

Annual Report for 2010

Officers and Council for 2009/2010

President: J.D. Skinner
Vice Presidents: E.J. Carruthers & D.C. Cowan
General Secretary: A.S. Dippenaar-Schoeman
Foreign secretary: A.J. Ribbink
Treasurer: M.P. Janssens
Editor: D.M. Avery
News Bulletin editor: S.P. Sasidharan
General members of Council:
G. Avery, B. Billings, E. Elliott, J Farrant, J. S. Hofmeyr, P. T. Kaye,
E.D. Sturrock
Co-opted Members:
D.E. Rawlings

Report of the General Secretary for 2010

SPECIAL PROJECTS

2010 RSSA SCIENCE ESSAY COMPETITION

Towards the end of December 2009, the entry forms for the 2010 Science Essay Competition were posted to about 560 schools across the country, to arrive in time for the schools opening in mid-January. The closing date was changed this year to 3rd May to give teachers and pupils a longer period for submissions and to avoid the Easter vacation period.

The essay titles for 2010 were:

For Secondary School entries:

- 'Stem cell research: what, in your opinion, are some of the opportunities and challenges'
- '2010 is the International Year of Biodiversity. Write an essay on 'Biodiversity: why does it matter to South Africa?'
- 'Will nanotechnology revolutionise the way we detect and cure disease in South Africa?'

For Primary School entries:

- 'South Africa has a wealth of medicinal plants. How best can these plants be exploited for modern medicine while still protecting our biological resources?'

To make the quantity of marking more manageable, schools were requested to pre-select the best essays and submit no more than three per topic. A total of 99 essays were received, again the Primary school entries were lower than in previous years. Two essays were selected for Volume 65(2) of the *Transactions of the Royal Society* to be published later in 2010.

Prof Edward Sturrock, the Convener of the Essay Competition, arranged for markers. They were Kerry Gordon, L B Coulson, R G Douglas, all senior PhD students, and Jean Watermeyer, a post-doctoral student. The following results were announced:

2010 RSSA Science Essay Competition Winners

(* for publication in the Transactions)

Secondary School entries:

Topic - *'Stem cell research: what, in your opinion, are some of the opportunities and challenges'*

1. *Kate Muckart, Grade 11, St Marys DSG Kloof
2. Richard Burman, Grade 12, Rondebosch Boys High School
3. Jaimee van Niekerk, Grade 12, Wynberg Girls High School

Merit Awards:

Ilan Kinkel, Grade 12, Hirsch Lyons Boys High School
Mark Hodgson, Grade 10, St David's Marist, Inanda
Julia Green, Grade 12, Wynberg Girls High School

Topic - *'Biodiversity : why does it matter to South Africa?'*

1. *Chelsea Tucker, Grade 11, St Andrew's School for Girls, Bedfordview
2. Kirsten Dey, Grade 11, St Mary's D.S.G. Kloof
3. Nicola Suttle, Grade 12, Wynberg Girls High School

Merit Awards:

Mohlakudishe Ramontja, Grade 11, Bopedi Bapedi High School
Claudine Jordaan, Grade 11, Hoer Volksskool, Potchestroom
Aqeela Meer, Grade 10, Parktown High School for Girls

Topic - *'Will nanotechnology revolutionise the way we detect and cure disease in South Africa?'*

1. Abigail Janisch, Grade 11, Kings School Linbro Park
2. Andrew Beeton, Grade 11, St Stithians Boys College
3. Lee Cackett, Grade 11, St Mary's DSG

Merit Awards:

Nicholas Cuthbertson, Grade 11, St Stithians Boys College
Lesedi Chibvupe, Grade 11, LIIVHA Combined School
Yumna Gaibee, Grade 11, Parktown High School for Girls

Primary School entries:

Topic - *'South Africa has a wealth of medicinal plants. How best can these plants be exploited for modern medicine while still protecting our biological resources?'*

1. Shannon de Vries, Grade 7, Bryandale Primary School
2. Amber Godsell, Grade 7, Kings School Linbro Park, Linbro Park
3. Trent Panzera, Grade 6, Bryandale Primary School

Merit Award:

Shassie Janisch, Grade 7, Kings School Linbro Park, Linbro Park

Sixteen out of the twenty-two prizewinners were presented with their prize and certificate by a member of the Royal Society, namely Profs Jane Carruthers FRSSAf and Andrea Fuller and Drs Graham Avery and Carola Niessler as well as RSSA Councillors Pierre Janssens and Brendon Billings at a time arranged with the school. Professionally printed certificates were posted to the other prizewinners.

