 *Thomsen J.S., Kallesøe C.S.* - (Denmark)
Stator fault modeling in induction motors
- 18323 *Casadei D., Filippetti F., Stefani A., Rossi C., Yazidi A., Capolino G.A.* - (Italy-France)
Experimental fault characterization of doubly fed induction machines for wind power generation
- 19204 *do Prado Jr A., de Sousa A.H., Ferrari S.M.* - (Brazil)
On-line identification of induction motors through discrete models for sinusoidal signals
- 18268 *Tiainen R., Särkimäki V., Ahola J., Lindh T.* - (Finland)
Utilization possibilities of frequency converter in electric motor diagnostics

15:45 WA4 - Mechatronic Systems**[Room A]****Chairman: Lomonova E. - (The Netherlands)**

- 39358 *Invited Paper*
Vandenput A.J.A., Lomonova E.A., Makarovic J., Hol S.A.J., Lebedev A., Jansen J.W.
- (The Netherlands)
Novel types of the multi-degrees-of-freedom electromagnetic actuators
- 35207 *Schäfers E., Denk J., Hamann J.* - (Germany)
Mechatronic design of direct drive systems
- 34259 *Rosario J.M., Oliveira E., Dumur D.* - (Brazil-France)
Conception of Stewart-Gough platform with reconfigurable control using integrate prototyping
- 35115 *Ikeda H., Hanamoto T., Tsuji T., Tomizuka M.* - (Japan-USA)
Design of vibration suppression controller for 3-inertia systems using Taguchi method

15:45 WB4 - Magnetic Levitation Applications**[Room B]****Chairman: Profumo F. - (Italy)**

- 31079 *Enomoto J., Kitano J., Ikeda H.* - (Japan)
Parallel feeding of the high power inverters for superconducting Maglev
- 31157 *Morishita M., Itoh H.* - (Japan)
The self-gap-detecting electromagnetic suspension system with robust stability against variation of levitation mass
- 31094 *Schuhmann T., Hofmann W., Werner R.* - (Germany)
Sensor integration and state estimation on magnetically levitated rotors
- 31344 *Andriollo M., Carmeli S., Castelli Dezza F., Mauri M.* - (Italy)
Control design aspects for an EDS levitation system

Wednesday - May 24th 2006**15:45 WC4 - Power Quality in Power Systems****[Room C]***Chairmen: Carpinelli G. - (Italy); Verde P. - (Italy)*

- 10315 *Menniti D., Picardi C., Pinnarelli A., Sorrentino N. - (Italy)*
Reactive power and voltage harmonics compensation applied of a shunt power active filter
- 09232 *Benghanem M., Alradadi E.A., Draou A. - (Algeria-Saudi Arabia)*
A new modified PQ theory used for reactive power and current harmonic compensation
- 09378 *Carpinelli G., Di Perna C., Caramia P., Varilone P., Verde P., Chiumeo R., Mastandrea I. Tarsia F. - (Italy)*
On robustness of distribution systems against voltage dips
- 22336 *Cavallaro C., Musumeci S., Raciti A., Santanocito C. - (Italy)*
CAD analysis on electrical field of load break switch suitable for medium voltage applications

17:00 End of Sessions**17:00 WP1- Converter Topologies and Control****[Poster Session]**

- 02289 *Jeyalakshmi A., Prabhakar M. - (India)*
Effect of leakage inductance on the performance of parallel resonant converter
- 02113 *Shyu K.K., Yang M.J., Chen Y.M., Lin Y.F. - (Taiwan)*
A three-phase four-wire AVR with IP control under unipolar PWM operation
- 02114 *Tounsi B., Astier S. - (France)*
Comparative study of power electronics converters associated to variable speed permanent magnet alternator
- 02045 *Sobczyk T.J., Sienko T. - (Poland)*
Application of matrix converter as a voltage phase controller in power systems
- 03189 *Lalili D., Lourci N., Berkouk E. M., Boudjema F., Petzoldt J., Dali M.Y. - (Algeria)*
A simplified space vector pulse width modulation algorithm for five level diode clamping inverter
- 03243 *Halász S., Varjasi I. - (Hungary)*
Analysis of three phase PWM strategies of three-level inverters
- 19343 *Balestrino A., Landi A., Sani L. - (Italy)*
Performance indices and controller design for switching converters
- 03163 *Sahali Y., Fellah M.K. - (Algeria)*
Application of the optimal minimization of the THD technique to the multilevel symmetrical inverters and study of its performance in comparison with the selective harmonic elimination technique

17:00 WP2 - Controlled Electrical Drives**[Poster Session]**

- 15131 *Sayyah A., Aflaki M., Rezazade A.R. - (Iran)*
GA - based optimization of total harmonic current distortion and suppression of chosen harmonics in induction motors
- 15161 *Khalidi B.S., Kouzou A., Grouni S., Boukhetala D. - (Algeria)*
An approach for rotor time-constant adaptation with FOC induction motors drives
- 15374 *Oh W. S., Cho K. M., Kim S., Kim H. J. - (Korea)*
Optimized neural network speed control of induction motor using genetic algorithm

