



27th Annual Conference
of the
**South African Society for Numerical
and Applied Mathematics**
hosted at
University of Stellenbosch
31 March – 2 April 2003

PROGRAM

	Monday		Tuesday		Wednesday	
08:00-08:50	REGISTRATION					
08:50-09:00	Official Opening					
Chair:	S202 (Weideman)		S202 (Laurie)		S202 (Rohwer)	
09:00-09:50	Sachs		Cools		Laurie	
10:00-10:30	TEA		TEA		TEA	
Chair:	S202 (Weideman)	S302 (Goosen)	S202 (van Rensburg)	S302 (Witten)	S202 (Murray)	S302 (Zietsman)
10:30-10:50	Burns	Murray	Silverman	Schoombie	Lubuma	Van Rensburg
11:00-11:20	Borggaard	Malraison	Mason	Abelman	Maré	Labuschagne
11:30-11:50	Zietsman	Maritz	Momoniat	Perrier	Kotze	Van der Merwe
12:00-12:20	Dumont	Ng	Cliff	Parada	SANUM AGM	
12:30-14:00	LUNCH		LUNCH		LUNCH	
Chair:	S202 (Lubuma)	S302 (Schoombie)	S202 (Mason)	S302 (Witten)		
14:00-14:20	Sjoberg	Rohwer	Myers	Koch		
14:30-14:50	Maluleke	Harper	Soh	Erasmus		
15:00-15:20	Manale	Nel	Tladi	Richardson		
15:30-16:00	TEA		TEA			
Chair:			S202 (Laurie)	S302 (Maritz)		
16:00-16:20			Weideman	Witten		

Registration, tea breaks, lunches

Registration is on Monday, 31 March, from 8:00 to 8:50 in the Foyer, third floor between Buildings 35 and 36 (see map). Then proceed to S202 on the second floor, where all the plenary talks will be held. All tea breaks will also be held in the Foyer, third floor between Buildings 35 and 36. Lunch will be taken in The Workshop, Merriman Street (see map).

Kirstenbosch outing

On Thursday we plan to visit Kirstenbosch Gardens; have lunch in the Silver Tree Restaurant in the gardens before proceeding to Groot Constantia for a wine tasting. We will leave Stellenbosch at 10:00 from the Engineering Building 39 (see map). Transportation will be provided. The cost of the outing is R80 per person which includes the transportation, Kirstenbosch entry fee and wine tasting. Lunch is a la carte and not included in the R80.

Conference Dinner

The conference dinner is on Tuesday evening at Hazendal Estate, on the Bottelary road between Stellenbosch and Kuilsrivier. We leave Stellenbosch at 18:00 from the Engineering Building 39 (see map), transport provided.

Email

Email and internet access is available in room A218, Building 39 (see map). Login and passwords will be provided at registration.

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Eugene M. Cliff & Lei Xie <i>Efficient Computation of Gradients for Functionals on Transonic Flows</i>	page 10
Ronald Cools <i>The construction of efficient lattice rules in low dimensions</i>	page 11
Yves Dumont <i>On a vibro-impact scheme</i>	page 12
Barend Erasmus <i>Predictive modelling of animal distributions</i>	page 13
John Paul Harper & CH Rohwer <i>Lulu applications to pattern recognition</i>	page 14
Thorsten M. Koch, Thomas Franz & B. Daya Reddy <i>Finite Element Modelling of the Aortic Heart Valve</i>	page 15
Jacques Kotze <i>Subtleties of a Monte Carlo simulation of an Ising Model</i>	page 16
A Labuschagne <i>Distributed parameter models for a vertical slender structure on a resilient seating</i>	page 17
Dirk Laurie <i>Numerical calculation of singular oscillatory integrals</i>	page 18

Jean M-S Lubuma & Alet Roux <i>An improved theta-method for systems of ordinary differential equations</i>	page 19
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G.H. Maluleke & D.P. Mason <i>Group Theory Analysis of a Third Order Linear Differential Equation and Application to the Deformation of a Hyperelastic Torus</i>	page 21
Jacob M. Manale <i>Accelerated Solutions to Some Periodic Equations</i>	page 22
Eben Maré & Schalk Schoombie <i>Spurious behaviour of a discretised van der Pol equation</i>	page 23
Milton F Maritz <i>The 3x3 rotation matrix — a simple derivation and some properties</i>	page 24
DP Mason & M-Y Chung <i>Axisymmetric Spreading of a Thin Liquid Drop with Non-Zero Slip Velocity at the Fluid-Base Interface</i>	page 25
Ebrahim Momoniat <i>Approximate Short-Time Solutions for Gravity-Driven Spreading of a Thin Liquid Drop on a Slowly Rotating Disk</i>	page 26
Dana Murray <i>Minimizing Overfull Loss in a Packing Problem</i>	page 27
Tim Myers <i>Industrial applications of thin film flows</i>	page 28
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Siu-Ah Ng <i>Nonstandard approach to hedge parameters</i>	page 30
C. Parada, C. Mullon, P. Fron, C. van der Lingen & J. Huggett <i>From particles to individuals: modelling the early stages of anchovy in the southern Benguela</i>	page 31

M'Barek Adiou, Jean-Pierre Treuil, Ovide Arino & Edith Perrier <i>A mixed Eulerian/Lagrangian Approach to model aggregative processes in a fish school.</i>	page 32
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Ekkehard W. Sachs <i>Newton's Method in Numerical Optimization</i>	page 35
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Astri Sjoberg <i>Symmetries, Associated Conservation Laws and the solution of PDEs.</i>	page 37
Maleafisha S Tladi <i>Inertial manifolds and approximate inertial manifolds for the problem of ageostrophic flows with beta-plane approximation</i>	page 38
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Gareth Witten & David Krakauer <i>Adaptive modification of RNA decay rates in positive strand virus dynamics: Host and virus perspective</i>	page 42
Lizette Zietsman, Belinda King & John Burns <i>On the Computation of Functional Gains for Optimal Boundary Control Problems</i>	page 43