Interesting features of this year's competition:

- RSSA Vice-President Prof Jane Carruthers and Branch Council Member, Dr Ivan May arranged for a few of the winners and their teachers to be interviewed on Radio Today.
- The Gauteng Department of Education was so impressed with one of the letters of praise for the competition received from the Head of Life Science of St Mary's in Kloof - they have undertaken to assist the Society in 2011 in getting more schools involved.
- Cash prizes were awarded to all prizewinners of each essay category. 1st Prize - R2 000, 2nd Prize - R1 250 and 3rd prize - R750. This year, as the Claude Leon Foundation had generously increased their sponsorship to R30 000, the Society decided that, instead of increasing the amounts awarded, to spread the prize money by awarding R250 to the Merit Prize winners as well. The total prizes amounted to R18 500.

The essay markers received a stipend of R20 per essay marked, amounting to a total of R1 980. The professional printing of the 22 certificates cost R413.82. The Society's administration expenses which included postage, photocopying, and the time of the Office Administrator amounted to R8 140. The total expense was thus R29 033.82.

The titles for the 2011 Competition was discussed at the Council meeting on 28th September 2010 and finalized as follows:

Secondary School entries

- 'Is Green Chemistry sustainable in South Africa? Debate its environmental impact vs economic benefits.'
- 'How would you promote a culture of science in the country as Minister for Education in SA?'
- 'Is the Square Kilometre Array (SKA) telescope project justified?'

Primary School entries

- 'How on earth does that plant fuel a car?'

The Royal Society of South Africa thanks the CLAUDE LEON FOUNDATION for its kind and magnanimous donation towards the science essay competition. The Society receives numerous letters of thanks and appreciation from teachers and pupils alike.

CLAUDE LEON FOUNDATION SCHOLARSHIPS

Doug Rawlings reported that 132 applications for Claude Leon Foundation Fellowships had been received. The applications have been reviewed by a total of 29 reviewers. The final review meeting took place on 9 October at the home of Dave Woods who is currently the Trustee that oversees the process.

Although these post-doctoral fellowships are advertised nationally, a disproportionately large number of applications were again for post-docs at the three universities in the Western Cape.

ANNUAL DINNER 2010

The Society's Annual Dinner and Induction of New Fellows was held on the evening of Tuesday, 28th September 2010 at the Gavin Relly Postgraduate Village Dining Hall (previously the 'Settlers' Motel') in Grahamstown. About 56 people attended.

The following Fellows were inducted: Gregory Lloyd Blatch (2008), Lesley Alison Cornish (2009), Alan Nicholas Hodgson (2008), Anthony James Ribbink (2009); Roger Malcolm Harris Smith (2008); John Francis Thackeray (2009); Fanie Retief van Heerden (2009) and the Meiring Naude Medal for 2010 was presented to Stephan Wagner.

Prof Pat Terry of the Computer Science Department at Rhodes delivered the dinner speech entitled "The humanity in Science".

The Schonland Memorial Lecture preceded the dinner and was presented by Prof Peter Vale FRSSAf, Nelson Mandela Prof of Politics in the Department of Political and International Studies at Rhodes University. The lecture was entitled "What has happened to the Humanities in the 21st Century"

PROGRESS OF THE ROYAL SOCIETY IN 2010

In consultation with Prof John Skinner, the President, the following brief report submitted by Prof Jane Carruthers, Vice President, covers the major activities of the Society during the year 2010.

Apart from the illness of the President, the Society has had a productive year. A new Council was elected early in 2010 and three meetings were held.

The Annual Meeting, held for the first time in Grahamstown, was a resounding success, thanks to the efforts of the Eastern Cape Branch, in particular Prof Perry Kaye and Dr Tony Ribbink, with the assistance of the Young Royals. The Society is extremely grateful for their hard work. On this occasion, three Fellows of 2008 were inducted, four from 2009 and the Meiring Naude Medal was presented. The annual Schonland Lecture (by Prof Peter Vale) formed part of the proceedings.

At the September Council meeting, ten new Fellows were elected and during the year a satisfactorily large number of members joined the Society, although more would be welcome. The John Herschel Medal was awarded to Prof Keith Paul Klugman and the Meiring Naude Medal to Dr Amanda Weltman. In addition, for the first time, Honorary Membership (a new category) came into being, and three Honorary Memberships were awarded to Mark Read, Dr Case Rijsdijk and Richard S Rubidge.

