

**Proceedings  
of the ninth South African**

**SYMPOSIUM  
ON  
NUMERICAL MATHEMATICS**

**Durban 18, 19 & 20 July 1983**

**sanum & the  
dept.of computer science  
university of natal  
durban**



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edited by

JA Snyman

Report number CS.07.03.02.83

Published by the Department of Computer Science  
University of Natal, Durban 1983.

ISBN 0-86980-347-6

ISSN 0379-8844

## PREFACE

Since the first symposium on Numerical Mathematics held in 1975, the Symposia, organised by the Department of Computer Science of the University of Natal, have become major annual events on the South African mathematical calendar. The ninth Symposium, the second to be organised in conjunction with the South African Society for Numerical Mathematics (SANUM), was held in Durban on 18, 19 and 20 July 1983. A total of 29 papers were read to a gathering of more than 40 delegates.

The Proceedings are a published record of most of the papers presented. The choice was left to the authors as to whether they wished to publish their papers in full or as a summary. All contributions included in the Proceedings are published as received from authors.

Invited papers were read by Professor LM Delves of the University of Liverpool and by Professor Victor Pereyra of the University of Venezuela.

The organisers again wish to express their gratitude to IBM (South Africa) for their generous financial support, not only of the Ninth Symposium, but for their sponsorship over the years since the inaugural Symposium in 1975. Through their assistance we are able to look forward to celebrating the Tenth Symposium on Numerical Mathematics on 2-4 July 1984. This support has enabled us to regularly invite overseas speakers thus greatly stimulating research in this field in Southern Africa. Our sincere thanks also to Univac for their generous contribution to our Ninth Symposium.

The Society also wishes to express a special word of appreciation and thanks to Ms Ethel Carte of the Computer Science Department for assisting with the organisation of the Symposium.

JA Snyman  
(Secretary SANUM)

PARTICIPANTS

- A Alaylioglu (Council for Scientific and Industrial Research, Pretoria)  
 CJ Ammann (Department of Computer Science, University of Natal, Durban)  
 L Baart (Council for Scientific and Industrial Research, Pretoria)  
 GN Bakkes (Inst. of Ground-water Studies, University of the Orange Free State)  
 P Bantock (IBM SA (Pty) Ltd., Pretoria)  
 RAB Bond (Department of Mathematics, University of Natal, Durban)  
 JF Botha (Inst. of Ground-water Studies, University of the Orange Free State)  
 GB Brundrit (Dept. of Physical Oceanography, University of Cape Town)  
 JD Buys (Department of Mathematics, University of Stellenbosch)  
 Ian Christie (Dept. of Mathematics, West Virginia University, Morgantown, USA)  
 E Cloete (Natal Technikon, Durban)  
 LM Delves (Dept. of Statistics & Computational Maths., University of Liverpool)  
 D Eyre (Council for Scientific and Industrial Research, Pretoria)  
 GP Greyvenstein (Department of Mechanical Engineering, Potchefstroom University)  
 CC Handley (Department of Computer Science, University of Natal, Durban)  
 SV Joubert (Technikon, Pretoria)  
 JD Kies (Department of Computer Science, University of Western Cape)  
 DP Laurie (Council for Scientific and Industrial Research, Pretoria)  
 DS Lubinsky (Council for Scientific and Industrial Research, Pretoria)  
 HG Miller (Council for Scientific and Industrial Research, Pretoria)  
 JJ Murphy (UCOR, Pretoria)  
 DM Murray (I.M.T., Simonstown)  
 JD Neethling (Nuclear Corp., Pretoria)  
 V Pereyra (Caracas School for Computation, Central University of Venezuela)  
 H Riphagen (Council for Scientific and Industrial Research, Pretoria)  
 L Rolfe (Council for Scientific and Industrial Research, Pretoria)  
 CH Rohwer (I.M.T., Simonstown)  
 JW Rossouw (NUCOR, Pretoria)  
 AG Sartori-Angus (Department of Computer Science, University of Natal, Durban)  
 SW Schoombie (Dept. of Applied Mathematics, University of the Orange Free State)  
 RK Skinner (University of Durban-Westville, Durban)  
 IM Snyman (Dept. of Applied Mathematics, University of Pretoria, Pretoria)

JA Snyman (Dept. of Maths. & Applied Mathematics, Unisa, Pretoria)  
J van Heerden (UCOR, Pretoria)  
JJ van Rensburg (KERNKOR, Pretoria)  
DJ van Wyk (Dept. of Maths. & Applied Maths., Potchefstroom University)  
MP van Rooy (Technikon, Pretoria)  
L Viljoen (Technikon, Pretoria)  
JAC Weideman (Dept. of Applied Mathematics, University of the Orange Free State)  
KE Wojciechowicz (Barclays Bank, Johannesburg)  
CJ Wright (Dept. of Applied Mathematics, University of the Witwatersrand)



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