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- 15340 *Rechberger T., Ingruber R.* - (Austria)
Influence of different types of supply cables on shaft currents in VSI-fed induction motors
- 28084 *Moghani J.S., Heidari M.* - (Iran)
High efficient low cost induction motor drive for residential applications
- 07099 *Sadeghi S., Sadeghi R., Sadeghi M.* - (Iran)
Dynamic performance of a switched reluctance motor for propulsion systems
- 16098 *Huang M.C., Moses A.J., Anayi F., Yao X.G.* - (U. K.)
Linear Kalman filter (LKF) sensorless control for permanent magnet synchronous motor based on orthogonal output linear model
- 23220 *Galan N., Mammadov A.* - (Romania)
The building system and the mathematical model of axial air-gap three-phased asynchronous motor
- 37318 *Pessina G., Morra E.* - (Italy)
Reliability evaluation of a multi-motor drive system for daily newspaper printing plants
- 38197 *Hendijani Zadeh M., Yazdian A., Mohamadian M.* - (Iran)
Robust position control in DC motor by fuzzy sliding mode control
- 25265 *Jeftenic B., Bebic M.* - (Serbia & Montenegro)
Controlled multi-motor drives
- 33186 *Larabi A., Mahmoudi M.O., Boucherit M.S.* - (Algeria)
Robust position control of machine tools with a strategy of linearization by state return using fuzzy regulators
- 07387 *Nicolae P. M., Nicolae I. D., Mandache L., Sirbu I. G.* - (Romania)
Improved technological solution for urban transportation system by tram

17:00 WP3- Design and Modeling of Electrical Machines**[Poster Session]**

- 21277 *Costa Neves C.G., Rincos F., Ferreira da Luz M.V., Lefèvre Y.* - (Brazil)
3D eletromagnetic simulation of a claw-pole generator
- 21350 *Kappatou J., Safacas A.N.* - (Greece)
Finite element inductance calculations in 3-phase squirrel-cage induction machines with broken rotor bars
- 22223 *Turcanu O.A., Tudorache T., Fireșteanu V.* - (Romania)
Influence of squirrel-cage bar cross-section geometry on induction motor performances
- 23206 *Vyncke T.J., De Belie F.M.L.L., Geldhof K.R., Vandeveld L., Boel R.K., Melkebeek J.A.A.* - (Belgium)
A Simulink state-space model of induction machines including magnetizing-flux saturation
- 30345 *Bucci G., Fiorucci E., Ometto A., Rotondale E.* - (Italy)
Effects of voltage amplitude modulations on mechanical vibrations in low voltage transformers
- 37269 *Seo J.M., Jung I.S., Sung H.G.* - (Korea)
Thrust force analysis of spindle motor for HDDs
- 26091 *Haznadar Z., Berberovic S., Stih Z., Jokic R.* - (Croatia)
Modeling of ship's shaft generator
- 22322 *Hörz M., Herzog H.G., Haas A.* - (Germany)
Axial flux machine with single tooth fractional slot winding - Comparison of different winding design approaches
- 32276 *Cardoso C., Ferreira J., Alves V., Araújo R.E.* - (Portugal)
The design and implementation of an electric go-kart for education in motor control



Wednesday - May 24th 2006

- 32185 *Dobriceanu O.D., Nicola S.* - (Romania)
Low cost literacy e-learning tool
- 23218 *Kishore A., Kumar G.S.* - (India)
Dynamic modeling and analysis of three phase self-excited induction generator using generalized state space approach
- 23056 *Braslavsky I., Ishmatov Z., Plotnikov Y., Averbakh I.* - (Russia)
Energy consumption and losses calculation approach for different classes of induction motor drives
- 30313 *Elia S., Fabbri G., Nisticò E., Santini E.* - (Italy)
Design of cast-resin distribution transformers by means of genetic algorithms

Thursday - May 25th 2006**8:30 TA1 - Special Electrical Machines****[Room A]***Chairman: Yamada E. - (Japan)***Keynotes Speech**

- 00249 *Yano T. - (Japan)*
Multi dimensional drive system and their applications
- 24246 *Hosseini S.M., Agha-Mirsalim M., Mirzayee M. - (Iran)*
Design and analysis of a novel disk permanent magnet generator
- 24290 *Frauenhofer J., Kaufhold M., Kummeth I., Nerowski G., Nick W. - (Germany)*
High-temperature-superconducting machines- a high-technology step for large rotating electric machines
- 24165 *Ohsaki H., Ueda Y. - (Japan)*
Numerical simulation of mover motion of a surface motor using Halbach permanent magnets
- 24238 *Slusarek B., Dlugiewicz L. - (Poland)*
Powder magnetic materials - area of application
- 17280 *Demmig S., Gehrking R., Feldmann M., Büttgenbach S., Ponick B. - (Germany)*
Specific design rules for micro linear motors
- 24042 *Jindal A., Krishnamurthy M., Fahimi B. - (USA)*
Modeling and analysis of a micro variable capacitance electromechanical energy converter

8:30 TB1 - Distributed Generation and Electricity Market**[Room B]***Chairmen: Cataliotti V. - (Italy); Baghouz Y. - (USA)*