Teething troubles regarding the publication of the Transactions were addressed by editor Dr Margaret Avery and, although late, issue no. 65(2), a commemorative volume in honour of D.S. Henderson, appeared. Other issues are on track, although more manuscripts are needed.

The Society's wide variety of activities continued during 2010 – these are reported upon elsewhere. Branches were active and plans are afoot to establish Young Royals in the Northern Areas Branch and in KwaZulu-Natal. A Facebook presence for the Society should also come onstream during 2011.

Administratively there have been anomalies arising from a lack of consistency in the Society's Statutes and Standing Orders that have caused a few difficulties with nomination procedures, elections, status of branches, new awards etc. We are grateful to Dr Margaret Avery and Dr Graham Avery for their work in ironing out contradictions, overlaps and archaic language. Their new documents should be ready for Council and Society approval in the course of 2011.

As was the situation in 2009, the major challenge for the Society is its financial viability. During the year ahead steps will have to be taken to raise funds and progress in this regard will be noted at Council meetings ahead.

BRANCH ACTIVITIES

EASTERN CAPE BRANCH - CHAIRPERSON'S REPORT

During the year under review (1st January – 31st December, 2010), the activities of the Eastern Cape Branch of the Society have been coordinated by the committee elected at the Annual General Meeting held on 19 April, 2010 and comprising:

Professor Perry Kaye (Chair)
Prof Janine Adams (Port Elizabeth Liaison)
Prof Mike Davies-Coleman (Secretary)
Dr Tony Ribbink (Young Royals Liaison)
Professor Alan Whitfield (Treasurer)
Professor Rosemary Dorrington (Young Royals Liaison)

The Branch cost-centre has been controlled by Mrs Benita Tarr, the Chemistry Departmental Administrator, and we are grateful for her ever efficient assistance. We also acknowledge with gratitude the very positive financial and moral support which Rhodes University has provided. Following discussion at Council, the Young Royals are now viewed as a "project" of the Eastern Cape Branch and, consequently, their RSSAF funding has been accommodated within the Branch budget.

Activities for the year have included the following.

- The 2010 Amy Jacot-Guillamod Memorial Lecture, entitled "The Okavango Delta – an ecosystem engineered by life", was presented by Professor Fred Ellery, Head of the Department of Environmental Science at Rhodes on Monday, 19th April, 2010, and followed the 2010 Annual General Meeting. We have again appreciated the ongoing and cordial relationship which we enjoy, in the Eastern Cape region, with the Academy of Science of South Africa – enabling us to co-host this Lecture.
- In line with our plan to extend Society functions to other centres in the Eastern Cape, Professor Rosemary Dorrington and Professor Fred Ellery very kindly repeated lectures, previously presented at Rhodes, at Nelson Mandela Metropolitan University (NMMU). We appreciate the support provided by our NMMU colleagues in hosting these events. In further outreach, Dr Tony Ribbink presented a lecture in KwaZulu-Natal, entitled "Africa's evolutionary enigmas: coelacanths, humans and cichlids."
- The 2010 Schonland Memorial Lecture was presented by Professor Peter Vale, Nelson Mandela Professor of Politics at Rhodes, on Tuesday, 28th September, 2010; his lecture entitled, "What happened to the Humanities in the 21st Century?" gave expression to our commitment to bridging the Science-Humanities "divide".
- As the Eastern Cape Branch of the Society, we were privileged to host the Council meeting and the 2010 Annual Dinner and Ceremony for the Induction of New Fellows at Rhodes on Tuesday 28th September – an historic occasion since this is the first time that this event has been held outside of the Western Cape, let alone the Eastern Cape or Grahamstown! Professor Pat Terry's insightful and humorous after-dinner speech on "The Humanity in Science" was particularly well received.

We warmly congratulate the following Fellows and Members of the Society on their recent achievements.

- Professor Tebello Nyokong (FRRSAf) whose achievements continue to be recognised. During 2010, she received the Vodacom - Lesotho Hall of Fame, Lifetime Achievement Award (Education Category), and was awarded two Honorary degrees, viz., Doctor of Science *Honoris Causa* by Walter Sisulu University and Doctor of Science *Honoris Causa* by the University of South Africa.

- Dr Tony Ribbink and Professors Greg Blatch and Alan Hodgson, who were inducted as Fellows of the Society at the ceremony held in Grahamstown.
- Professor Alan Hodgson (FRSSAf), who received the 2010 Vice-Chancellor's Senior Distinguished Research Award.
- Professor Alan Whitfield (FRRSAf) for the award of the degree of Doctor of Science from Rhodes University.

