

University of KwaZulu-Natal, Durban, 26-27 January 2006

Proceedings of the 15th Southern African Universities Power Engineering Conference









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#### **Plenary Session**

Title	Authors
Evaluation of a novel method of applying artificial pollution to RTV silicone rubber coated porcelain for use with the inclined plane test	W Glossop, M Cavanagh, IR Jandrell, K Nixon
Design of a permanent-magnet synchronous machine integrated with an energy-storage flywheel	SR Holm, H Polinder, JA Ferreira
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Control-systems analysis and modelling of instabilities that arise when capacitor-coupled substations (CCS) are used to supply induction motors	KA Reeves









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#### I High Voltage

Title	Authors
The dependence of corona audible noise on conductor surface gradient	MJ Lekganyane, NM Ijumba, AC Britten
Review of methodologies available for the classification of defects in gas insulated systems using UHF couplers	T Govender, I Jandrell
Insulator flashover due to non-uniform pollution distribution	JR Field, HJ Vermeulen, JP Holtzhausen
The design of a test scheme for high voltage impulse testing with a DC bias voltage	PJ Pieterse, HJ Vermeulen, L Borrill
Application of a fluorescent bird deterrent to mitigate avian collisions with high voltage transmission lines	WH Schwardt, JP Holtzhausen, WL Vosloo
A modelling investigation into the arc quenching properties of wooden 22kV distribution line poles	CH Bredenoord, JM van Coller









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The impact of harmonics on power transformers evaluated with the IEEE Std. C57.110	OC Geduldt, IW Hofsajer
Identifying a harmonic offender in an interconnected power system	WC Stemmet, G Atkinson-Hope
Wavelet compression for wireless sensor networks used for partial discharge monitoring	A Van der Byl, R Neilson, J Davies
A novel pattern recognition system for identifying partial discharges in high voltage transformers	V Bindal, R Neilson, J Davies
The application of the ESFFT in the condition monitoring of bearing defects	AJ Hoffman, NT van der Merwe









III Power Electronics	
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Analysis and treatment of parasitic effects in capacitors for power electronic applications	E Brink, DC Pentz, IW Hofsajer
An investigation into the orthogonality of the skin and proximity effects in round conductors	K de Jager, I W Hofsajer
Some characteristics of high temperature controllable switches	JJ Wolmarans, IW Hofsajer
The design and operation of an integrated passive structure for a resonant converter	J Claassens, IW Hofsajer
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Analysis of the effects of rotor misalignment on induction machines, preliminary results	GJ van Rooyen
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Initial measurements to detect broken rotor bars on a 1.7 MW squirrel cage induction machine	K Dhuness, SR Holm, WA Cronje, IW Hofsajer
Experimental setup for examining faults in wind generators	PS Barendse, P Pillay









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V High Voltage

Title	Authors
Low cost electric-field mill: design, construction and testing	MD Grant, JM Garrard, KJ Nixon
Thermal time constant of a buried three-core cable	JJ Walker, BJ Le Roux
A study of bird streamer initiated breakdown under HVDC conditions	K Naidoo, NM Ijumba, AC Britten
Modeling of capacitive and inductive coupling between three-phase power lines	A Jakoef, JP Holtzhausen, HJ Vermeulen
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Estimating distribution customer interruption costs in South Africa	UJ Minnaar, M Van Harte, R Koch
Optimised design and operation of a distribution network with multiple distribution generation sources	MJ Lekganyane, NM Ijumba
Maximum demand control system - evaluation of a simple short term demand prediction algorithm	JF Janse van Rensburg, JH Pretorius
The impact of transmission constraints on the choice of market strategies	J Yan, A Petroianu









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AVR performance enhancement through improved tracking of the terminal voltage	R Naidoo, J Visser
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The effect of the parameters of the bilinear transformation on the performance of a single machine Hinfinity-PSS	KE Mocwane, KA Folly









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Aspects of computer simulation of integrated passive distributed structures	GS McMullin, IW Hofsajer
An exhaustive investigation into the realisation of filters with integrated three layer structures	K de Jager, I W Hofsajer









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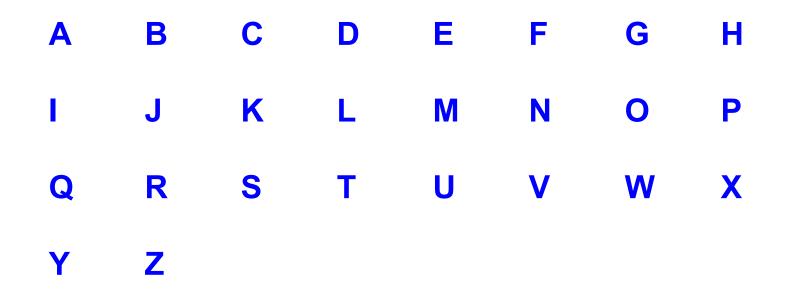
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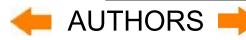








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