- 08035 *Schellong W. - (Germany)*
Integrated energy management in distributed systems
- 08085 *Chen W.L., Hsu Y.Y. - (Taiwan)*
Experimental evaluation of an isolated induction generator with voltage and frequency control
- 08104 *Bertling F., Soter S. - (Germany)*
A novel converter integrable impedance measuring method for islanding detection in grids with widespread use of decentral generation
- 08349 *Carmeli M.S., Castelli Dezza F., Faranda R., Marchegiani G., Mauri M. - (Italy)*
Universal digital controller for power quality and distributed generation systems
- 08373 *Conti S., Greco A., Messina N., Raiti S. - (Italy)*
Local voltage regulation in LV distribution networks with PV distributed generation
- 11274 *Guillaud X., Degobert P., Lorient D., Mogos E. - (France)*
Real-time simulation of a micro-turbine integrated in a distribution network
- 09216 *Marinescu C., Ion C., Serban I., Clotea L., Marinescu D. - (Romania)*
Controlling a stand-alone power system
- 08368 *Zobaa A.F., Cecati C. - (Italy - Egypt)*
A comprehensive review on distributed power generation

Thursday - May 25th 2006**8:30 TC1 - Converter Topologies and Technology****[Room C]***Chairman: Marchesoni M. - (Italy)*

- 02125 *Do M.C., Güldner H. - (Germany)*
High output voltage DC/DC converter based on parallel connection of piezoelectric transformers
- 02380 *Buonomo S., Cavallaro C., Chimento F., Musumeci S., Raciti A., Scollo R. - (Italy)*
Monolithic cascade device in low power converter applications with wide range input voltage
- 02170 *Abe S., Hirokawa M., Zaitzu T., Ninomiya T. - (Japan)*
Design consideration of full-regulated bus converter for system stability of on-board distributed power system
- 02236 *Popović J., Ferreira J.A., Gerber M.B., König A., de Doncker R. - (The Netherlands - Germany)*
Integration technologies for high power density power electronic converters for AC drives
- 02111 *Postiglione G., Ladoux P. - (France)*
A new concept of electrical power supply for AC arc furnaces
- 02108 *Nguyen-Quang N., Stone D.A., Bingham C.M., Foster M.P. - (U. K.)*
Single phase matrix converter for radio frequency induction heating
- 02364 *Cacciato M., Consoli A., De Caro S., Testa A. - (Italy)*
Two innovative unipolar current converters for low power electrical motor drives

10:30 Coffee Break**10:45 TA2 - Modeling of Electrical Machines****[Room A]***Chairman: Driesen J. - (Belgium)*

- 23021 *Grabner C. - (Germany)*
Comparative study on the analytical and numerical calculation of no-load harmonics in large salient-pole synchronous machines
- 23385 *Contin A., Grava A., Tessarolo A., Zocco G. - (Italy)*
A novel modeling approach to a multi-phase, high power synchronous machine
- 23214 *De Belie F.M.L.L., Vyncke T.J., Vandeveld L., Melkebeek J.A.A., Geldhof K.R., Boel R.K. - (Belgium)*
Modelling air-gap flux harmonic components to describe motion-state estimators for PMSMs including magnetic saturation and multiple-pole spatial saliencies
- 23027 *Salvatore N., Gerada C., Cascella G.L., Sumner M. - (Italy - U. K.)*
Transient torque response improvement in presence of axial saturation due to skewing of rotor slots in induction motors
- 23070 *Meyer M., Böcker J. - (Germany)*
Transient peak currents in permanent magnet synchronous motors for symmetrical short circuits
- 23291 *Seebacher R.R., Dannerer G., Ofner G. - (Austria)*
Analysis and modelling of the oscillations of the induced voltage in a dc-motor caused by slotting effects
- 23314 *Giulii Capponi F., Terrigi R., De Donato G. - (Italy)*
A synchronous axial flux PM machine d,q axes model which takes into account iron losses, saturation and temperature effects on the windings and the permanent magnets

Thursday - May 25th 2006**10:45 TB2 - Photovoltaic and Fuel Cells Systems****[Room B]****Chairman: Graditi G. - (Italy)**

- 11090 *Chicco G., Giaccone L., Spertino F., Graditi G.* - (Italy)
Experimental methods to evaluate the impact of a photovoltaic system at the point of common coupling low voltage networks
- 11321 *Procházka Z., Gregor J., Jakubová I.* - (Czech Republic)
Optimized energy transfer from a photovoltaic system to electrical distribution network
- 11356 *Bucci G., Ciancetta F., Fiorucci E., Rotondale E., Vegliò F.* - (Italy)
Experimental validation of a PEM fuel cell dynamic model
- 11030 *Graditi G., Favuzza S., Riva Sanseverino E.* - (Italy)
Technical, environmental and economical aspects of hybrid system including renewables and fuel cells

10:45 TC2 - Motion Control**[Room C]****Chairman: Leonhard W. - (Germany)**

- 33222 *Sulligoi G., Kavanagh R.C.* - (Italy)
An innovative method for improved real-time measurements of angular acceleration in motion control systems
- 33255 *Rosario J.M., Casseiro E.R., Dumur D.* - (Brazil-France)
A 3 DOF robotic platform dynamics control using rapid prototyping tools
- 33382 *Kovacs E., Varadi A.S.* - (Hungary)
Laser sensor based measurement system with 2D motion control
- 33174 *Chuang C.W., Lee C.D., Huang C.L.* - (Taiwan)
Applying experienced self-tuning PID control to position control of slider crank mechanisms

12:30 Lunch**14:00 TA3 - Synchronous Motor Drives****[Room A]****Chairman: Stiebler M. - (Germany)**