As Chair of the Eastern Cape Branch of the Society during 2010, I must record my sincere thanks to:

Prof Janine Adams for her assistance with arranging the Port Elizabeth meetings;
 Professor Mike Davies-Coleman for his efficient and willing support as Secretary and enthusiastic involvement with the Young Royals;
 Dr Tony Ribbink, for his continued support and wise advice;
 Professor Alan Whitfield and Mrs Benita Tarr for their conscientious and efficient control of the Branch finances;
 Professor Rosemary Dorrington for handling the venue and catering arrangements for the Council meetings and Annual Dinner so efficiently; and
 Dr Sunny Sunassee for his leadership of the Young Royals Society at Rhodes during 2010.

KwaZulu-Natal branch

BRANCH COMMITTEE

Dr Edith Elliott (Chair and representative)
 Prof Dean Goldring (Publicity/News letter)
 Prof Guy Bate (Co-Chair)
 Prof Theresa Coetzer (News letter)
 Mrs Robyn Hillebrand (Treasurer)
 Dr Carola Niesler (Awards)
 Mrs Charmaine Ahrens (Secretary)
 Prof Stefan Schmidt (Liaison/program)
 Prof Trevor Hill (Young Royals)
 Prof Fanie van Heerden (Program) (new for 2011)

The committee met 3 times formally (though e-mail in contact) and twice informally in 2010 to discuss the lecture program, nomination for Fellowships and medals, essay prize awards (Carola Niesler presented the 3 awards to students at St Mary's School for Girls this year).

PIETERMARITZBURG LECTURE PROGRAM FOR 2010

Venue: John Bews Lecture Theatre, Carbis Road, UKZN, Pietermaritzburg.

1. 18th March 2010: Gavin Whitelaw (SABC "Shoreline" and Museum) - An iron-age fishing tale.
2. 14th April 2010: Patrick Abuthnot (Antiviral Gene Therapy Research Unit, Wits) - The considerable potential of gene therapy.
3. 21st April 2010: Prof Steve Johnson (Biological and Conservation Sciences – Botany, UKZN) – Pollination biology: exposing the sex life of plants.
4. 26th August 2010: Dr Allan Connell (Previously of CSIR) - Ocean Currents, Fish Eggs and DNA Barcoding.
5. 16th September 2010: Dr Ribbink (CEO Sustainable Seas Trust) - Africa's Evolutionary Enigmas: coelacanths, humans and cichlids.
6. 14th October 2010: Prof Roland Schulze (Agri Science and Agri Business, Hydrology, UKZN) – Climate change impacts on the South African society.

All talks are well attended by in excess of 40 people. The Natal Witness now runs a free events advert if the details of the talk are lodged by Tuesday the preceding week. This works extremely well and has resulted in a large following of members of the public and school teachers (a resource of membership still to be tapped). Announcements also go out to members and Fellows (and those who ask for their names to be placed on a mailing list) and via our university innerweb announcement system.

ESTABLISHMENT OF DURBAN BRANCH

Dr Paula Sommer (Biological and Conservation Sciences, UKZN) together with Dr Judy Mann-Lang (Director of uShaka Sea World/SAAMBR, new RSSA member), Dr Dalene Vosloo (Biological and Conservation Sciences, UKZN, RSSA application pending) and Prof Mike Perrin (Biological and Conservation Sciences, UKZN, new Fellow) will constitute the founding Durban RSSA Branch committee.

The first meeting of the Durban Branch committee will be held after the first lecture by Prof Mike Perrin on Thursday 17 February 2011, at the NPC Sea World Education Centre at uShaka Marine World, Durban. Prof van Heerden, Prof Guy Bate and I will attend as members the Pietermaritzburg Branch committee to guide the formation of the Branch committee.

The first lecture from the Durban Branch will be by Prof Mike Perrin "Polly Gone? The Extinction of some Parrot Species" on Thursday 17 February 2011. It is intended to host at least 4 lectures in Durban this year.

PROGRESS ON YOUNG ROYALS IN KZN

Prof Trevor Hill has taken on this portfolio and discussions between Dr Tony Ribbink are ongoing. The Eastern Cape YR Chair is overseas so a 2005 constitution has been handed over until the update is available. No response from Dr Brendon Billings has been received as yet but this will proceed and small amount of seed funding will be required.

