MENU

ICEM 2004

Conference Programme

(5-8 September 2004)

Monday, 6 September 2004,

10.00 – 12.00 Plenary Session (Kiev (Kijów) Theatre)

Chairmen: B. Chalmers / S. Wiak

1. **Time-varying sliding surface for position control of an induction machine drive**
   A. Sivert, F. Betin, A. Faqir, G.A. Capolino – *France,* (695)
2. **Hidden Values of Technology**
   A.M. Pawlak – *USA,* (832)
3. **Achievements of Cantoni Group in Manufacturing of Electric Motors**
   A. Korycki – *Poland,* (831)

Monday, 6 September 2004,

14.30 – 16.30 Oral Session 1 (ICC)

Industrial Applications

Chairmen: B. Ertan / J.Tegopoulos

1. **Elektrownia Opole Power Plant - an Environment Friendly Company**
   Adam Micker – *Poland*, (830)
2. **Core Losses in Turbine Generators: Segment Core Evaluated by Torque Method**
   H. Mogi, C. Kaido, E. Minematsu, K. Hanzawa, A. Nakahara, K. Takahashi, K. Ide, J. Kaneda, K. Hattori, T. Watanabe – *Japan,* (158)
3. **Core Loss in Turbine Generators: Analysis of No-load Core Loss by 3D Magnetic Field Calculation**
   A. Nakahara, K. Takahashi, K. Ide, J. Kaneda, K. Hattori, T. Watanabe, H. Mogi, C. Kaido, E. Minematsu, K. Hanzawa – *Japan,* (159)
4. **A statistical Procedure to Obtain Catalog Data for Three-Phase Induction Motors**
   P.S. dos Santos, A. Habitzreuter, E.F.M. Sato – *Brazil,* (164)
5. **Dynamic Short Circuits of Traction Drives - Comparison of Induction Motors with PM Synchronous Motor**
   M. Brauer, J. Germishuizen, A. Jöckel, O. Körner – *Germany,* (145)
6. **Electromagnetic Design Study of Medium Size HTS Transformer**
   F. Zizek, Z. Jelinek – *Czech Republic,* (284)
7. **Optimised Calculation of Losses in Large Hydrogenerators using Statistical Methods**
   G. Traxler-Samek, A. Schwery, R. Zickermann, C. Ramirez – *Switzerland,* (700)

Monday, 6 September 2004,

14.30 – 16.30 Oral Session 2 (Palace "Pod Baranami")

Permanent Magnet Machines

Chairmen: A. G. Jack / M. Poloujadoff

1. **Equivalent Circuit Model of Solid-Rotor Induction / Hysteresis Motors**
   J.R. Bumby, E. Spooner – *UK*, M. Jagiela – *Poland,* (225)
2. **A General Description of High-Frequency Position Estimators for Interior Permanent-Magnet Synchronous Motors**
   Frederik M.L.L. De Belie, Jan A.A. Melkebeek , K.R. Geldhof, L. Vandevelde, R.K. Boel – *Belgium,* (390)
3. **Coupled Model for the Interior Type Permanent Magnet Synchronous Motors at Different Speeds**
   M. Pérez-Donsión – *Spain,* (490)
4. **Dynamic Modelling of a Linear Vernier Hybrid Permanent Magnet Machine Coupled to a Wave Energy Emulator Test Rig**
   M.A. Mueller, J. Xiang, N.J. Baker, P.R.M. Brooking – *UK,* (495)
5. **A Simplified Approach to Permanent Magnet and Reluctance Motor Characteristics Determination by Finite-Element Methods**
   K. Reichert – *Switzerland,* (540)
6. **Design and Manufacturing of Steel-Cored Permanent Magnet Linear Synchronous Motor for Large Thrust Force and High Speed**
   Ho-Yong Choi, Sang-Yong Jung, Hyun-Kyo Jung – *Korea,* (655)

Monday, 6 September 2004,

14.30 – 16.30 Oral Session 3 (Palace "Pod Baranami")

Permanent Magnet Machines

Chairmen: A.M. El Serafi / K. Miya

1. **High Pole Number, PM Synchronous Motor with Concentrated Coil Armature Windings**
   A. Di Gerlando, R. Perini, M. Ubaldini – *Italy,* (58)
2. **Accurate FEM Iron Loss Estimations Applied to PMSM for Electric and Hybrid Vehicles**
   G. Pugsley, A. Kedous-Lebouc, A. Fonseca – *France,* (131)
3. **Magnetic Field Distribution in Radial-Field Brushless Permanent Magnet Motors**
   E. Bolte, J. Peschke – *Germany,* (426)
4. **Sizing Equations and Power Desnity Evaluation of Dual-Rotor, Radial-Flux, Toroidally - Wound, Permanent-Magnet Machines**
   R. Qu, T.A. Lipo – *USA,* (510)
5. **Optimisation of a Discrete Halbach - like Permanent Magnet Array for a Brushless Motor**
   R. Wrobel, P.H. Mellor – *UK,* (769)
6. **Finite Element analysis of two PM-Motors with Buried Magnets**
   J. Kolehmainen – *Finland,* (519)

Monday, 6 September 2004,

14.30 – 16.30 Poster Session 1 (Palace "Pod Baranami")

Permanent Magnet Machines

Chairmen: L. Antunes / A. Di Napoli

1. **A Dynamic Model for Interior Permanent Magnet Synchronous Machine. Application to a Starter-Generator**
   L. Chédot, G. Friedrich – *France,* (92)
2. **Coupled Analytical and Numerical Predictions of Permanent Magnet Motors Parameters with Electronic Commutation**
   D. Rahem, K. Srairi, S.M. Mimoune, M. Chabane, S. Srairi, A. Miraoui – *France,* (95)
3. **Permanent Magnet Generator for 200 KW Station of a New Tipe**
   J. Danilevich, V. Antipov, I. Kruchinina – *Russia,* (121)
4. **Dynamic Performance Analysis of Multi-phase Permanent Magnet Synchronous Motor in Electric Propulsion System**
   Xie Wei, Jing Hongmin, Hao Ying – *P. R. China,* (136)
5. **A New Combination Method to Realize High Efficiency Outer Rotor Type Permanent Magnet Motors**
   Y. Enomoto, M. Kitamura, Y. Motegi, T. Andoh – *Japan,* (160)
6. **Cost Reduction of Permanent Magnet Synchronous Motor with Axial Flux**
   S. Tounsi, R. Neji, M. Gzara, F. Sellami – *Tunisie,* (173)
7. **Parameter Decoupling in Permanent Magnet Motor Models Including Space Harmonics and Saturation**
   E. Nipp – *Germany,* (201)
8. **Iron Loss Modelling and Effects in Salient Pole Permanent Magnet Synchronous Motors – A review**
   M. Popescu, C. Cossar, TJE Miller, M. McGilp – *UK,* (221)
9. **Effect of Air Gap Thickness on Transverse-Flux Permanent Magnet (TFPM) Machines with Flux-Concentration**
   M.R. Dubois – *Canada*, H. Polinder – *The Nederlands,* (229)
10. **Analytical formula for rotating motor permanent magnet MMF in a general case**
    M. Marković, M. Jufer, Y. Perriard – *Switzerland,* (261)
11. **Design of a Large Diameter 2-Axis Consequent-Pole Bearingless PM Motor/Generator for Flywheel Application**
    D.G Dorrell, G.R Hill – *UK,* A. Chiba – *Japan,* (308)
12. **A New Analytical Method on the Field Calculation of Interior Permanent-Magnet Synchronous Motors**
    A. Kiyoumarsi, M. Moallem – *Iran,* (323)
13. **A Comparison between Axial and Radial Flux PM Motor by Optimum design method from the required output NT characteristics**
    K. Akatsu, S. Wakui – *Japan,* (361)
14. **Maximization of No-Load Flux Density in Surface Mounted Permanent Magnet Motors**
    F. Dubas, C. Espanet, A. Miraoui – *France,* (430)
15. **Analytical Model for Multi-Stack Axial Flux Permanent Magnet Generator**
    P. Anpalahan, A. Walker, S. Tsakok, S. Etemad, M. Lamperth – *UK,* (436)
16. **Design and Comparison of Concentrated Windings and Distributed Windings Interior PM Machines for a Hybrid Vehicle Application**
    L. Vido – *France*, Y. Amara – *UK*, E. Hoang, M. Gabsi, F. Chabot, M. Lécrivain – *France,* (437)

