



# **SANUM2001**

**(South African Society for Numerical and Applied  
Mathematics)**

**Announcement of the 25th Annual Conference**

**to be held at the**

**Department of Applied Mathematics  
University of Stellenbosch  
Stellenbosch, South Africa**

**April 9, 10, 11; 2001**

# Program SANUM2001

Registration, tea breaks, lunches

Registration is on Monday April 9, from 8:00 to 9:00 in the Foyer of Building 39 (top middle on the campus map). Then proceed to the adjacent Reitzsaal, where all the plenary talks will be held. All tea breaks will also be held in the Foyer of Building 39. Lunch will be taken in The Workshop, Merriman Street.

	Monday		Tuesday		Wednesday	
08:30-08:50	REGISTRATION		<b>Alefeld</b>		<b>Kulisch</b>	
09:00-09:50	<b>Higham</b>		<b>Lorentzen</b>		<b>Burns</b>	
10:00-10:30	TEA		TEA		TEA	
10:30-11:20	<b>Baker</b>		<b>Barashenkov</b>		<b>King</b>	
	Reitzsaal	A205	Reitzsaal	A205	Reitzsaal	A205
11:30-11:50	<b>Weideman</b>	<b>Krvavych</b>	<b>Cross</b>	<b>Laurie</b>	<b>Van Vuuren</b>	<del>Yeh</del> MARITZ
12:00-12:20	<b>Tisseur</b>	<b>De Villiers</b>	<b>Witten</b>	<b>Lubuma</b>	<b>Grundlingh</b>	<b>Tladi</b>
12:30-14:00	LUNCH		LUNCH		LUNCH	
14:00-14:50	<b>Driver</b>		SANUM AGM		<b>Hereman</b>	
	Reitzsaal	A205	Reitzsaal	A205	Reitzsaal	A205
15:00-15:20	<b>Anguelov</b>	<b>Thiran</b>	<b>McGraw</b>	<b>Schoombie</b>	<b>Maritz</b>	
15:30-16:00	TEA		TEA		TEA	
16:00-16:20	<b>Du Plessis</b>	<b>Coetzer</b>	<b>Mahomed</b>	<b>Zietsman</b>		
16:30-16:50	<b>Snyman</b>	<b>Banasiak</b>	<b>Kara</b>	<b>Van der Merwe</b>		
17:00-17:20	<b>Jarmai</b>	<b>Rohwer</b>	<b>Adam</b>	<b>Van Rensburg</b>		

## Social Program

Conference Dinner: Monday evening at The Guinea Fowl Restaurant on the Saxenburg Wine Estate (time to be announced, transport provided).

## **Titles of Talks**

A A Adam (University of the Witwatersrand, RSA)  
*Nonlocal Symmetries of First-order ODEs*

Goetz Alefeld (University of Karlsruhe, Germany)  
*On the Existence Theorems of Kantorovich, Moore and Miranda*

Roumen Anguelov (Vista University, RSA)  
*Applications of the Semimorphism Principle*

Greg Baker (Ohio State University, USA)  
*The Beauty and Power of Complex Analysis*

Banasiak (University of Natal, RSA)  
*Chaotic Behaviour of Infinite-Dimensional Linear Systems with Applications*

Igor Barashenkov (University of Cape Town, RSA)  
*Radially-symmetric Oscillons in Nonlinear Faraday Resonance*

John Burns (Virginia Tech, USA)  
*Numerical Methods for Control and Design of Infinite Dimensional Systems*

Jimbo Henri Claver (Moscow State University, Moscow)  
*On the Legendre Symbols and its Application*

Hanno Coetzer (University of the Free State, RSA)  
*A HMM-Based Off-Line Signature Verification System*

Simon Cross (University of Cape Town, RSA)  
*Stability of Solutions to the Complex Ginzburg-Landau and Nonlinear Schrödinger Equations*

Johan M. De Villiers (University of Stellenbosch, RSA)  
*Interpolatory Subdivision and Wavelets on an Interval*

JP du Plessis (University of Stellenbosch, RSA)  
*Mathematical Modeling of Flow Through Wood Drying Kiln Stack*

Werner R Grundlingh (University of Stellenbosch, RSA)  
*On a Combinatorial Problem Concerning Lotteries*

Nick Higham (University of Manchester, UK)  
*Pseudospectra for Polynomial Eigenvalue Problems: Theory, Computation and Application*

Karoly Jarmai (University of Miskolc, Hungary)  
*Constrained Nonlinear Optimization Techniques for Cost Minimization of Welded Structures*

A H Kara (Universtiyy of the Witwatersrand, RSA)  
*Potential Symmetry Generators of Equations with a Small Parameter*

Belinda King (Virginia Tech, USA)  
*Proper Orthogonal Decomposition for Model Reduction and Low-Order Controllers*

Yuriy Kravych (Kyiv National University, Ukraine)  
*On Some Stochastic Problem in Actuarial Science*

Ulrich W. Kulisch, (University of Karlsruhe, Germany)  
*Advanced Arithmetic for the Digital Computer*

Dirk Laurie (University of Stellenbosch, RSA)  
*Error Bracketing Pairs of Quadrature Rules*

Lisa Lorentzen (Norwegian University of Science and Technology)  
*Convergence of Continued Fractions is More than it Looks*

Jean M-S Lubuma (University of Pretoria, RSA)  
*Well Posedness of a Transmission Problem for the Stokes Operator on an Infinite Strip*

F M Mahomed (Universtiyy of the Witwatersrand, RSA)  
*Approximate Symmetries and Conservation Laws*