Northern Branch

BRANCH COMMITTEE

After nominations were called for and received, and an election held, the following people have formed the Northern Branch Committee since June 2010:

Prof Jane Carruthers, Chair
Prof Andrea Fuller, Vice Chair
Prof Nigel Bennett, Treasurer
Dr Rudi Bigalke
Prof Ansie Dippenaar-Schoeman
Dr Ivan May, Secretary
Dr Sasi Sasidharan, Co-opted. Editor of the Newsletter
Prof Francis Thackeray
Prof Rudi van Aarde
Prof Brenda Wingfield

The committee met formally on 8 June and 4 November and members were in regular email contact throughout the year.

We would like to record our gratitude to Prof Rudi van Aarde for his leadership of the Branch as its Chairman since 2007. His efforts in resuscitating the Branch itself and energising its activities are greatly appreciated and have set the Royal Society in the Northern Areas on a productive future trajectory.

We are very sorry to have to record the sudden deaths of committee members Prof Tim Partridge in December 2009 and Dr Ivan May in December 2010, and the serious illness of Prof Nigel Bennett. As a new member of the Committee this year, Dr May was extremely active and helpful and he provided novel and interesting ideas for outings and activities. We hope to put some of them into practice during 2011.

We are also sorry to record President John Skinner's serious illness that began in September 2010. He has always been a strong supporter of the Branch and attended many of our meetings and we have missed his input.

LECTURE PROGRAM FOR 2010

1. 14 April 2010: Ms Sian Tiley-Nel (University of Pretoria) -Managing Mapungubwe's archaeological heritage: A museum perspective.
2. 14 August 2010: Australopithecus sediba: Special event and private fossil viewing. This Saturday event was a great success, affording Society members a unique opportunity to view the Malapa hominid fossils from the Cradle of Humankind. There were two speakers: Prof Lee Berger and Prof Francis Thackeray.
3. 25 August 2010: Dr Adrian Tiplady (Johannesburg Observatory, joint function with SAASTA). (Johannesburg Observatory, joint function with SAASTA) - The square kilometre array: The last great astronomical adventure' This evening function included a lecture on the use of the

- telescope in this Observatory, facilitated by Prof Francis Thackeray.
4. 28 October 2010: Charles Stride (University of Pretoria). - The challenges facing science and research in South Africa.

SETAG and NSTF

This Branch is responsible for attending meetings of the above organisations whenever possible. Prof Caruthers attended the NSTF meeting on 3 May 2010.

Western Cape Branch

WESTERN CAPE BRANCH LECTURES FOR 2010

17th February : Prof Gary Stevens, SARChI Chair in Experimental Petrology, Department of Earth Science, Stellenbosch University - *The Origin of Earth's early Continents.*

17th March: Prof Douglas Rawlings (University of Stellenbosch) - *The Origin of Life.*

14th April: Prof Jannie Hofmeyr (University of Stellenbosch) - *The wondrous art of making yourself: Self-fabrication as the key discriminator between life and non-life.*

19th May: Dr David Braun (University of Cape Town) - *In the footsteps of our ancestors: recent advances in understanding Human Evolution.*

23rd June: Prof Alan Christoffels (University of the Western Cape) - *Genomics perspective of a (post)colonial disease - sleeping sickness.*

18th August: Prof Heinrich Schwoerer (University of Stellenbosch) - *The power of light - remarks on the occasion of the 50th birthday of the laser.*

15th September: Prof Jill Farrant (University of Cape Town) - *Resurrection plants: unique Southern African plants that enable understanding of extreme water deficit (drought) tolerance.*

20th October: Prof Stephanie Burton (Biocatalysis and Technical Biology Research Unit, CPUT) - *Antioxidants - improving on Nature's protection agents by using Nature's catalysts.*

17th November: Prof Kelly Chibale (University of Cape Town) - *Discovering modern medicines while making traditional medicines safer: scientific challenges and opportunities.*

FELLOW AND MEMBERSHIP REPORT FOR 2010

FELLOWS

Total Ordinary Fellows: 212

Total Hon Fellows: 35

New Honorary Fellows: nil

New Fellows 2010: 10 (see full details below)