17. **A Novel Approach to Reduce Short-Circuit Current of PM Machines**
C. Noël, N. Takorabet, F. Meibody-Tabar – *France,* (440)
18. **Axial Flux Surface Mounted PM Machine with Field Weakening Capability**
J.A. Tapia, D. Gonzalez, R.R. Wallace, M.A. Valenzuela – *Chile,* (459)
19. **Losses in high speed permanent magnet motor with magnetic levitation for 40000/min, 40 kW**
A. Binder, M. Klohr, T. Schneider – *Germany,* (464)
20. **Two Phase Transverse Flux Permanent – Magnet Machine**
A.D. Popan, I.A. Viorel, R.C. Ciorba – *Romania,* (501)
21. **Performance Analysis of Fractional Slot Wound PM-Motors**
P. Salminen, J. Mantere, J. Pyrhönen, M. Niemelä – *Finland,* (509)
22. **On the Reduction of Ripple Torque in PM Synchronous Motors without Skewing. Accuracy Problems.**
J. Skoczylas – *Switzerland,* (759)
23. **A Novel Approach on the Design and Analysis of a Permanent Magnet Assisted Synchronous Reluctance Motor**
E. Beser, H.T. Duru, S. Camur, B. Arifoglu, E. Kandemir – *Turkey,* (516)
24. **Magnet Design Procedure of Single-Phase LSPM Synchronous Motor**
Sook Hyun Hong, Kwon Min Ko, Chan Bae Park – *Korea,* (520)
25. **Characterization and modeling of iron loss in a synchronous permanent magnet machine under no-load conditions**
T. Gautreau, A. Kedous-Lebouc, T. Chevalier – *France,* (120)
26. **Investigation on Pole-slot Combinations for Permanent-Magnet Machines with Concentated Windings**
F. Libert, J. Soulard – *Sweden,* (530)
27. **PM-Motors with Concentrated, Non Overlapping Windings, Some Characteristics**
K. Reichert – *Switzerland,* (541)
28. **Electromagnetic Modelling of Permanent Magnet Axial Flux Motors and Generators**
F. Marignetti – *Italy*, J.R. Bumby – *UK,* (588)
29. **Design of an integrated 100kW Permanent Magnet Synchronous Machine in a Prototype Thruster for Ships Propulsion**
Ø. Krøvel, R. Nilssen, S.E. Skaar, E. Løvli, N. Sandøy – *Norway,* (697)
30. **A New Concept of Synchronous Reluctance Motor Co-Excited by Permanent Magnets - Comparison between Laboratory Tests and Performance Calculations**
J. Bernatt, R. Rossa – *Poland,* (722)
31. **The Characteristics of the Magnetic Saturation in the Interior Permanent Magnet Synchronous Motor**
Sang Yeop Kwak, Jae Kwang Kim, Hyun Kyo Jung – *Korea,* (723)
32. **Studies on Permanent Magnet Electric Propulsion System for Submarine**
Yin Binchuan, Zou Yunping – *China,* (733)
33. **Analytical and numerical modelling of demagnetization phenomenon in a permanent magnet motor**
A. Boucherit, S. Srairi, A. Djerdir, A. Miraoui – *France,* (766)
34. **Analitycal Calculation of Magnetizing Inductionces in Interior Permanent-Magnet Motors**
M.R. Hassanzadeh, A. Kiyoumarsi, M. Moallem – *Iran,* (768)

Monday, 6 September 2004,

14.30 – 16.30 Poster Session 2 (Palace "Pod Baranami")

Special Machines

Chairmen: R. Hanitsch / M. Dems

1. **3D FEA Based Investigation of the PM Height Effect on the Torque Production Capability of a Claw Pole TFPM**
   A. Masmoudi – *Tunisia*, A. Elantably – *USA,* (91)
2. **Low-speed Synchronous Generator with Freewheeling Magnets**
   K. Schoepp, P. Zieliński - *Poland* (138)
3. **A New Configuration of a Transverse-Flux Permanent-Magnet Machine (TFPM) for a Wheel-Motor**
   V. Isastia, S. Meo – *Italy,* (167)
4. **Induction Motor with Salient Poles and Radial Assembled Stator Laminations**
   L. Livadaru, A. Simion – *Romania,* (178)
5. **Three-phase interior magnet modular brushless machines for automotive applications**
   Z.P. Xia, J. Wang, D. Howe – *UK,* (193)
6. **Sine wave current feeding of doubly salient switched reluctrance machines. Application to the car starter generator**
   M. Gabsi, A. De Vries, M. Le Pincart, Y. Bonnassieux, M. Lecrivain, C. Plasse – *France,* (199)
7. **Solid-Rotor Axial-flux Motors for Very High-Speed Turbo-Assist Drives**
   E. Spooner, J.R. Bumby – *UK,* (226)
8. **Measurement and calculation of EMF in small commutator machines including brush shift, skew and short coil pitch**
   M. Klauz – *UK,* (310)
9. **Spherical Induction Motor with Ferrofluids in Gap**
   D. Spałek, K. Waleczek – *Poland,* (242)
10. **Design technique for reducing the cogging torque in large surface mounted magnet motors**
    R. Lateb, N. Takorabet, F. Meibody-Tabar, J. Enon, A. Sarribouette – *France,* (374)
11. **The Characteristics Analysis, Design of Induction Motor for the Main Coolant Pump of the Reactor Considering the Influence of the Can**
    Dae-Hyun Koo, Koon-Seok Chung, Yun-Hyun Cho – *Korea,* (378)
12. **Capacitor brushless DC motor**
    T. Glinka, A. Fręchowicz – *Poland,* (383)
13. **Flux Weakening Performances for a Double-Excited Machine**
    D. Fodorean – *Romania*, A. Djerdir, A. Miraoui – *France,* I.A. Viorel – *Romania*, (434)
14. **Performance Analysis of an Outside Spin Brushless D.C. Motor**
    P. Andrada, B. Blanqué, J.I. Perat, M. Torrent – *Spain,* (453)
15. **Effects of Thickness of Ring Magnet on Characteristics of Direct-Drive Motor Built into a Camcorder Zoom Lens Barrel**
    H. Takano, H. Oshima, H. Nanko – *Japan,* (483)
16. **Scaling Procedure Applied to the Transverse Flux Motors**
    I.A. Viorel, M. Crivii, M. Jufer – *Switzerland*, A. Viorel – *Romania*, (500)
17. **Fractional-slot IPM servomotors: analysis and performance comparisons**
    N. Bianchi, S. Bolognani, G. Grezzani – *Italy,* (507)
18. **Electromagnetic Actuators Featuring Multiple Degrees-of-Freedom: a Survey**
    P. Bolognesi, O. Bruno, A. Landi, L. Sani, L. Taponecco – *Italy,* (518)

19. **Performance Analysis of a Solid Rotor Disk Induction Motor**
S.E. Abdollahi, M. Mirsalim, M. Mirzayee, A. Vahedi – *Iran,* (546)
20. **Low-Stiffness Motor: Review of Different Ironless Motor Topologies for Use in Precision Engineering Applications**
M.H. El-Husseini, A. Bennani, J.W. Spronck, H. Polinder, H.H. Langen, J.C. Compter, J. van Eijk – *The Netherlands,* (601)
21. **Design to Improve Starting Capability of Single-phase Line-start Synchronous Reluctance Motor**
Hyuk Nam, Su-Beom Park, Jung-Pyo Hong, Tae-Uk Jung, Jae-Boo Eom – *Korea,* (624)
22. **New development of multifunction device for 4 different functions in mobile phones**
Sang-Moon Hwang, Hong-Joo Lee, Keum-Shik Hong, Ji-Hoom Kim, Gun-Yong Hwang – *South Korea,* (663)
23. **Magnetic Barrier Effect on Operating Performances of Switched Reluctance Motor**
Ji-Young Lee, Ki-Yong Nam, Jung-Pyo Hong, Jin Hur – *Korea,* (668)
24. **Simulation and experimentation of a Two-Phase Claw-Pole Motor**
A. Reinap, M. Alaküla – *Sweden,* (701)
25. **New Design of Switched Reluctance Motor for Improving Its Efficiency**
P. Rafajdus, V. Hrabovcova; M. Liptak, I. Zrak, – *Slovak Republic,* (720)
26. **Induction motors with shperical rotor**
G. Kamiński, A. Smak – *Poland,* (740)
27. **Design and Optimisation of Brushless Integrated Starter-Generator**
L. Gašparin, R. Fišer – *Slovenia,* (745)
28. **Simulation and Experimentation of a Single-Phase Claw-Pole Motor**
A. Reinap, M. Alaküla, G. Nord, L.O. Hultman – *Sweden,* (746)
29. **Optimal Excitation Parameters of a Single-Phase SR Generator**
M. Lipták, P. Rafajdus, V. Hrabovcová, I. Zrak, – *Slovak Republic,* (760)
30. **Comparison of brushless DC motors with concentrated winding and segmented stator**
J. Cros, P. Viarouge – *Canada*, R. Carlson, L. V. Dokonal – *Brazil,* (761)

Tuesday, 7 September 2004,

9.00 – 11.00 Oral Session 4 (ICC)

