

PRELIMINARY SYMPOSIUM PROGRAM AND ABSTRACTS  
AND AGENDA FOR THE  
ANNUAL GENERAL MEETING OF SANUM

Twenty-first  
South African Symposium  
on  
Numerical Mathematics

SCOTTBURGH  
10, 11 & 12 JULY 1995

SOUTH AFRICAN SOCIETY FOR NUMERICAL MATHEMATICS  
AND THE  
DEPARTMENT OF COMPUTER SCIENCE, UNIVERSITY OF NATAL (DURBAN)



## MONDAY

8:00 *Registration*

9:00 *Announcements:* DP Laurie

*Chairperson: DP Laurie*

9:10 **C Wright**

Pseudo-spectral methods and eigenvalue problems

9:30 **EHA Venter**

A Criterion for the strategy selection in a doubly adaptive integration routine

10:00 *Tea*

*Chairperson: C Wright*

10:30 **A Iserles**

Dynamics of numerics

11:30 **H Alaylioglu, Ayse Alaylioglu and CE Ackerman**

Numerical monitoring of a bridge system integrity by finite element simulation models

12:00 **JP Strauss, RC Everson, J Spoelstra**

The dynamic simulation of a packed bed distillation column

12:30 *Lunch*

*Chairperson: LM Venter*

14:00 **Alan Craig**

Highly accurate solution of the stationary convection-diffusion equation

14:30 **N Parumasur & J R Mika**

An amplitude-shape algorithm for solving systems of ODEs

15:00 *Tea*

15:30 *Annual General Meeting*

19:00 *Official opening*

19:30 *Conference dinner*

## TUESDAY

*Chairperson: J Spoelstra*

8:30 **Roumen Anguelov**

Spline-Fourier approximations of discontinuous waves

9:00 **Dr G E Okecha**

Improving the numerical evaluation of certain oscillatory integrals

9:30 **ML Baart & D Lechtman**

Axle Load Calculations

10:00 *Tea*

*Chairperson: L Baart*

10:30 **ENM Chigoba, DJ Henwood & B Mudivanhu**

Experimental results on the accuracy of the finite element and boundary element methods

10:50 **DJ Henwood & L Moyo**

A simple example of the inverse finite method and the use of a Genetic algorithm

11:10 **J Spoelstra**

2D integration with moving boundaries

11:30 **Dr M V Petrov**

Numerical solution of the turning point problem for thin shell vibrations.

12:00 **GM Moremedi and DP Mason**

Effects of surface tension on slow viscous flow past a spherical liquid drop

12:30 *Lunch*

*Chairperson: DJ Henwood*

14:00 **NT Bishop**

The 3d wave equation with Cauchy-characteristic matching

14:30 **MA Coetzee & ML Baart**

Investigation of smoothness in quadric patch constructions

15:00 *Tea*

## WEDNESDAY

*Chairperson: A Knopfmacher*

8:30 **D Eyre**

High performance FORTRAN

9:00 **IM Snyman**

Frictional calculations and the finite element method

9:30 **Dirk P Laurie**

Exact difference methods for differential equations

10:00 *Tea*

*Chairperson: IM Snyman*

10:30 **A Iserles**

Numerical analysis of isospectral flows

11:30 **Arnold Knopfmacher**

Polynomials with a restricted factorization pattern

12:00 **Jacob Manale & Fazal Mahomed**

Beyond the gravitational law

12:30 *Lunch*

## Annual General Meeting

Agenda for the Annual General Meeting of the South African Society for Numerical Mathematics to be held on Monday 10 July 1995 in the Cutty Sark Hotel, Scottburgh.

1. Minutes of the AGM, 5 July 1993
2. Matter arising
3. Membership of the IMU
4. Chairman's report
5. Financial report
6. Election of Committee for 1995/1996
7. 1996 Symposium: dates, venue and visitors
8. General

## Algemene Jaarvergadering

Agenda vir die Algemene Jaarvergadering van die Suid-Afrikaanse Vereniging vir Numeriese Wiskunde wat op Maandag 10 Julie in die Cutty Sark Hotel te Scottburgh gehou sal word.

1. Notule van die AJV, 5 Julie 1995
2. Sake uit die notule
3. Lidmaatskap van die *IMU*
4. Voorsittersverslag
5. Finansiële verslag
6. Verkiesing van bestuur vir 1995/1996
7. 1995 Symposium: datums, plek en besoekers
8. Algemeen