- 14092 *Du C., Zhang X., Yu F.* - (China)
Modeling, simulation and test of direct torque-controlled multi-phase synchronous propulsion motor drives
- 14106 *Crévits Y., Kestelyn X., Semail E.* - (France)
Investigation on vector control of three-phase synchronous machines under supply fault condition
- 14143 *Ye Z.H., Zhang X.F., Li H.S., Yang F.* - (China)
Improvement on single "Y" current of the variable speed system with cycloconverter-fed 12-phase synchronous motor

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- 14177 *Leidhold R., Benavides R., Mutschler P.* - (Germany)
Comparison of control oriented models for the long-stator linear synchronous motor and their experimental validation
- 14237 *Bergh T., Hagstedt D., Alaküla M., Karlsson P.* - (Sweden)
Modeling and presentation of the Series Magnetized Synchronous Machine
- 14159 *Oleschuk V., Ermuratski V., Profumo F., Tenconi A., Bojoi R., Stankovic A.M.* - (Moldova-Italy-USA)
Novel schemes of synchronous PWM for dual inverter-fed drives with cancellation of the zero sequence currents

14:00 TB3 - Multilevel Inverters**[Room B]***Chairman: Rufer A. - (Switzerland)*

- 03331 *Carpaneto M., Maragliano G., Marchesoni M., Vaccaio L.R.* - (Italy)
A Novel approach for DC-link voltage ripple reduction in cascaded multilevel converters
- 03103 *Munduate A., Garin I., Figueres E., Garcera G.* - (Spain)
Analytical study of the DC link capacitors voltage ripple in three level Neutral Point Clamped Inverters
- 03123 *Çamur S., Arifoğlu B., Beşer E.K., Beşer E.* - (Turkey)
A novel topology for single-phase five-level inverter compared with H-bridge inverter
- 03140 *Song Q., Zhang X., Yu F., Zhang C.* - (China)
Research on PWM techniques of five-phase three-level inverter
- 03158 *Pulak Purkait P., Ravi Srikanth S.* - (India)
A simple SVPWM algorithm for elimination of neutral point current in multilevel inverter
- 03370 *Casadei D., Serra G., Tani A., Zarri L.* - (Italy)
Cascaded three-level inverter modulation strategies: a unifying point of view based on duty-cycle space vector approach
- 03332 *Leskovar S., Marchesoni M., Mazzucchelli M.* - (Italy)
Development of open-loop and closed-loop techniques for the optimization of modular multilevel conversion structures

14:00 TC3 - Special Control Solutions**[Room C]***Chairman: Alakula M. - (Sweden)*

- 34101 *Jokinen M., Niemelä M., Pyrhönen J.* - (Finland)
Bump-less transfer algorithm between two different velocity controllers in an electric drive
- 34253 *Ottosson J., Alaküla M.* - (Sweden)
A compact field weakening controller implementation
- 34044 *Marano V., Arrigo D.* - (Italy)
Novel fully integrated 65 W stepper motor driver IC
- 34134 *Nedeljkovic D., Nemeč M., Ambrozic V.* - (Slovenia)
Modulation in VSI for immediate flux control (IFC) with reduced flux error
- 34335 *Botan C., Ostafi F.* - (Romania)
Free and fixed end-point optimal control problems for a servo drive system
- 17264 *Reinschke J.* - (Germany)
Stroke control of a reciprocating linear motor connected to a slowly varying mechanical load

Thursday - May 25th 2006**15:30 TA4 - Drives for Generation and Storage****[Room A]***Chairmen: Capolino A. - (France); Belmans R. - (Belgium)*

- 27270 *Leuchter J., Bauer P., Kůrka O., Hájek V. - (Czech Republic)*
Efficiency investigation of mobile power sources with VSCF technology
- 27064 *Rufer A., Lemofouet S. - (Switzerland)*
Energetic performance of a hybrid energy storage system based on compressed air and super capacitors
- 27306 *Giorgetti F., Pastena L., Tarantino A., Velotto F. - (Italy)*
Energy saving by onboard storage
- 27381 *Yamauchi Y., Uchiyama N., Suzuki E., Kubota M., Fujii M., Ohsaki H. - (Japan)*
Development of 50kWh-class superconducting flywheel energy storage system

15:30 TB4 - EMC and EMI Problems**[Room B]***Chairman: Cecconi V. - (Italy)*

- 36196 *Serrao V., Conti L., Di Napoli A., Solero L. - (Italy)*
Emission testing for the EMC performance evaluation of an electric wheelchair
- 36142 *Cecconi V., Matranga A., Ragusa A. - (Italy)*
EMI analysis in electrical drives when the grounding system is excited by a lightning strike using a suitable circuital model
- 36284 *Zhao D., Ferreira J.A., Polinder H., Roc'H A., Leferink F.B.J. - (The Netherlands)*
Investigation of EMI noise transfer characteristic of variable speed drive system
- 05095 *Alexandersson S., Alakūla M. - (Sweden)*
Automotive power electronic future-from an EMC perspective

15:30 TC4 - Soft Computing Applications**[Room C]***Chairman: Fortuna L. - (Italy)*