Milton F. Maritz (University of Stellenbosch, RSA)  
*Inverse Problems in Light Diffusion*

John McGraw (Virginia Tech, USA)  
*Some Approaches to Classification of Frequency Response Data*

C H Rower (Stellenbosch University, RSA)  
*Multiresolution Decomposition with Pulses*

Schalk W Schoombie (University of the Free State, RSA)  
*More Evolutionary Games*

Jan Snyman (University of Pretoria, RSA)  
*Trajectory Planning via Interpolation by Overlapping Cubic Arcs and Cubic Splines.*

Jean-Pierre Thiran (Fac.Univ.Namur, Belgium)  
*On the Generalized Alternating Direction Implicit Method*

Francoise Tisseur (University of Manchester, UK)  
*Bounds for Eigenvalues of Matrix Polynomials*

Maleafisha Stephen Tladi (University Of Cape Town, RSA)  
*Necessary and Sufficient Nonlinear Instability Criterion for Ageostrophic Flows*

Alna van der Merwe (University of Pretoria, RSA)  
*Fem Analysis of Models for the Control of Serially Connected Beams*

Nic van Rensburg (University of Pretoria, RSA)  
*A System of Wave Equations*

Jan H van Vuuren (University of Stellenbosch, RSA)  
*On a Combinatorial Problem Concerning Lotteries*

Andre Weideman (University of Stellenbosch, RSA)  
*Numerical Computation of Complex Singularities in Nonlinear PDEs*

Gareth Witten (University of Cape Town, RSA)  
*Competition of Three Aggregated Microbial Species for Complementary Substrates in the Rumen*

Wei-Chang Yeh, (Feng Chia University, Taiwan)  
*A Simple Algorithm to Search for all Minimal Cutsets with Unreliable Nodes*

Lizette Zietsman (Unisa, RSA)  
*Numerical Study of the Stabilization of a Beam by Boundary Control.*

## **List of Participants:**

- Goetz Alefeld (University of Karlsruhe, Germany)  
A A Adam (University of the Witwatersrand, RSA)  
Adams Tosin Adeba (National Association of Mathematics Students, Nigeria)  
Roumen Anguelov (Vista University, RSA)  
Greg Baker (Ohio State University, USA)  
Banasiak (University of Natal, RSA)  
Igor Barashenkov (University of Cape Town, RSA)  
Stephen Benecke (University of Stellenbosch, RSA)  
John A. Burns (Virginia Tech, USA)  
PW Butler (University of Stellenbosch, RSA)  
Jimbo Henri Claver (Moscow State University, Russia)  
Hanno Coetzer (University of the Free State, RSA)  
Simon Cross (University of Cape Town, RSA)  
Johan M. De Villiers (University of Stellenbosch, RSA)  
Emmanuel des Bordes (Ghana)  
GPJ Diedericks (University of Stellenbosch, RSA)  
Kathy Driver (University of the Witwatersrand, RSA)  
JP du Plessis (University of Stellenbosch, RSA)  
Adèle Geldenhuys (University of Stellenbosch, RSA)  
Werner R Grundlingh (University of Stellenbosch, RSA)  
Brian Hahn (University of Cape Town, RSA)  
Ben M Herbst (University of Stellenbosch, RSA)  
Willy Hereman (Colorado School of Mines, USA)  
Nick Higham (University of Manchester, UK)  
Karoly Jarmai (University of Miskolc, Hungary)  
Ogunniyi Kolawole Joseph (National Association of Mathematics Students, Nigeria)  
A H Kara (University of the Witwatersrand, RSA)  
Belinda King (Virginia Tech, USA)  
Yuriy Krvavych (Kyiv National University, Ukraine)  
Ulrich Kulisch (University of Karlsruhe, Germany)  
George Kwarteng (University of Cape Coast, Ghana)  
Dirk Laurie (University of Stellenbosch, RSA)

Lisa Lorentzen (Norwegian University of Science and Technology)  
Margarete Louw (University of Stellenbosch, RSA)  
Jean M-S Lubuma (University of Pretoria, RSA)  
M.K. Luhandjula (University of Fort Hare, RSA)  
F M Mahomed (University of the Witwatersrand, RSA)  
Milton F. Maritz (University of Stellenbosch, RSA)  
John McGraw (Virginia Tech, USA)  
CW Möller (University of Stellenbosch, RSA)  
Neil Muller (University of Stellenbosch, RSA)  
Isabelle Nieuwoudt (University of Stellenbosch, RSA)  
Nicky Pantland (University of Stellenbosch, RSA)  
C H Rower (University of Stellenbosch, RSA)  
Carl Scheffler (Universiteit van Stellenbosch, RSA)  
Schalk W Schoombie (University of the Free State, RSA)  
Jan Snyman (University of Pretoria, RSA)  
W. F. D. Theron (University of Stellenbosch, RSA)  
Thiran Jean-Pierre (Fac.Univ.Namur, Belgium)  
Francoise Tisseur (University of Manchester, UK)  
Maleafisha Stephen Tladi (University Of Cape Town, RSA)  
Susan van Aardt (UNISA, RSA)  
Alna van der Merwe (University of Pretoria, RSA)  
Nic van Rensburg (University of Pretoria, RSA)  
Ruby van Rooyen (University of Stellenbosch, RSA)  
Jan H van Vuuren (University of Stellenbosch, RSA)  
Andre Weideman (University of Stellenbosch, RSA)  
Gareth Witten (University of Cape Town, RSA)  
Wei-Chang Yeh (Feng Chia University, Taiwan, R.O.C.)  
Lizette Zietsman (UNISA, RSA)