Resignations: T H Bothwell, A V Hall (due to ill health), B Schoub

Arrearists removed : B V Burger, L Compagno, J R Duncan, H Huismans

H Koomhof

Deceased Fellows: J R Moss

MEMBERS

Total Members: 200

New Members welcomed in 2010: 42 - M J Bekker, F Roelofse, M A Spocter, U Algar, D Davis, A Georgeson, O O Babalola, U Graven, M Kraus, M R Shinn MP, B Sun, P Arbuthnot, L L Sibali, A C Leech, D M Brits, T J M Daly, G Erlank, C Hartmann, M Hosie, A O Ihunwo, N Masumbuko-Kahamba, F Mtunzi, R McNeil, G Ramon, R Singh, P Sommer, C J Fenner, K Harding, L C R Meyer, P S Nyasulu, K Scheuermaier, W E van Zyl, Z Vuijssic, F J Kruger, Lindsay Marshall, W A Smit, S G Burton, M Herron, R C Hobbs, A J Lambrechts, D Mitchell, P M U Schmitz

Members who became Fellows: A Knöpfmacher, M Perrin

Students who became Full Members in 2010: S Sasidharan

Members Resigned: M Grundlingh

Arrearists Removed : W Ledgerwood, A Odosanya, A Oelofse, A R Palmer, P Rose, G Rossouw, F Tudor Price, M Singo, N Van Schaik, L E Webley, B Zipfel, Danita de Waal, B. E. Kelbe,

J Rogers, W J Muller, F T Robb

Members Deceased: Ivan May

COMPLEMENTARY MEMBERS (TEACHERS OF ESSAY PRIZE WINNERS)

Sue Marsden, Shaukat A Ebrahim,

STUDENT MEMBERS

Total Student Members: 25

New Student Members welcomed in 2010: A M Surgey, B H Daru, M Du Plessis, E Hutchinson, A Jovanovic, O Olateju, D Reddy, M V Kuwong, D Moyo, L Chibvupe,
Resigned : nil

Arrearists removed : 2

NEW FELLOWS 2010

MINO RODOLFO CAIRA

Professor of Physical Chemistry at University of Cape Town &
Director of Centre for Supramolecular Chemistry Research, University of Cape Town

Prof Caira studied chemistry at UCT, where he was awarded the BSc (Honours) with 1st class in 1970, MSc with distinction in 1971, and PhD in chemical Crystallography in 1975. After his PhD he joined the academic staff of the University of Port Elizabeth as a lecturer in Physical Chemistry, and was promoted to Senior Lecturer and Associate Prof before rejoining the University of Cape Town where he was promoted to a full chair in Chemistry in 2002. He has 274 publications to his credit, and his research has been in the field of solid-state chemistry with particular reference to the structure and characterisation of pharmaceutical compounds. He is known worldwide for his studies on the polymorphism of drugs and their inclusion into cyclodextrins. Beside several papers on this topic, his chapters "Topics in Current Chemistry" and in the "Encyclopaedia of Separation Science" are often quoted by researchers in this field. His research has given rise to five patents, including two, which describe products for in the South African market.

Prof Caira's talents have been recognised in numerous ways. He is regularly called to teach postgraduate courses abroad (University of Cluj Napoca in Romania, University of Ilorin in Nigeria, Universities of Pavia and Parma in Italy). He has received several significant awards, including the degree Doctor Honoris Causa by the University of Pharmacy and Medicine "Iuliu Hatieganu" in Romania (2002), is a Fellow of UCT (2004) and received the Gold Medal of the South African Chemical Institute in 2009. He currently holds the position of Prof of Physical Chemistry at UCT and is the Director of the Centre for Supramolecular Chemistry Research at UCT.

FRIEDRICH PAUL CILLIERS

Professor in Philosophy and Complexity, Department of Philosophy and Centre for Studies in Complexity, University of Stellenbosch

Prof Cilliers is currently regarded as one of the most important philosophers in South Africa and, internationally, a leader in the field of philosophy of complexity. He holds an NRF A-rating and also won the prestigious Harry Oppenheimer Fellowship Award and Gold Medal. He is also an elected member of the Academy of Science of South Africa. He originally trained as an electronic engineer and worked for a number of years as a research engineer at the Institute for Maritime Technology, specialising in pattern recognition by neural networks. While working he registered for B.A.Hons, M.A and PhD in Philosophy at Stellenbosch University and was appointed as lecturer, senior lecturer, associate Prof, and, in 2003, full Prof in Philosophy. In 2009 he started, with prof Jannie Hofmeyr, the Centre for Studies in Complexity at Stellenbosch University.

His book Complexity and Postmodernism. Understanding complex systems, which is based on his PhD thesis, made his name internationally and he has been an invited speaker at numerous international conferences and workshops. He has co-edited two books and published a number of book chapters and ground-breaking papers in peer-reviewed journals. Being a voracious reader, he has established himself as one of the major book reviewers in South Africa. His research has contributed to many aspects of complexity theory, especially with regard to limits, constraints, boundaries, and hierarchies. He is also regarded as an expert on Derrida and deconstruction, and was invited to organise a session on Derrida and complexity at the recent London Derrida conference. A recent research focus is on the ethical aspects of complexity. He has also collaborated and published with colleagues from widely different fields such as law, medicine, and natural resource management.