- 38205 *Arena P., Brunno F., Caponetto R. - (Italy)*
A genetic algorithm optimized SDT for state feedback control
- 38151 *Malyna D.V., Duarte J.L., Hendrix M.A.M., van Horck F.B.M. - (The Netherlands)*
Multi-objective optimization of power converters using genetic algorithms
- 38203 *Braslavsky I.Y., Kostylev A. V., Stepanuk D.P. - (Russia)*
Energy consumption optimization during starting of thyristor voltage converter-induction motor system
- 14018 *Zareh M.R., Marzband M., Nejad S.M.S. - (Iran)*
Finding optimum parameters for vector control of salient pole synchronous motor using fuzzy-genetic algorithm

17:00 End of Sessions

Thursday - May 25th 2006**17:00 TP1 - Measurements, Monitoring and Diagnostics in Electrical Drives [Poster Session]**

- 18183 *Eltabach M., Charara A.* - (Libano)
Comparative investigation of electrical diagnostic procedures in induction motors
- 18366 *Bruzzese C., Honorati O., Santini E.* - (Italy)
Laboratory prototype for induction motor bar breakage experimentation and bar current measuring
- 19053 *Hilairiet M., Auger F.* - (France)
Sensorless speed measurement using current harmonic spectral estimation in a DC-motor
- 20168 *Dobriceanu M., Bitoleanu A., Popescu M., Vladut G.* - (Romania)
Automated monitoring system for environment quality in industrial areas
- 20201 *Yan X.W., Kang W., Li H.M., Zhang L.X., Han Z.J., Kang R.* - (China)
The application of DSP and virtual instrument to online power quality detection
- 20283 *Lombardi P., Giaconia C.G., Di Dio V.* - (Italy)
An embedded diagnostic system for wheelchairs brushless drives monitoring
- 20180 *Munk-Nielsen S., Bendicsen F.B., Christiansen H.* - (Denmark)
Characterization of 50/60 Hz current transformers from 20 Hz to 10 kHz
- 20202 *Kang W., Li H.M., Yan X.W., Zhang L.X., Sun F.Z.* - (China)
A modified demodulation method for flicker measurement
- 35062 *Becker M., Landre Jr. J., Santos S.C.* - (Switzerland-Brazil)
Design of mechatronic system to inspect power transmission lines and towers
- 20037 *Denić D., Randelović I., Miljković G.* - (Serbia & Montenegro)
Recent trends of linear and angular pseudorandom encoder development

17:00 TP2 - Power Quality in Power Systems [Poster Session]

- 09376 *Caramia P., Carpinelli G., Esposito T., Varilone P., Chiumeo R., Mastandrea I, Tarsia F.* - (Italy)
Probabilistic harmonic power flow for assessing waveform distortions in distribution systems with wind embedded generation
- 09215 *Bitoleanu A., Popescu M., Dobriceanu M.* - (Romania)
About the harmonics at to the input of DC motor and controlled rectifier driving systems
- 09012 *Moreno-Muñoz A., Pallarés V., Galisteo P., de la Rosa J.J.G.* - (Spain)
Voltage sag in a highly automated plants
- 09304 *Griffo A., Lauria D.* - (Italy)
Advanced series and parallel converters for power system stability improvement
- 10001 *Benslimane T., Aliouane K., Chetate B.* - (Algeria)
Voltage and current disturbances elimination with reactive power compensation using unified power quality conditioner
- 37144 *Aguirre-Zamalloa G., Uriondo Arrue F., Hernández González J.R.* - (Spain)
The three phase instantaneous reactive power defined anew
- 09377 *Di Perna C., Varilone P., Verde P.* - (Italy)
Power converters for fuel-cells based UPS to improve power quality
- 09305 *Griffo A., Lauria D.* - (Italy)
Some considerations on power system stability improvement by FACTS devices
- 09325 *Montaño J.C., Bravo J.C., Borrás D., Castilla M., López A., Gutiérrez J.* - (Spain)
Voltage quality index

17:00 TP3 - Power System and Traction System Problems**[Poster Session]**

- 37317 *Grasselli U., Terramano S., Ricci B.* - (Italy)
Reliability evaluation of airport power systems under operative constraints
- 37347 *Benhaddadi M., Olivier G.* - (Canada)
Canada's Kyoto GHG emissions gap analysis
- 37137 *Chiodo E., Mazzanti G.* - (Italy)
A new reliability model for power system components characterized by dynamic stress and strength
- 37107 *Mazzanti G., Passarelli G.* - (Italy)
A probabilistic life model for reliability analysis of power cables feeding electric traction systems
- 37147 *Di Silvestre M.L., Massaro F., Mineo L., Zizzo G.* - (Italy)
A statistical approach of cables ageing in MV lines on thermal and electrical combined stresses
- 34351 *Battistelli L., Fantauzzi M., Lauria D., Morvillo C., Proto D.* - (Italy)
A comparison among various optimization control strategies for DC electrified transportation systems