Special Machines

Chairmen: M. Donsion / J. Gyselinck

1. **Design of a high speed permanent magnet brushless generator for microturbines**
J.F. Gieras, U. Jonsson – *USA,* (363)
2. **Asynchronous wheel hub motor with massive rotor iron and open rotor slots for wheel hub drives in street cars**
W. Hackmann – *Austria*, A. Binder – *Germany*, (463)
3. **Control of Switched Reluctance Machines for Flywheel Energy Storage Applications**
M. Holub, R. Palka, W.R. Canders – *Germany,* (492)
4. **Study on Magnetic Field and Output Voltage of Axial Type Generator for Wind Power Generation**
E. Mukai, S. Washimiya – *Japan,* (462)
5. **Electrostatic Synchronous Motors**
M. Crivii, M. Jufer – *Switzerland,* (460)

Tuesday, 7 September 2004,

9.00 – 11.00 Oral Session 5 (Palace "Pod Baranami")

Special Machines

Chairmen: G. Henneberger / R. Rabinovici

1. **Stator Optimization of 6-phase Claw-Pole Alternators Using Asymmetric Winding Arrangements**
   S. Schulte, C. Kaehler, C. Schlensok, G. Henneberger – *Germany,* (134)
2. **Equivalent Circuit Parameter Calculation of Canned Solid Rotor Induction Motor Using Finite Element Method**
   L.T. Ergene, S.J. Salon – *USA,* (177)
3. **Design of High-Speed Brushless DC Motors for Sensorless Operation**
   Z.Q. Zhu, J.D. Ede, D. Howe – *UK,* (235)
4. **The Influence of Stator Design on the Performance of Fault Tolerant Machines**
   G.J. Atkinson, B.C. Mecrow, A.G. Jack, D.J. Atkinson, B. Green – *UK,* (381)

Tuesday, 7 September 2004,

9.00 – 11.00 Oral Session 6 (Palace "Pod Baranami")

Special Machines

Chairmen: G. A. Capolino / J. Turowski

1. **Performance Analysis of a Transverse Flux Wheel Motor by a Non-linear Mathematical Model**
   M. Andriollo, M. Forzan, A. Morini, G. Martinelli, A. Tortella, M. Zerbetto – *Italy,* (406)
2. **Axial Flux Machine Stator Construction with Concentrated Windings**
   P. Anpalahan, A. Walker, S. Meister, S. Tsakok, M. Lampérth – *UK,* (435)
3. **Structural Design-Optimization of Switched Reluctance Motors Based on Magnetic Forces Using Finite Element Method coupled with a Genetic Algorithm**
   F. Bokose, L. Vandevelde, J. Melkebeek – *Belgium,* (688)
4. **An Internally Regulated Axial flux Generator for the Independent Control of High Intensity Discharge (HID) Lamps**
   N. Jakeman, N. Al-Khayat – *UK,* (632)
5. **Evaluation of a Radial Flux BLDC Drive and an Induction Motor Drive for Washing Machine Applications**
   C. Karacan, H. B. Ertan – *Turkey,* (776)
6. **Permanent Magnet Motor Improvement, Using the Concept of Longitudinal Flux Concentration**
   I.E. Chabu, S.I. Nabeta, J.R. Cardoso – *Brazil,* (525)

Tuesday, 7 September 2004,

9.00 – 11.00 Poster Session 3 (Palace "Pod Baranami")

Special Machines, Actuators

Chairmen: J. Gieras / E. Napieralska

1. **Performance of Mixed Pole Machines as Stand Alone Generator**
   A.L. Mohamadein, R.A. Hamdy, A.S. Abdel-khalik – *Egypt,* (105)
2. **Finite Element Modeling of a Two-Degree of Freedom Spherical Actuator**
   G. Galary, B. Dehez, D. Grenier – *Belgium,* (289)
3. **Control of a Shape Memory Alloy (SMA) Actuator**
   F. Castelli Dezza, E.A. Longaretti, G. Bucca, M. Mauri,– *Italy,* (586)
4. **Modelling of Two-Dimensional Electromagnetic Field in both Linear and Tubular Actuators**
   J. Guerreiro Gonçalves – *Portugal,* (407)
5. **Sizing of automotive claw-pole alternator based on analytical modelling**
   L. Albert, C. Chillet, A. Jarosz, J. Rousseau, F. Wurtz – *France,* (400)
6. **Fast and orginal modeling of actuators: Example on a switched reluctance motor drive**
   F. Sixdenier, L. Morel, J.P. Masson – *France,* (423)
7. **Design of a Moving Coil Linear Actuator for High-Dynamic Strong-Force Applications**
   H. Muamer, B. Reimann, M.G.H.S. Diab, S. Liu – *Germany,* (446)
8. **Study the Influence of geometric Parameters on the Torque of electrostatic micromotor**
   V. Behjat, A. Vahedi, H. Kouhnavard, I. Ziari – *Iran,* (465)
9. **Modelling and Position Control of Voltage Forced Electromechanical Actuator**
   A. Patecki, S. Stępień – *Poland,* (512)
10. **Overlapping Mesh Model for the Analysis of Electrostatic Microactuators with Eccentric Rotor**
    P. Rembowski, A. Pelikant – *Poland,* (558)
11. **Constructions and models of induction motors with dual stator windings**
    K. Pienkowski – *Poland,* (619)
12. **Dynamic Analysis of Electromechanical Valve Actuators by means of FEM Techniques**
    Ch. Boccaletti, P. Di Felice, E. Santini – *Italy,* (628)
13. **Wobble Step Motor**
    N. Ben-Hail, B.Z. Sandler, R. Rabinovici – *Israel,* (85)
14. **Position Sensorless Control of Interior Permanent Magnet Synchronous Motor Using Extended Electromotive Force**
    K. Tanaka, I. Miki – *Japan,* (119)
15. **Speed Sensorless Field Oriented Control of Induction Motor Based on Sliding Mode Operating in Low Speed Conditions**
    F.M. Garcia, E.M. Hemerly – *Brazil,* (124)
16. **Fuzzy Logic Based Cost Effective Induction Motor Drives**
    M. Nasir Uddin, T.S. Radwan, M.A. Rahman – *Canada,* (227)
17. **Sensorless Control of Synchronous Reluctance Motor Using Modified Flux Linkage Oberver with an Estimation Error Correct Function**
    T. Hanamoto, A. Ghaderi, T. Fukuzawa, T. Tsuji – *Japan,* (249)
18. **Fuzzy Logic Based High Performance Control of Induction Motor Including Core Loss**
    M. Abdul Mannan, M. Hasan Ali, T. Murata, J. Tamura, T. Tsuchiya – *Japan,* (256)
19. **Position Sensorless Method for Switched Reluctance Motor Drives**
    A. Komatsuzaki, K. Yoshida, I. Miki, H. Noda – *Japan,* (299)

20. **Combination of Voltage Model and High-Frequency Signal Injection for Sensorless Permanent Magnet Synchronous Motor Drives**
A. Piippo, M. Hinkkanen, J. Luomi – *Finland,* (333)
21. **Sensorless Operation of a Permanent Magnet Generator for Future Embedded Aircraft Generation Systems** S.G. Burrow, P.H. Mellor, T. Sawata, M. Holme – *UK,* (385)
22. **3-Phase Induction Motor Drive with PWM Modulator Using a 8-Bit Low Cost Microcontroller**
E. Kucukguzel, O. Bilgic – *Turkey,* (477)
23. **Sensorless control of a PMSM using an efficient extended Kalman filter**
Z. Boulbair, M. Hilairet, F. Auger, L. Loron – *France,* (637)
24. **Adjustment of Classical and Fuzzy Logic Speed Controllers for Electrical Drives with Elastic Joint**
K. Szabat, T. Orlowska-Kowalska – *Poland,* (797)

Tuesday, 7 September 2004,
9.00 – 11.00 Poster Session 4 (Palace "Pod Baranami")

Finite Element Methodology

Chairmen: A. Binder / K. Komeza

1. **Induction Motor Magnetizing Inductance Modelling as a Function of Torque**
J. Nerg, J. Pyrhönen, J. Partanen – *Finland*, E. Richie – *Denmark,* (200)
2. **Modeling of High Speed, Solid Rotor Induction Machine with Adaptive Finite Element Procedures**
M. Jagieła - *Poland*, J.R. Bumby, E. Spooner – *UK,* (260)
3. **Clustering events related to restricted earth fault and differential relaying on the protection of power transformer**
G. Díaz, P. Arboleya, J. Gómez-Aleixandre, N. de Abajo – *Spain,* (274)
4. **GA Based Optimal Design of Shaded Pole Motor**
V. Sarac, L. Petkovska, M. Cundev, G. Cvetkovski – *Macedonia,* (313)
5. **A new method of numeric magnetic field calculation and field current calculation for synchronous generators**
St. Kunckel, M. Liese – *Germany,* (335)
6. **Unique Determination of One-Damper D-Axis Circuits of Synchronous Machines Using Finite-Element Simulations**
R. Escarela-Perez, E. Campero-Littlewood, T. Niewierowicz, O. Hernández-Anaya – *Mexico,* (152)
7. **Determination of performance characteristics of axially laminated synchronous reluctance motor by means of field-circuit method**
R. Machlarz – *Poland,* (380)
8. **The analysis of the induction motor with magnetic changer of frequency and phases**
R. Goleman – *Poland,* (402)
9. **Two Techniques for Modeling an Induction Motor with Skewed Slots with a Time-Stepping 2D-3D Finite Element Method**
C. Guérin, R. Ruiz, Y. Le Floch, P. Lombard, M. Vilcot, J.P. Ducreux, A. Abakar, L. Sadi-haddad – *France,* (417)
10. **Coupled FEM and System Simulator in the Simulation of A Synchronous Machine Drive with Direct Torque Control**
S. Kanerva – *Finland,* C. Stulz – *Switzerland*, B. Gerard – *Finland*, H. Burzanowska – *Switzerland*, J. Järvinen, S. Seman – *Finland,* (503)
11. **Analysis of Gravitational Generator by Using Finite Element Method**
A. Špérová, P. Fiala – *Czech Republic,* (548)