CHERYL MERLE DE LA REY

Vice-Chancellor and Principal, University of Pretoria

After being born and schooled in KwaZulu-Natal Cheryl de la Rey obtained her PhD in psychology in 1999 from the University of Cape Town. She has had an extensive career in teaching, both at secondary school level and at tertiary education level, working her way up from junior lecturer to lecturer at the University of Durban-Westville and then from senior lecturer to Prof of Psychology at the University of Cape Town. She has maintained a solid research output: co-editor of two books, co-author of an introductory psychology textbook, 15 chapters in books, 29 papers in peer-reviewed journals, and a number of reports and conference proceedings. Her research covers a wide range of topics around the focus of woman's roles in society; she has written on racism, feminism and gender issues, the death penalty, and women's leadership, amongst others.

Besides being a productive and highly respected academic, Cheryl de la Rey has made an enormous contribution to the management of research and education in South Africa, holding key positions at both university and national level. She served as Deputy Vice-Chancellor Research at the University of Cape Town and is currently Vice-Chancellor and Principal at the University of Pretoria. In between she served as Chief Executive Officer at the Council for Higher Education. A national level she served a term as Executive Director for Research Promotion at the National Research Foundation (NRF) and is currently a member on a number of panels of the NRF, SET4W, and the Dept. of Education. She also chaired the Centre for the AIDS Programme of Research in South Africa (CAPRISA) for two years. She is currently also a member of the International Council of Science's Strategy and Planning Committee, the Council of the Botswana University of Science and Technology, the National Advisory Council on Innovation (NACI), the Oppenheimer Memorial Trust and the Board of the Stellenbosch Institute for Advance Studies (STIAS). Through her involvement in all these institutions and programmes she has gained a deep knowledge and understanding of the research and education environment in South Africa.

PATRICK GEORGE ERIKSSON

Professor of Geology and Head of Department, University of Pretoria

A committed educator, he has supervised 14 MSc's and 4 PhD's, and maintains excellence in undergraduate teaching. He has authored and co-authored over 180 papers in peer reviewed geological journals and books. Prof Eriksson is Editor-in-Chief of the Journal of African Earth Sciences and is an associate editor of Gondwana Research and of the Journal Marine and Petroleum Geology. He has also received the University of Pretoria's Exceptional Achievers Award three times, as well as the Chancellor's Medal. He currently holds an A-rating from the South African National Research Foundation. His contribution to Geology had been recognised by awarding him a Fellowship of the Geological Societies of Africa and of South Africa, a member of the Academy of Sciences of South Africa and the South African Gold Medal of the S2A3. His most recent achievement has been the recipient of the Continental Union Scientific Award.

Having been awarded his PhD from the then University of Natal in 1984, his early career focussed on deducing the palaeo-environmental conditions under which the Karoo Super-group was deposited. Upon subsequently taking up a lectureship at the University of Pretoria, he focussed his attention on the sedimentation of the Transvaal Super-group, which ignited his passion for unravelling the geological and biological history of the Precambrian Earth. This work culminated in him being awarded a Habilitation from LMU, Munich in 1998. During the course of his career, this interest led him to approach the mysteries of the Precambrian on an ever-increasing scale, from the local to the global. In recent years, he has been instrumental in the application of sequence stratigraphy to Precambrian sedimentary strata which has, in turn, led to his identification of global-scale patterns of sedimentation, tectonism and magmatism in the early evolution of the Earth. In 1997 he founded the Global Precambrian Sedimentation Syndicate, which brought together a small group of leading academics from around the world. This group has since published 7 special issues of international journals and three internationally published books, covering enigmas of geology of the Earth during the Precambrian.

ARNOLD KNOPFMACHER

Research Professor in Mathematics, John Knopfmacher Centre for Applicable & Number Theory, University of Witwatersrand

Prof Knopfmacher obtained a PhD in mathematics in 1986 and has been employed as an academic by the University of the Witwatersrand since 1987. He has been the recipient of numerous research awards, including The Meiring Naudtje Medal for 1991, awarded by the Council of the Royal Society of South Africa, and The President's Award for 1989 & 1992: Administered by the Main Research

Support Programme of the Foundation for Research and Development, subsequently re-awarded to him for the period 1993-1996. Since then he has maintained a prestigious NRF B2-rating for the last fourteen years. In December 1999 he was made a Research Prof in Mathematics in recognition of his research achievements.