17:00 TP4 - Power Electronics and Drives Applications**[Poster Session]**

- 37239 *Szentirmai L., Szarka T.* - (Hungary)
Electrical engineering and drives in the globalisation age and their contribution to sustainable development and knowledge-based society
- 39333 *Cho K.M., Oh W.S., Yeon J.E., Kim H.J.* - (Korea)
A novel average burst-duty control method for the dimming of induction lamps
- 39365 *Arabia E., Ciofi C., Consoli A., Merlino R., Testa A.* - (Italy)
Electromechanical actuators for automotive applications exploiting power line communication
- 39352 *Chiodo E., Mazzanti G.* - (Italy)
Indirect reliability estimation for electric devices via a dynamic "stress-strength" model
- 34167 *Dopatka F., Wismüeller R.* - (Germany)
A top-down approach for realtime industrial-ethernet networks using edge-coloring of conflict-multigraphs
- 04138 *Yan X.W., Zhang L.X., Li H.M., Kang W., Kang L.* - (China)
LC filter parameter design for the bidirectional converter
- 06038 *Bolvashenkov I., Herzog H.G., Engstle A.* - (Germany)
Factor of hybridization as a design parameter for hybrid vehicles
- 06016 *Alaoui C., Salameh Z.M.* - (Morocco)
A novel system-on-chip system for diagnostic & rejuvenation for electric & hybrid vehicles
- 25014 *Budig P.K.* - (Germany)
Simplification of the mechanical design of drives with the application of direct drives
- 26169 *Arcidiacono V., Castellan S., Menis R., Sulligoi G.* - (Italy)
Integrated voltage and reactive power control for all electric ship power systems
- 25116 *Oswald A., Merwert M., Herzog H.G., Hoerz H., Meyer W.* - (Germany)
Developing and testing a direct drive intended for special vacuum application
- 06386 *Dufour C., Bélanger J., Argondizza A., Naretto R., Abouridad S.* - (Italy)
Real-Time Simulation of Fuel Cell Hybrid Electric Vehicles

20:00 Social Dinner

8:30 FA1 - Induction Motor Drives and Systems**[Room A]***Chairman: Tsuji M. - (Japan)*

- 15022 *Grabner C.* - (Germany)
Various control strategies of power converters and their effects on induction drive systems
- 15109 *Huikuri M.* - (Finland)
Simulation of direct torque controlled drive with torque reference filtering
- 15175 *Rees S., Ammann U.* - (Germany)
Field-oriented control of current-source inverter fed high speed induction machines using steady-state stator voltages
- 15302 *Abbasian T., Salmasi F.R., Yazdanpanah M.J.* - (Iran)
Improved adaptive feedback linearization control of induction motors based on online estimation of core loss and rotor resistance
- 15384 *D'Arco S., Iannuzzi D., Piegari L., Tricoli P.* - (Italy)
Torsional stress analysis of squirrel cage windings of asynchronous motors
- 15240 *Grune R., Saniter C., Wood A.R., Hanitsch R.* - (Germany)
Reduction of stator current harmonics in doubly-fed induction machines
- 15363 *Cacciato M., Consoli A., Scarcella G., Scelba G., Testa A.* - (Italy)
Efficiency optimization techniques via constant optimal slip control of induction motor drives

8:30 FB1 - Design of Electrical Machines**[Room B]***Chairman: Binder A. - (Germany)*

- 22156 *Hanitsch R.E., Widyan M.S., Grune R.* - (Germany)
Cogging torque reduction of a novel low-speed high-energy permanent-magnet electrical machine
- 22164 *Aho T., Nerg J., Pyrhönen J.* - (Finland)
Analysing the effect of the rotor coating on the rotor losses of medium-speed solid-rotor induction motor
- 22279 *Centner M., Hanitsch R.* - (Germany)
Fractional slot-winding with asymmetrical stator slot-layout
- 22312 *Boccaletti C., Elia S., Nisticò E.* - (Italy)
Deterministic and stochastic optimisation algorithms in conventional design of axial flux PM machines
- 22145 *Werner U., Binder A.* - (Germany)
Rotor dynamic analysis of asynchronous machines including the finite-element-method for engineering low vibration motors
- 22013 *Budig P.K.* - (Germany)
The influence of the third deviation of way above time on the design of Electrical Machines
- 22135 *Cui X., Funieru B., Binder A.,* - (Germany)
Calculation of no-load additional losses in the rotor of StrafloMatrix™ synchronous turbine-generators
- 22383 *Cecconi V., Trapanese M.* - (Italy)
An optimum design of the magnetic circuit of a PM linear electrical generator for the exploitation of sea waves.

Friday - May 26th 2006**8:30 FC1 - Electric and Hybrid Vehicles Drives****[Room C]***Chairmen: Čeřovský Z. - (Czech Republic); Naunin D. - (Germany)*

- 06046 *Cerovský Z. - (Czech Republic)*
Physical modeling of electric hybrid vehicle powertrain
- 07130 *O'Sullivan T.M., Bingham C.M., Clark R.E. - (U. K.)*
Zebra battery technologies for all electric smart car
- 07213 *Eberleh B., Hartkopf T. - (Germany)*
A high speed induction machine with two-speed transmission as drive for electric vehicles
- 13320 *Cvetkovski G., Petkovska L., Gair S. - (U. K. - Macedonia)*
Torque analysis of axial field PM synchronous motor for EV
- 06054 *Mauldin R., Baghzouz Y., Boehm R.F. - (USA)*
Light-weight fuel cell-battery hybrid vehicle demonstration project
- 06224 *Andriollo M., Martinelli G., Morini A., Stellin S., Tortella A. - (Italy)*
Rating of the power components in series-hybrid buses with different supply control strategies
- 06071 *Hannoun H., Diallo D., Marchand C. - (France)*
Energy management strategy for a parallel hybrid electric vehicle using fuzzy logic

10:45 Coffee Break**11:00 FA2- Dependable Design of Power Electronics, Electric Drives and Machines, Automation Systems** **[Room A]***Chairman: Buja G. - (Italy)*