12. **Transient Performance Analysis for Universal Motors Taking Into Account Commutation and Rotational Loss**
K. Kurihara, S. Sakamoto – *Japan,* (539)
13. **Frequency-dependence of Magnetization of a Slip-ring Induction Generator**
R. Lin, A. Arkkio – *Finland,* (593)
14. **Iron Loss Analysis of Surface Permanent Magnet Motor - Comparison of Measurement and Calculation by FEM**
K. Yamazaki – *Japan,* (585)
15. **The Stereoskopy Vizualization in the 3D presentation System of the Electromagnetic Fields**
A. Krolewiak, E. Napieralska – Juszczak – *France*, M. Pietruszka – *Poland,* (587)
16. **Flux Linkage Calculation in 2D and 3D Finite Element Analysis Including Permanent Magnets**
K.Y. Lu, E. Ritchie, P.O. Rasmussen – *Denmark,* (595)
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Chairmen: I. Dolezel / X. M. L. Fernandez

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17. **A Methodology Based on Energy-Conversion Diagrams to Improve Switched Reluctance generators Control**
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31. **Groove cutting as a method for increasing the unit power of a synchronous machine**
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33. **Conditioning of Aircraft Flight Control Surface Loads**
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14.45 – 16.45 Oral Session 10 (ICC)

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Chairmen: J. Melkebeek / P. Wach

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2. **3D Nonlinear Transient Finite Element Analysis of Eddy Currents in the Stator Clamping System of Large Hydro Generators**
   E. Schmidt – *Austria*, G. Traxler-Samek, A. Schwery – *Switzerland,* (338)
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4. **Extraction of Circuit Parameters from Time Stepping FEM Computation for Coupled Field-Circuit Simulation**
   S. Kanerva, A. Arkkio – *Finland,* (502)
5. **Transient Electromagnetic and Coolant Flow Investigations of Synchronous Generators Using Numerical Approaches**
   E. Schlemmer, J. Schoenauer, E. Farnleitner, F. Mueller – *Austria,* (511)
6. **Eccentric air-gap element for transient finite-element machine simulation**
   H. De Gersem, T. Weiland – *Germany,* (783)

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14.45 – 16.45 Oral Session 11 (Palace "Pod Baranami")

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Chairmen: I. Muta / A. Michaelides

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2. **Generalized Circuital Modeling of Electromechanical Devices**
   P. Bolognesi – *Italy,* (99)
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   H. Karmaker, A. Knight – C*anada,* (185)
4. **A Method for the Evaluation of the Universal Machine Performance by Magnetic Network Analysis**
   K. Schönherr, A. Paweletz – *Germany,* (583)
5. **Performance of rotors in a Brushless Doubly Fed Induction Machine (BDFM)**
   P.C. Roberts, R.A. McMahon , P.J. Tavner, J.M. Maciejowski, T.J. Flack, X. Wang – *UK,* (450)
6. **Representation of Permanent Magnet Brushless Machine by means of Orthogonal Functions**
   P. Witczak, B. Wawrzyniak – *Poland,* E. Napieralska-Juszczak – *France,* (758)

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14.45 – 16.45 Oral Session 12 (Palace "Pod Baranami")

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Chairmen: F. Parasiliti / D. Howe

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   W. Jamal, G.V. Williams, P. Igic, P.A. Mawby – *UK,* (89)
3. **Transient Performance of Squirrel Cage Induction Motors with Frequency Inverter Supply taking into Account 2D Field Distribution and 2D Current Displacement in Cylindrical Rotor Bars**
   E. Bolte, S. Fiebig – *Germany,* (425)
4. **Dependence of the locked-rotor torque of induction motors on the rotor position**
   M. Pineda Sánchez, L. Serrano Iribarnegaray – *Spain,* (727)
5. **Inclusion of Inter-Bar Currents in Multi-Slice FE Modelling of Induction Motors - Influence of Iter-Bar Resistance and Skew Discretisation**
   J. Gyselinck – *Belgium*, X. Lopez-Fernandez – *Spain,* (790)
6. **Advanced Methods for Teaching Electrical Machines based on Virtual Laboratories**
   P.G. Rovolis, A.G. Kladas, J.A. Tegopoulos – *Greece,* (534)

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14.45 – 16.45 Poster Session 7 (Palace "Pod Baranami")

Wind Generators

Chairmen: A. Arkkio / J. F. Brudny

1. **Performance Analysis of a Doubly FED Twin Stator Cage Induction Generator**
   F. Rüncos, R. Carlson, N. Sadowski, P. Kuo-Peng – *Brazil,* (171)
2. **Dynamic Performance of Conventional and Renewable Energy Production Systems in a Hybrid Mode of Operation**
   A.D. Karlis, D.P. Papadopoulos, K. Karasavas – *Greece,* (190)
3. **Comparison Between TFPM Generator with Toothed Rotor and Conventional PM Synchronous Generator for Direct-Drive Wind Turbines**
   M.R. Dubois – *Canada*, H. Polinder – *The Netherlands,* (228)
4. **A New Control Method of Doubly-Fed Synchronous Machine for a Wind Energy Conversion System**
   R. Takahashi, J. Tamura, K. Ide – *Japan,* (248)
5. **Wind Generator Stabilization with Doubly-fed Asynchronous Machine**
   L. Wu, R. Takahashi, T. Murata, J. Tamura – *Japan,* (255)
6. **Effect of Variable Wind Speed on Wind Turbines with Induction and Doubly Fed Machines**
   M. Chomat, L. Schreier, J. Bendl – *Czech Republic,* (295)
7. **Design Optimization of a Low Speed Switched Reluctance Machine for Wind Turbine Applications.**
   L. Moreau, M.I. Lamghari-Jamal, M. Machmoum, M.E. Zaim – *France,* (399)
8. **Direct driven synchronous generator for low power wind turbines (vernier reluctance magnet machine)**
   I. Meny, P. Enrici, J.J. Huselstein, D. Matt – *France,* (458)

9. **Robust controller for Variable Speed Stall Regulated Wind Turbines**
   C. Pournaras, A. Soldatos S. Papathanassiou, A. Kladas – *Greece,* (469)
10. **Analysis of Transient Stability of Fixed Speed Wind Farms**
   I. Zubia, X. Ostolaza, J. Molina – *Spain,* (527)
11. **Transient Stability Simulation of Wind Generator Expressed by Multi-Mass Shaft Model**
   J. Tamura, Y. Shima, R. Takahashi, T. Murata, S. Yonaga, S. Tominaga, A. Sakahara, Shin-ich Suzuki – *Japan,* (236)
12. **Response of a variable speed synchronous wind generator to voltage dips**
   N. Herrero, C. Veganzones, J.A. Sánchez, S. Martínez, J.R. Wilhelmi – *Spain,* (614)
13. **Unit Sizing of a Small Hybrid Renewable Energy Conversion Systems Under Uncertainty**
   D. Morales, J.C. Vannier – *France,* (658)
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   G. Gail, T. Hartkopf, E. Tröster, M. Höffling, M. Henschel, H. Schneider – *Germany,* (666)
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   A.F. Flores Filho, R.P. Homrich, I. Nogueira – *Brazil,* (673)
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   E.J.R. Sambatra, G. Barakat, B. Dakyo – *France,* (679)
17. **Design optimization of axial flux permanent magnet synchronous generator for direct-drive wind energy application**
   J. Azzouzi, G. Barakat, B. Dakyo – *France,* (680)
18. **Maximum wind power control using torque characteristic in a Wind diesel system with battery storage**
   M. El Mokadem, C. Nıchıta, B. Dakyo – *France*, W. Koczara – *Poland,* (689)
19. **Losses and Efficiency of a Flywheel Energy Storage System with Permanent- Magnet Synchronous Machine Associated to a Variable-Speed Wind Generator**
   G. Cimuca, M.M. Radulescu – *Romania,* Ch. Saudemont, B. Robyns – *France,* (694)
20. **Study of Current and electromotive Force Waveforms in Order to Improve the Performance of Large PM Synchronous Wind Generator**
   D. Vizireanu, S. Brisset, P. Brochet, Y. Milet, D. Laloy – *France,* (699)
21. **Voltage Regulation of a Wind Axial-Flux PM Generator with a Novel Mechanical Device**
   F. Caricchi, G. De Donato, L. Del Ferraro, F. Giulii Capponi – *Italy,* (756)