- 29093 *Leonhard W. - (Germany)*
Dependable energy supply from fluctuating natural sources - a case for energy storage
- 29112 *Schramm A., Gerling D. - (Germany)*
Researches on the suitability of switched reluctance machines and permanent magnet machines for specific aerospace applications demanding fault tolerance
- 29155 *Tahami F., Shojaei A., Khatir D.A. - (Iran)*
A diversity based reconfigurable method for fault tolerant control of induction motors
- 29152 *Drif M., Marques Cardoso A.J. - (Portugal)*
Airgap eccentricity fault diagnosis, in three-phase induction motors, by the complex apparent power signature analysis
- 29089 *Buja G., Menis R. - (Italy)*
Conceptual frameworks for dependability and safety of a system
- 29324 *Bolognesi P., Bruno O., Sani L., Taponecco L. - (Italy)*
An innovative dependable reluctance motor for high-torque low-speed applications

Friday - May 26th 2006**11:00 FB2 - Measurements and Tests in Electrical Drives****[Room B]****Chairman: Landi C. - (Italy); Rotondale N. - (Italy)**

- 20297 *Särkimäki V., Tiainen R., Lindh T., Ahola J.* - (Finland)
Applicability of ZigBee technology to electric motor rotor measurements
- 20367 *Bruzzese C., Honorati O., Santini E.* - (Italy)
Spectral analyses of directly measured stator and rotor currents for induction motor bar breakages characterization by M.C.S.A.
- 20354 *Gabano J.D., Champenois G., Tnani S.* - (France)
Synchronous generator parameters measurement from load impacts and shedding experiments
- 20195 *Kosonen A., Jokinen M., Särkimäki V., Ahola J., Niemelä M.* - (Finland)
Motor feedback speed control by utilizing the motor feeder cable as a communication channel
- 20019 *Feng Z., Acarnley P.* - (U. K.)
Interpolation technique for encoder resolution improvement in permanent magnet synchronous motor drives
- 20073 *Ahola J., Kosonen A., Toukonen J., Lindh T.* - (Finland)
A new approach to data transmission between an electric motor and an inverter

11:00 FC2a - Linear Motors and Actuators**[Room C]****Chairman: Budig P.K. - (Germany)**

- 17126 *Nasr Khoidja M.A., Ben Salah B., Brochet P.* - (Tunisie-France)
Fuzzy logic control for a single sided linear induction motor
- 17293 *Bacher J.* - (Austria)
Innovative designs of high dynamic linear asynchronous motors
- 17250 *Honda Y., Torii S., Ebihara D., Hasegawa Y., Hirata K.* - (Japan)
Development of cylindrical two-dimensional linear oscillatory actuator

12:00 FC2b - Power Devices in Power Electronics**[Room C]****Chairman: Raciti A. - (Italy)**

- 01065 *Enea V., Kröll D., Messina M., Ronsisvalle C.* - (Italy)
Different designs for the optimization of monolithic ESBT® (Emitter-Switched Bipolar Transistor)
- 01149 *Vershinin K., Sweet M., Ngwendson L., Sankara Narayanan E.M.* - (U. K.)
Influence of the device layout on the performance of 20A 1.2kV clustered insulated gate bipolar transistor (CIGBT) in PT technology
- 01252 *Napoli E., Udrea F.* - (Italy)
Circuitual implementation of deep depletion SOI power devices

12:45 Lunch

Friday - May 26th 2006**14:00 FB3 - Finite Element Analysis of Electrical Machines****[Room B]****Chairman: Arkkio A. - (Finland)**

- 21055 *Lin T.K., Meydan T.* - (U. K.)
Parameters design with magnetic forces by 3DFEM for high positioning motor
- 21074 *Neumayer F., Schlemmer E., Ramsauer F.* - (Austria)
Finite element analysis of the starting behaviour of large salient pole machines
- 21128 *Valtonen M., Parviainen A., Pyrhönen J.,* - (Finland)
Electromagnetic field analysis of 3D structure of axial-flux solid-rotor induction motor
- 21303 *Tröster E., Sperling M., Hartkopf T.* - (Germany)
Finite element analysis of a permanent magnet induction machine
- 21049 *Puranen J., Pyrhönen J.* - (Finland)
Optimization of the loadability of an induction servomotor with a coupled electromagnetic-thermal model
- 21117 *Koo D.H., Chun Y.D., Han P.W., Cho Y.H.* - (Korea)
Analysis of overhang effect in a novel axial flux PM motor
- 22009 *Shivkumar V.J., Rao Sr., Rao Sa., Vadivel M.* - (India)
Design and simulation of a 5 kW single stage permanent magnet generator

14:00 FC3 - Drive System Applications**[Room C]****Chairman: Magureanu R. - (Romania)**

- 25015 *Budig P.K.* - (Germany)
Direct linear drives for the application in high vacuum
- 25063 *Zanandrea P.H., Gonçalves A.C.V., Ardisson E.V., Dias E.V., Campos J.F.,* - (Brazil)
Non-conventional application of AC drives - Use of AC drives in emergency systems. Case study: tilting system of torpedo car in CST BOF shop
- 25173 *Moehle A.* - (Germany)
Optimization of converter-fed super-large drives with parallel winding systems
- 25188 *Wallace R.R., Tapia J.A., Diaz L.A.* - (Chile)
Design of a 75 kW - 167 rpm axial-flux permanent magnet synchronous motor for copper mining applications
- 25192 *Dlugiewicz L., Kolowrotkiewicz J., Szelag W., Baranski M., Neumann R.* - (Poland)
Electrical motor for liquid gas pump
- 26310 *Castellan S., Quaia S., Scialla P., Sulligoi G.* - (Italy)
All-electric Mega-Yachts: Integrated power system operation and its interaction with propulsion converters