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14.45 – 16.45 Poster Session 8 (Palace "Pod Baranami")

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Chairmen: Semyung Wang / W.-R. Canders

1. **Vibrations of Switched Reluctance Machines**
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2. **Compensation of Unbalanced Magnetic Forces by Distributed Parallel Circuits**
   O.W. Andersen – *Norway,* (88)
3. **Mechanical Model to Study Induction Motor Under Fault Conditions**
   P. Jover, M. Negrea, A. Arkkio – *Finland,* (100)
4. **Mechanical Imbalances - Test Bed, Measurement, Detection Technique**
   C. Kral, C.J. Fenz, M. Plainer, F. Pirker, G. Pascoli – *Austria,* (176)

5. **Effect of Stress-Dependent Magnetostriction on Vibrations of an Induction Motor**
   A. Belahcen – *Finland,* (267)
6. **Comparison of stator- and Rotor-Force Excitation for the acoustic Simulation of an Induction Machine with Squirrel Cage Rotor**
   C. Schlensok, G. Henneberger – *Germany* (321)
7. **Routine calculation of losses and temperature rises at the stator end portion of air cooled turbine generators considering the stator slot end field**
   G. Klaus, M. Liese – *Germany,* (334)
8. **Mechanical and Thermal Aspects of Small High-Speed Induction Machine Design**
   M. Larsson, M. Johansson, H. Bengtsson, J. Hylander – *Sweden,* (336)
9. **Application of rotor current space vector pattern recognition for sensorless vibration monitoring of the subsynchronous cascade drive**
   I. Tsoumas, A. Safacas – *Greece,* (357)
10. **Vibroacoustic Behaviour of the Asynchronous Machine**
    A. Ait-Hammouda, M. Hecquet, M. Goueygou, B. Napame, P. Brochet, A. Randria – *France,* (369)
11. **Reduction of noise in a MMT patented BLDC motor**
    E. Vinot, J. Tbatou – *France,* (391)
12. **The influence of the eccentricity on the magnetic noise of three-phase induction motor: an experimental approach**
    S.L. Nau, R. Beck, N. Sadowski – *Brazil,* (412)
13. **Vibro-Acoustic Optimization of a Permanent Magnet Synchronous Machine Using the Experimental Design Method**
    S. Vivier, A. Ait-Hammouda, M. Hecquet, B. Napame, P. Brochet, A. Randria – *France,* (421)
14. **Modelling of axial flux PM Machines: Thermal Analysis**
    A. Parviainen, M. Niemelä, J. Pyrhönen, J. Mantere – *Finland,* (470)
15. **Vibration reduction of Switched Reluctance Motor with PZT actuatoras**
    X. Mininger, M. Gabsi, F. Bouillault, C. Giraud-Audine, Y. Bonnassieux – *France,* (496)
16. **Influence of the wave character of commutator wear on the vibration dynamics of the sliding contact in AC commutator motors**
    A. Wilk, I. Mosoń, G. Kostro, P. Dobrowolski, M. Ronkowski – *Poland,* (535)
17. **The Reduction of Noise in Outer Rotor Type Capacitor Run Motor for Washing Machine**
    B.W. Min, S.C. Park, H.T. Lim, D.W. Kim, S.M. Jeon – *Korea,* (415)
18. **Influence of Energy Saving Work on Thermal Load of Induction Cage Machine**
    P. Gnaciński – *Poland,* (591)
19. **Experimental Design Improving Acoustic Characterisitics on IMT-2000 Mobile Phones**
    Gun-Yong Hwang, Sang Moon Hwang, Hang-Joo Lee, Ji-Hoon Kim, Seung-Kyu Jeung – *Korea,* (665)
20. **Torque and Force Design Analysis of Vehicular Electric Machines by Finite Element Method**
    W. Cai – *USA,* J. Qiao – *China,* (691)
21. **Thermal Charactieristics and Experimental Validation in Steel-Cored PMLSM considering Running Condition**
    Sung-Mun Cho, Ho-Yong Choi, Sang-Yong Jung, Hyu-Kyo Jung – *Korea,* (726)
22. **The Calculation of Rotor Temperature Field for Hydro-Generator as Well as the Analysis on Relevant Factors**
    W.L. Li, F. Zhou, S.K. Cheng – *P. R. China,* (735)
23. **Calculation of the Temperature Field for a Large Hydro-Generator of Which the Stator Slots Have the Same or Different Phase Windings**
    F. Zhou,W.L. Li, S.K. Cheng – *P. R. China,* (736)
24. **Analysis of the distortion of stator currents in an induction machine caused by damages of the mechanical gear driven**
    H. Ben Attia, I. Slama Belkhodja – *Tunisie*, J.C. Hapiot, B. Dagues – *France,* (737)

25. **A contribution to Determine Natural Frequencies of Electrical Machines. Influence of stator Foot Fixation**
J.P. Lecointe, R. Romary, J.F. Brudny – *France,* (742)
26. **Estimation of the heat losses in an electrical machine using an inverse method**
J.F. Trigeol, M. Girault, P. Lagonotte, Y. Bertin, D. Petit – *France,* (771)
27. **Study of the Acoustic Noise Produced by Bench Engines in the Dental Technicians Laboratory**
S. Yannikakis, E. Dimitropoulou, F.G. Ioannidou, M.G. Ioannides – *Greece,* (799)
28. **Life Extention of Electrical Machines, Especially Large Power Generators by Total Elimination of Temperature rise due to the End Effect**
J. Jamali – *Sweden,* (806)
29. **Acoustic Noise Reduction of PMAC Machines Driving Drum Washer**
Cha-Seung Jun, Dong-Won Kim, Si-Moon Jeon – *Korea,* (414)

Wednesday, 8 September 2004,
9.00 – 11.00 Oral Session 13 (ICC)
Wind Generators
Chairmen: Shao Keran / Z.Q. Zhu

1. **Analysis of an Ironless-Stator Permanent-Magnet Generator**
E Spooner – *UK,* (84)
2. **Design and Construction of a Permanent Magnet Wind Energy Generator with a New Topology**
G. Korouji, R. Hanitsch – *Germany,* (87)
3. **Model Derivation of Variable Speed Wind Generator Using Permanent Magnet Synchronous Machine**
R. Takahashi, J. Tamura, S. Yonaga, S. Tominaga, A. Sakahara, S. Suzuki – *Japan,* (247)
4. **Modelling of Grid Connected Fixed Speed Wind Turbine Generators Using Induction Machines**
L. Ran, J.R. Bumby, P.J. Tavner – *UK,* (264)
5. **Transient Analysis of Doubly Fed Wind Power Induction Generator Using Coupled Field – Circuit Model**
S. Seman, S. Kanerva, J. Niiranen, A. Arkkio – *Finland,* (359)
6. **Design of a PM generator for the Turby, a Wind turbine for the built environment**
H. Polinder, G.J.W. van Bussel – *Netherlands,* M.R. Dubois – *Canada* (432)
7. **Comparison of Fuzzy Logic and Digital PI Controllers for an Induction Generator Drive in Wind Energy Conversion System**
T. Sürgevil, E. Akpınar, S. Pravadalıoğlu – *Turkey,* (147)

Wednesday, 8 September 2004,
9.00 – 11.00 Oral Session 14 (Palace "Pod Baranami")
Thermal, Acoustic Noise and Vibration Aspects
Chairmen: J.J. Simond / B. Nogarede

1. **Eddy Current Heating in Large Salient Pole Generators**
C.P.Riley, A.M. Michaelides – *UK,* (184)
2. **Calculation of Unbalanced Magnetic Pull in Electrical Machines with Rotor Eccentricity**
A. Tenhunen, T.P. Holopainen, A. Arkkio – *Finland,* (186)

3. **Acoustic Simulation of an Induction Machine with Squirrel-Cage Rotor**
   C. Schlensok, D. van Riesen, T. Küest, G. Henneberger – *Germany,* (224)
4. **Equivalent thermal conductivity of insulating materials for high voltage bars in slots of electrical machines**
   P. G. Pereirinha, C. L. Antunes – *Portugal,* (752)

Wednesday, 8 September 2004,
9.00 – 11.00 Oral Session 15 (Palace "Pod Baranami")
Testing, Measurements, Monitoring and Diagnostics
Chairmen: O. Gol / L. Nowak