15:30 FB4 - Converter Analysis and Modeling**[Room B]****Chairman: Nagy I. - (Hungary)**

- 02039 *Li H., Li Z., Halang W.A., Chen G.* - (Germany)
Analyzing chaotic spectra of DC-DC converters using the Prony method
- 02017 *Moreno-Muñoz A., de la Rosa J.J.G.* - (Spain)
Analysis of voltage dips in PWM AC-DC converters

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- 02339 *Buti B., Nagy I., Masada E.* - (Hungary-Japan)
Stability analysis of PWM-controlled dual channel resonant buck converter using PI controller
- 02146 *De Simone S., Adragna C., Spini C., Gattavari G.* - (Italy)
Design-oriented steady-state analysis of LLC resonant converters based on FHA

15:30 FC4 - Variable Reluctance Motor Drives**[Room C]***Chairman: Santini E. - (Italy)*

- 12124 *Mendrela E.A., Li X.* - (USA)
Jumping switched reluctance motor operating as a hoist
- 12172 *Chai J.Y., Liaw C.M.* - (Taiwan)
Power factor and vibration assessments for switched-reluctance motor fed by switch-mode rectifier
- 12193 *Bhiwapurkar N., Mohan N.* - (USA)
Torque ripple optimization in switched reluctance motor using two-phase model and optimization search technique
- 10129 *Chang H.J., Liaw C.M.* - (Taiwan)
Development of a front-end converter for switched-reluctance motor drive
- 12295 *Hudák P., Hrabovcová V., Rafajdus P.* - (Slovak Republic)
Geometrical dimension influence of multi-barrier rotor on reluctance synchronous motor performances

17:00 Conclusive Remarks**17:15 End of Symposium**



| | | | | |
|---|------------------------|--|--|--|
| Tuesday, May 23rd | 16:00 | Pre-Registration | | |
| | 19:30 | Welcome Cocktail | | |
| | | Room "A" | Room "B" | Room "C" |
| Wednesday, May 24th | 08:00 | Registration | | |
| | 09:00 | Formal Opening | | |
| | 09:15 | WA1 - Identification Problems in Electrical Drives | WB1 - Drives and Converters for Railways Applications | WC1 - Generators and Converters for Renewable Sources of Energy |
| | 11:00 | Coffee break | | |
| | 11:15 | WA2 - Sensorless Control | WB2 - EMC and Power Quality in Traction Systems | WC2 - PWM Active Front-Ends/ Active Filtering |
| | 12:45 | Lunch | | |
| | 14:15 | WA3 - PM Brushless Motor Drives | WB3 - Converter Control | WC3 - Diagnostics in Electrical Drives |
| | 15:45 | WA4 - Mechatronic Systems | WB4 - Magnetic Levitation Applications | WC4 - Power Quality in Power Systems |
| | 17:00 | Poster sessions: WP1 - Converter Topologies and control WP2 - Controlled Electrical Drives WP3 - Design and Modelling of Electrical Machines | | |
| 18:30 | Session close | | | |
| Thursday, May 25th | 08:30 | TA1 - Keynotes Speech | TB1 - Distributed Generation and Electricity Market | TC1 - Converter Topologies and Technology |
| | | TA1 - Special Electrical Machines | | |
| | 10:30 | Coffee break | | |
| | 10:45 | TA2 - Modelling of Electrical Machines | TB2 - Photovoltaic and Fuel Cells Systems | TC2 - Motion Control |
| | 12:30 | Lunch | | |
| | 14:00 | TA3 - Synchronous Motor Drives | TB3 - Multilevel Inverters | TC3 - Special Control Solutions |
| | 15:30 | TA4 - Drives for Generation and Storage | TB4 - EMC and EMI Problems | TC4 - Soft Computing Applications |
| | 17:00 | Poster sessions: TP1 - Measurements, Monitoring and Diagnostics in Electrical Drives TP2 - Power Quality in Power Systems TP3 - Power System and Traction System Problems TP4 - Power Electronics and Drives Applications | | |
| 18:30 | Session close | | | |
| 20:00 | Social Dinner | | | |
| Friday, May 26th | 08:30 | FA1 - Induction Motor Drives and Systems | FB1 - Design of Electrical Machines | FC1 - Electric & Hybrid Vehicles Drives |
| | 10:45 | Coffee break | | |
| | 11:00 | FA2 - Dependable Design of Power Electronics, Electric Drives and Machines | FB2 - Measurements and Tests in Electrical Drives | FC2a - Linear Motors and Actuators |
| | | | | FC2b - Power Devices in Power Electronics |
| | 12:30 | Lunch | | |
| | 14:00 | | FB3 - Finite Element Analysis of Electrical Machines | FC3 - Drive System Applications |
| | 15:30 | | FB4 - Converter Analysis and Modelling | FC4 - Variable Reluctance Motor Drives |
| | 17:00 | | Conclusive Remarks | |
| 17:15 | Symposium Close | | | |