1. **Determining induction machine parameters using equivalent circuit model**
   M. Stiebler – *Germany,* (638)
2. **Iron Loss Analysis of Linear Oscillating Actuator for Linear Compressor**
   H. Lee, S. Wang, K. Park – *Korea,* (702)
3. **Comparative Study Between Two Diagnosis Methods to Detect Incipient Stator Inter-Turn Short-Circuits in Working Induction Machine**
   T. Assaf, H. Henao, G.A. Capolino – *France,* (564)
4. **Diagnosis of Induction Machines: Definition of health Machine electromagnetic Signature**
   D. Thailly, R. Romary, J.F. Brudny – *France,* (707)
5. **Electromagnetic Forces and Mechanical Oscillations of the Stator End Winding of Turbo Generators**
   A. Grüning, S. Kulig – *Germany,* (660)

Wednesday, 8 September 2004,
9.00 – 11.00 Poster Session 9 (Palace "Pod Baranami")
Testing, Measurements, Monitoring and Diagnostics
Chairmen: M. Jufer / A. F. Filho

1. **Parameter Identification of a Parmanent Magnet DC Motor: An Experimental Approach**
   A.M. Vural, I. Eker – *Turkey,* (104)
2. **Novel Study of Induction Motors with Broken Bar Faults**
   A. Khezzar, M.E.K. Oumaamar, A. Lebaroud, M. Boucherma – *Algeria,* (140)
3. **Rotor cage Faults Analysis in Three Phase Induction Motors by Parametric and Modified Park Model**
   A. Khezzar, M. Boucherma, M.E.K. Oumaamar, A. Lebaroud – *Algeria,* (141)
4. **Analysis of broken Bars Effects Under Asymmetrical and Distorted induction Motor Current**
   A. Lebaroud, A. Bentounsi, A. Khezzar, M. Boucherma – *Algeria,* (142)
5. **A New Method to Detect Broken Bars in Three-Phase Induction Motors Using the Starting Current**
   F.L.M. de Sousa, P.S. dos Santos, M.Y. Ematsu, F.L. Cardoso – *Brazil,* (165)
6. **A Method to Perform Speed Torque Curves on Induction Motors Using the Acceleration Method**
   M.Y. Ematsu, P.S. dos Santos, A. Habitzreuter – *Brazil,* (166)
7. **Separation of stray no-load losses in the rotor of induction motors**
   M.M. Kostić, Ž.S. Janda – *Yugoslavia,* (183)

8. **Induction machine model supporting supply currents based diagnostics of bearings**
   J. Rusek, L. Swędrowski – *Poland,* (198)
9. **Measurement of Stress-Dependent Magnetisation and Magnetostriction of Electrical Steel Sheets**
   A. Belahcen, M. El Amri – *Finland,* (258)
10. **Additional Losses in Synchronous Brushless Generator**
   A.E. Krug – *Russia,* (290)
11. **Active Diagnosis of Induction Machine**
   G. Clerc, J.M. Retif, V. Hartmann, H. Yahoui – *France,* (292)
12. **Determination of the Asynchronous Torque-Speed Characteristic of a Synchronous Reversible Generator**
   M. Biriescu, G. Liuba, C. Sorandaru, M. Mot, G. Madescu – *Romania,* (301)
13. **A Differential Approach to Resistive Parameters Identification in Salient Rotor PM Synchronous Motors**
   M. Tursini, R. Petrella, F. Parasiliti – *Italy,* (350)
14. **Comparison of Measurements and Simulations on High-Speed Induction Machines**
   M. Johansson, M. Larsson, L. Näslund, J. Hylander – *Sweden,* (370)
15. **Evaluation of the Radial Dynamic Stiffness of an Ironless Motor to be used in a Novel Optical Disk Mastering Application**
   M.H. El-Husseini, A. Bennani, J.W. Spronck, H. Polinder, J.C. Compter, J. van Eijk – *The Netherlands,* (397)
16. **The Proposal of Asynchronous Machine Designed for Diagnostics**
   B. Skala – *Czech Republic,* (398)
17. **Analysis of the sensitivity of estimated parameters of the dynamic model to the type and magnitude of the disturbance of the measured runs**
   K. Macek-Kamińska, P. Wach, M. Kamiński – *Poland,* (389)
18. **Practical application of the spectral analysis of line current for the detection of mixed eccentricity in cage induction motors fed by frequency converter**
   O. Duque, M. Pérez, D. Moríñigo – *Spain,* (444)
19. **Diagnostic of inter-turn defect in three phase system by studing hystereris magnetic harmonics signatures**
   H. Yahoui – *France*, A. Mouhoumed – *Norwey,* B. Ducharne, S. Mylvaganam, F. Sixdenier – *France,* (445)
20. **Measurement And Calculation Of Rotational Loss At Different Frequencies**
   J. Anuszczyk, Z. Gmyrek, W. Pluta – *Poland,* (448)
21. **Indirect Vibration Sensors for Switched Reluctance Motors**
   M. Gabsi, X. Mininger, Y. Bonnassieux, T. Poux, B. Grioni – *France,* (494)
22. **Spectrum Analysis of Turbogenerator Rotor Magnetic Field**
   M. Roytgarts – *Russia,* (508)
23. **A New Method for the Diagnosis of Rotor Bar Failures in Induction Machines via wavelet Decomposition**
   J. Roger-Folch, J.A. Antonino, M. Riera, M.P. Molina – *Spain,* (571)
24. **Architecture of a Fault Diagnosis Expert System for Power Plants Protection**
   C.C. Kontogiannis, A.N. Safacas – *Greece,* (618)
25. **Telecontrolled and Virtual Laboratory of Electric Machines: Design, Construction and Tests of Induction Motors**
   E. Quispe, O. Grajales, N. Vidal, R. Vega, L. Mantilla – *Colombia,* (642)
26. **Determination of Flux-linkage Characteristic in large Switched Reluctance Machines: Experimental Approach**
   N.H. Fuengwarodsakul, R.B. Inderka, S. Schröder, R.W. De Doncker – *Germany,* (652)
27. **Failure Prognosis for Permanent Magnet AC Machines Based on Time-Frequency Analysis**
   W.G. Zanardelli, E.G. Strangas – *USA,* (677)

28. **MCSA in Iverter Fed Machines: Pitfall and Fallacies**
A. Bellini, G. Franceschini, C. Tassoni, R. Passaglia, M. Saottini – *Italy,* (770)
29. **Simulation of induction hardening of massive elements**
J. Zgraja, P. Kula, T. Pacyniak – *Poland,* (780)
30. **Testing of two-speed synchronous motor**
L. Antal, J. Zawilak, T. Zawilak – *Poland,* (793)
31. **Diagnostics for Mechanical Fault Finding in Electrical Motor by Current Distortion of Inverter**
L. Szentirmai, A.V. Szarka – *Hungary,* (795)
32. **Systems for Monitoring and analysing Torsional Vibrations in Turbine Generator Shaft Lines**
A. Wirsen, P. Lang, M. Humer – *Germany,* (631)
33. **Power drive analysis for diagnostic purpose by inverter DC bus magnetic field measures**
C. Gillot, H. Yahoui, G. Rojat – *France,* (482)
34. **Experimental verification of field-circuit finite element models of induction motors feed from inverter**
K. Komeza, M. Dems, P. Jastrząbek – *Poland,* (803)

Wednesday, 8 September 2004,

9.00 – 11.00 Poster Session 10 (Palace "Pod Baranami")

Transformers, Use of Advanced Materials and New Technology

Chairmen: R. Cardoso / O.W. Andersen

1. **D.C. Component in Transformer: Physical Behaviour and Design Features**
G.M. Foglia, M. Ubaldini – *Italy,* (54)
2. **Coupled Analytical and Finite Element Calculations to Study the Thermal Behaviour of Transformers under Nonlinear Loads**
A. Lefèvre, L. Miègeville, J. Fouladgar – *France*, G. Olivier – *Canada,* M.I. Lamghari-Jamal – *France,* (144)
3. **A new power transformer relaying technique based on delta residual current as applied to three- and four-wired systems**
G. Díaz, P. Arboleya, J. Gómez-Aleixandre, N. de Abajo – *Spain,* (275)
4. **Rapid Evaluation of Excessive Local Heating Hazard in Bushing Turrets of Large Power Transformers**
J. Turowski – *Poland,* (286)
5. **Numerical Determination of Tank Losses in Distribution Transformers**
R. Escarela-Perez, J.C. Olivares-Galvan, M.A. Venegas-Vega – *Mexico,* (344)
6. **A closer view into progressive internal faults in transformers by means of the analysis of instantaneous currents sequences**
P. Arboleya, G. Díaz, J. Gómez-Aleixandre, N. de Abajo – *Spain,* (345)
7. **Power transformer overload forecasting using unsupervised learning neural networks**
P. Arboleya, G. Díaz, J. Gómez-Aleixandre, N. de Abajo – *Spain,* (346)
8. **Application of a moisture-in-oil model to in-service power transformers monitoring**
D. Urquiza, B. García, J.C. Burgos – *Spain,* (348)
9. **Comparison between three iron-powder topologies of electrically magnetized synchronous machines**
D. Martínez-Muñoz, A. Reinap, M. Alaküla – *Sweden,* (441)
10. **Fast Power Transformer Design Technique Validated by Measurements**
V.S. Lazaris, M.A. Tsili, A.G. Kladas – *Greece,* (468)

11. **Analysis of Interdependences of Transformers Energy Parameters and Generalized Linear Dimension**
B.I. Nevzlin, Y.Y. Dyachenko, A.M. Al-Zureigat, M.V. Zagirnyak – *Ukraine*, O. Benaissa – *Algeria,* (488)
12. **A Novel Design of Resistance Welding Transformer**
S. Cundeva, L. Petkovska, V. Filiposki – *Macedonia,* (513)
13. **Filter Winding Problematic in Traction Transformers**
J. El Hayek – *Switzerland,* (532)
14. **Determination of the Hysteresis Core Losses on a Single-Phase Transformer by using a Dynamic Preisach-type Hysteresis Model**
A. de Blas, R. Bargalló, J. de la Hoz – *Spain*, P.G. Pereirinha, C. Lemos Antunes – *Portugal,* (347)
15. **B-H characteristic determination of magnetic circuit and analysis of magnetic field in a single–phase transformer**
M. Hadžiselimović, D. Miljavec, I. Zagradišnik – *Slovenia,* (570)
16. **Influence of the Effective Core Permeability on Eddy Current Losses in Power Transformers**
E. Schmidt, J. Schöberl, P. Hamberger – *Austria,* (605)
17. **Electromagnetic Analysis Applied to the Prediction of Stray Losses in Power Transformer**
L. Susnjic, Z. Haznadar, Z. Valkovic – *Croatia,* (659)
18. **EMC Problems with Dry Cast Resin Transformers - A Case Study**
C.L. Antunes, A.P. Coimbra – *Portugal,* (751)
19. **Application of Boundary-Approximated Method for Calculation of Transformer Leakage Field**
S. Pawłowski – *Poland,* (711)
20. **Design and Characteristic Analysis of new type Transformer Coupled Inductor with the Independent Auxiliary Magnet Cores**
Moon-Schick Kang, Kyung-Ho Kim, Yun-Hyun Cho – *Korea,* (717)
21. **Effect of Short-Circuit Impedance on Three Windings autotransormers Optimal Design**
C. Candela, M.A. Salvatore – *Venezuela,* (741)
22. **Autotransformers for Multipulse Converters**
J. Plewako – *Poland,* (804)
23. **New Materials and Innovative Technologies to Improve the Efficiency of Three-phase Induction Motors. A Case Study**
E. Chiricozzi, F. Parasiliti, M. Villani – *Italy,* (146)
24. **Loss Calculations for Soft Magnetic Composites**
G. Nord, L.O. Pennander – *Sweden*, A. Jack – *England,* (170)
25. **Electroactive materials: towards novel actuation concepts**
B. Nogarede, J.F. Rouchon, A. Renotte – *France,* (211)
26. **Compaction of SMC Powders for High Saturation flux Density**
M.R. Dubois, L.P. Lefebvre, P. Lemieux, E. Dusablon – *Canada,* (230)
27. **High Dense Soft Magnetic Composites Made by Combined Sinter-oxidizing-forging Technique**
M. Zagirnyak - *Ukraine*, D. Miljavec, H. Weinert – *Slovenia*, V. Leschinsky – *Poland,* (489)
28. **Advanced materials for high speed motor drives**
G. Kalokiris, A.G. Kladas, J.A.Tegopoulos – *Greece,* (533)
29. **Soft Magnetic Composite in Design of BLDC Motor**
D. Miljavec, B. Zidarič - *Slovenia*, M. Zagirnyak – *Ukraine,* (565)
30. **Potential of Soft Magnetic Powders for Switched Reluctance Machines in Comparison with the Laminations Solution**
Y. Alhassoun, C. Henaux, B. Nogarede – *France,* (188)
31. **Field Modeling and Force Analysis of Shell-Type Shunt Reactor 3-D Structures**
S. Wiak, P. Drzymała, H. Welfle (820)

Wednesday, 8 September 2004,

11.15 – 13.15 Oral Session 16 (ICC)

Transformers, Special Machines

Chairmen: T. Lipo / K. Kluszczynski

1. **Design and Modeling of the Electric Part of an Experimental Power Plant from Sea Waves**
   N.M. Kimoulakis, S.A. Papathanassiou, A.G. Kladas – *Greece,* (467)
2. **Improved Modeling of Three-Phase Transformer Analysis Based on Nonlinear B-H Curve and Taking into Account Zero-Sequence Flux**
   B. Kawkabani, J.J. Simond – *Switzerland,* (262)
3. **Coupled field, circuit and mechanical model for efficient representation of permanenet magnet generator wind turbine**
   A. Haniotis, A.G. Kladas, J.A. Tegopoulos – *Greece,* (531)
4. **Saturation Effects in a Three-phase Transformer Bank Composed by Single-phase Transformers**
   C.H. Salerno, D. Bispo, J.R. Camacho, F.E.R. Morikawa, G.T. Matumoto – *Brazil,* (471)
5. **Analysis of a three-limb core power transformer under earth fault**
   M.A. Tsili, S.A. Papathanassiou – *Greece* (734)
6. **Avoiding the Switching-off Failure in Capacitor Motors**
   R.N. Hasanah, M. Jufer – *Switzerland,* (312)

Wednesday, 8 September 2004,

11.15 – 13.15 Oral Session 17 (Palace "Pod Baranami")

Use of Advanced Materials

Chairmen: M. Radulescu / V. Bartos

1. **Generator Behaviour of Induction Machines with a Copper Die-cast Squirrel Cage Rotor**
   N. Castéras, L. Doffe, O. Walti – *France,* (127)
2. **Comparative Field Analysis of PM Disc Motor Designs Using SMC Material**
   G. Cvetkovski, L. Petkovska – *Macedonia*, S. Gair – *UK,* (360)
3. **Axial Gap Permanent Magnet DC Motor with Powder Iron Armature**
   S.M. Abu-Sharkh, M.T.N. Mohammad, Shu Hau Lai – *UK,* (298)
4. **Mass Reduction of an AC inductor**
   J. Saitz, A. Arkkio – *Finland,* (610)
5. **Relationship Between Magnetization Characteristics and Torque Mechanism in High Tempetature Superconducting Bulk Motor**
   T. Nakamura, H.J. Jung, I. Muta, T. Hoshino – *Japan,* (712)
6. **Recent Advances in Development of the Die-Cast Copper Rotor Motor**
   E.F. Brush Jr., D.T. Peters, J.G. Cowie – *USA,* M. Doppelbauer, R. Kimmich – *Germany* (589)

Wednesday, 8 September 2004,

11.15 – 13.15 Oral Session 18 (Palace "Pod Baranami")

Linear Drives

Chairmen: K. Hameyer /D. Dolinar

1. **Thrust Calculation of Transverse Flux Linear Motor Considering End Effect of Mover**
   Ji-Young Lee, Jung-Pyo Hong, Do-Hyun Kang – *Korea,* (669)
2. **Comparative Thrust Analysis of Transverse – flux Linear Motors**
   D.H. Kang – *Korea*, H. Weh – *Germany,* (189)
3. **Eddy Current Loss in Tubular Modular Permanent Magnet Machines**
   Y. Amara, J. Wang, D. Howe – *UK,* (192)
4. **Thrust and Cogging Force Improvement on Inductor Linear Motor**
   T. Shikayama, R. Oguro, T. Tsuji, T. Hanamoto – *Japan,* (254)
5. **Investigation of slotless permanent magnet excited linear synchronous machines with concentrated stator windings**
   W.R. Canders, H. Mosebach, Z. Shi – *Germany,* (542)

Wednesday, 8 September 2004,

11.15 – 13.15 Poster Session 11 (Palace "Pod Baranami")

Control Drives and Generators

Chairmen: L. S. Iribarnegaray/ R. Nadolski

1. **Indirect Space Vector Control of a Double Star Induction Machine fed by Two Five - Levels NPC VIS**
   Z. Oudjebour, E.M. Berkouk, N. Sami, S. Belgasmi, S. Arezki, I. Messaif – *Algerie,* (155)
2. **Control of a bi-converter mono-machine system based on the energetic macroscopic representation**
   P.E. Vidal, P. Delarue, M. Pietrzak-David, A. Bouscayrol – *France,* (191)
3. **Influence of the control on induction machine affected from electric asymmetries**
   F. Esposito, G. Gentile, S. Meo, A. Ometto – *Italy,* (213)
4. **Torque Oriented Control of Induction Motor From a View Point of Magnetic Energy Conversion**
   T. Murata, M. Yamashita, T. Tsuchiya, J. Tamura – *Japan,* (257)
5. **Output-Feedback Decoupling of Currents in Vector Control of a Doubly Fed Induction Machine**
   G. Salloum – *France*, R. Ghosn – *Liban* , M. Pietrzak-David, B. De Fornel – *France,* (291)
6. **Design and Modeling of Controllers in PM Drives for Wheelchairs**
   M. Raganella, A. Di Napoli, F. Crescimbini, A. Lidozzi, L. Solero – *Italy,* (730)
7. **Identification and Verification of Parameters of the Asynchronous Machine During Field-Orientedly Controlled Operation**
   U. Beckert, H. Arnold – *Germany,* (372)
8. **The Simplify Control Algorithm for Permanent Magnet Synchronous Motors with Sinusoidal Current Control (BLAC)**
   V. Olarescu, S. Musuroi – *Romania,* (401)
9. **A Simple Method for Flux-Weakening Operation of DTC Based Induction Motor Drives**
   D. Casadei, G. Serra, A. Tani, L. Zarri – *Italy,* (403)

10. **Impact of magnetic saturation on the input-output linearising tracking control of an induction motor**
D. Dolinar– *Slovenia*, P. Ljušev – *Denmark,* G. Štumberger – *Slovenia*, (452)
11. **Low Cost Digital Controller for Switched Reluctance Motor**
B. Blanqué, J.I. Perat, P. Andrada – *Spain,* (454)
12. **Immediate Stator Flux Control of AC Machines**
V. Ambrožič, D. Nedeljković, R. Fišer, M. Nemec – *Slovenia,* (466)
13. **Simple Control System for Field Weakening of Surface Mounted PM Brushless Motors**
J. Figueroa, J. Cros, P. Viarouge – *Canada,* (521)
14. **On Line Estimation of the Stator Resistance of a Doubly Fed Induction Machine by an Adaptive Method**
R. Ghosn – *Liban*, M. Pietrzak-David, B. De Fornel – *France,* (544)
15. **Micro Hydropower station based on a doubly fed induction generator excited by a PM synchronous machine**
A. Ansel, M. Biet, B. Robyns – *France,* (580)
16. **Power System Stabiliser Design Based on Robust Control Techniques**
M. Bouhamida, M.A. Denaï – *Algeria,* (592)
17. **Quantitative Influences of the Stator Resistance variation on the behavior of the Stator Flux Oriented Vector Controlled Induction Machines**
E. Mitronikas, A. Safacas – *Greece,* (603)
18. **Fault Tolerant Operating Strategies Applied to Three-Phase Induction Motor Drives**
A.M.S. Mendes, A.J. Marques Cardoso – *Portugal,* (617)
19. **Electromechanical Characteristics Improvement in a Twelve-Pulse LCI Drive System Under Faulty Operating Conditions**
A.N. Alcaso, A.J.M. Cardoso – *Portugal,* (622)
20. **Control of Six Two-Level PWM Rectifiers - Half Clamping Bridge - Seven Level NPC VSI Cascade**
A. Talha, I. Messaif, E.M. Berkouk, M.S. Boucherit – *Algeria,* (629)
21. **Torque strategies control of the double star synchronous machine drive under fault condition**
M. Merabtene, M.F. Benkhoris, N. Mokhtari, R. LE Doeuff – *France,* (633)
22. **SVPWM Observer-based Input-Output Linearization of Induction Motor with Saturation of the Main Flux Path**
H. Martín, J. Llaverías, R. Bargalló – *Spain,* (640)
23. **Comparison between different regulation structures for a five phases permanent magnet synchronous machine**
E. Robert-Dehault, M.F. Benkhoris, M.E. Zaim – *France,* (650)
24. **Modelling and Controlling of Surface-Mounted PM Motors Including Saturation Effects**
C. Attaianese, V. Nardi, G. Tomasso – *Italy,* (667)
25. **H_∞ Current Control for Permanent Magnet Synchronous Machine**
S. Machmoum – *Maroc*, P. Chevrel, M. Machmoum, C. Darengosse – *France,* (675)
26. **The application of Multi-Variable-Frequency Resonant Controller to torque control of Permanent Magnet Synchronous Motor**
J. Zeng, P. Degobert, X. Guillaud – *France,* (692)
27. **Improved decentralised control system for hybrid vehicle energy transducer test bench**
S. Châtelet – *Sweden,* (705)
28. **Improved Performance of Industrial Servo-Drive Systems by SAW Shaft Torque Feedback**
N. Schofield, T. O'Sullivan, C.M. Bingham – *UK,* (772)
29. **Direct Power and Torque Control Scheme for Space Vector Modulated AC/DC/AC Converter- Fed Induction Motor**
M. Jasinski, M.P. Kazmierkowski, M. Zelechowski – *Poland*, (901)

30. **Simple DTC-SVM Control Sheme for Inductıon and PM Synchronous Motor**
M.P. Kazmierkowski, M. Zelechowski, D. Swierczynski – *Poland*, (902)
31. **DC Permananet Magnet Motor for Electric Bike and their Impulse System for Battery Charging**
S. Wiak, R. Nadolski, K. Ludwinek, Z. Gawęcki – *Poland*, (930)

Wednesday, 8 September 2004,

11.15 – 13.15 Poster Session 12 (Palace "Pod Baranami")

Linear Machines

Chairmen: K. Zakrzewski / M. Cundev

1. **Design of Hybrid Linear Stepping Motor (HLSM) for Long Stroke Operation**
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2. **Reduction of Thrust Ripple in Linear Induction Motor**
T. Utsumi, H. Watanabe, I. Yamaguchi – *Japan,* (133)
3. **Comparison of various constructions of the linear synchronous-like motors based on finite-element method**
F. Tóth – *Hungary,* (203)
4. **Evaluation of the Current Distribution in the Secondary of A High Speed Linear Induction Motor**
M. Mirzayee, M. Mirsalim, S.E. Abdollahi, A. Ghaempanah – *Iran,* (263)
5. **Linear Motor Optimization Using An Analytical Model**
S. Chevailler, M. Markovic, M. Jufer, Y. Perriard – *Switzerland,* (311)
6. **A Linear Drive for an Autonomous, Magnetically Levitated Transportation Vehicle**
D. Brakensiek, G. Henneberger – *Germany,* (319)
7. **Basic Analytical Study on On-board Wound - Secondary Type of Linear Induction Motor for Light Transit**
N. Fujii, T. Mizuma – *Japan,* (504)
8. **Overall Characteristics of Traction Linear Induction Motor with New End-effect Compensator**
N. Fujii, Y. Tanabe, Y. Ito – *Japan,* (505)
9. **Reduction of the Cogging in a Linear Synchronous Motor with a Claw-Pole-Structured Mover - Trial Fabrication 2 -**
K. Shiroshita, K. Iijima, T. Kichiji, K. Shimogawa, H. Wakiwaka – *Japan,* (579)
10. **Dynamic Model of Permanent Magnet Linear Synchronous Motor**
M. Bugeza, D. Makuc, R. Fišer – *Slovenia,* (620)
11. **The experimental verification to improve the efficiency for vertical linear synchronous motor using the maximum efficiency point tracking method**
T. Tsukinaga, S. Torii, M. Watada, D. Ebihara – *Japan,* (621)
12. **Linear Synchronous Drive in Flying Shear Application**
S. Ceferin, M. Bugeza, R. Fišer – *Slovenia,* (625)
13. **A Transverse Force Reduction in a Transverse-Flux Tubular Linear Switched Reluctance Motor**
A.F. Flores Filho, R.P. Homrich, V. Rinaldi – *Brazil,* (706)
14. **Optimisation of a Linear Brushless DC Motor Drive**
Ph. Dessante, J.C. Vannier, Ch. Ripoll – *France,* (725)
15. **3-D Numerical Analysis of a Short Primary Linear Reluctance Motor**
K. Ogawa – *Japan,* (276)
16. **Development of a Stocker System Using Transverse Flux Linear Motors with Permanent Magnet**
J. Chang, D. Kang – *Korea,* (376)
17. **Forces study of a PM linear motor for high speed machine**
R. Renuald, V. Aucejo Galindo, O. Bistorin, R. Sanchez Grandia, R. Vives Fos – *France,* (789)

18. **Analysis of Tubular Linear Reluctance Motor (TLRM) under Various Voltage Supplying**
B. Tomczuk, M. Sobol – *Poland,* (792)
19. **Forces analysis of a new linear bearingless drive**
O. Bistorin, V. Aucejo Galindo, R. Renuald, R. Sanchez Grandia, R. Vives Fos – *France,* (796)
20. **Modeling and verification of magnetic forces in DC electric motors**
M. Furlan, A. Černigoj, L. Gašparin, M. Boltežar – Slovenia, (798)