He recently reached a rare milestone in mathematics, that of having over one hundred papers listed in the Mathematics Reviews of the American Mathematical Society, available electronically at <http://www.ams.org/mathscinet/>. He has worked with many top local and international mathematicians, including former and current fellows of the Royal Society, John Knopfmacher, Doron Lubinsky and Helmut Prodinger. His publications have appeared in many top international journals, including, but not limited to Transactions of the American Math. Society, Proceedings of the American Math. Society, Proc. Edinburgh Math. Society, Advances in Applied Math., Journal of Combinatorial Theory Series A, The Ramanujan Journal, SIAM Journal on Discrete Math., Journal of Number Theory and Discrete Mathematics. He is currently Director of the John Knopfmacher Centre for Applicable Analysis and Number Theory, a Wits University recognised research unit, established in 1992.

MARCELO PATRICIO LOEWE

Professor of Physics, Pontifical Catholic University of Chile

Prof Loewe is an internationally highly recognized theoretical physicist who has made exceptional contributions to the fields of High Energy Physics and Quantum Field Theories. This is highlighted by his citation record of 1423 citations of his close to 90 published papers, giving him an outstanding Hirsch h-factor of 20 according to SPIRES (the High Energy Physics data base of the Stanford Linear Accelerator Center, California, USA). His research interests have focused on (a) quantum field theories, in particular Quantum Chromodynamics, at finite temperature and density, a subject that relates to the behaviour of the Universe shortly after the Big Bang, and which is explored experimentally at e.g. the LHC (Large Hadron Collider) at CERN, the particle physics accelerator near Geneva, Switzerland, (b) Non-Commutative Quantum Mechanics, and (c) Nonlinear effects in Quantum Electrodynamics. Marcelo started his academic career as a Lecturer at the Pontifical Catholic University of Chile (PUC) in 1977, and was subsequently promoted ad hominem to Assistant Prof in 1982, Associate Prof in 1989, and finally to Prof in 1998. He has held a few academic positions at PUC, such as Academic Secretary, and Director of Research & Postgraduate Studies, being appointed Head of the Physics Department in 2010. Marcelo's research has been funded by the Chilean National Commission for Scientific & Technological Research since his return to Chile in 1982, with his research proposals always achieving the highest ratings nationally.

Prof Loewe has a very strong connection to South Africa since 1988 when he started an ongoing research collaboration with Prof Cesareo A. Dominguez, FRSSAf from the University of Cape Town (UCT). As a result of this he has visited UCT on fourteen occasions since 1989, and the National Institute for Theoretical Physics (NiThEP), in Stellenbosch, in 2008 and 2009. He is an International Member of UCT's Centre for Theoretical Physics & Astrophysics since 2005, and serves as a Member of its International Advisory Committee since 2006. He has acted as external examiner of MSc and PhD theses at UCT's Physics Department on five occasions, and has co-supervised at UCT two BSc Honours projects, four MSc theses, and three PhD theses of students of Cesareo Dominguez, with whom he co-authored 32 publications in top journals. Fifteen of these papers also involved seven UCT and one University of Stellenbosch postgraduate students as co-authors. Prof Loewe has also been a member of the organizing committee of the International Workshop on Nonlinear Effects in Quantum Electrodynamics, and one of the plenary speakers, at UCT in 2008, at NiThEP in 2009, and at UCT to take place in January 2011. Marcelo's regular visits to South Africa have been supported in part first by the FRD, and later by NRF's division of international liaison.

FAZAL MAHMOOD MAHOMED

Professor, School of Computational & Applied Mathematics, University of Witwatersrand

Prof Mahomed obtained the degree of BSc from the University of Durban-Westville in 1984. He then studied at the University of the Witwatersrand and was awarded the BSc Honours degree in Computational and Applied Mathematics in 1985, a MSc degree with distinction in 1987 and the degree of PhD in 1989. Both his Masters dissertation and PhD thesis were concerned with the group analysis of differential equations and were supervised by the leading authority in South Africa, Prof Peter Leach. He joined the staff of the School of Computational and Applied Mathematics at the University of the Witwatersrand as a lecturer in 1989. He was promoted to a Readership in 1999 and after a short time to an ad Hominem Chair in Symmetry Analysis and Differential Equations in 2002. He has made significant contributions to algebraic, geometric and operator methods for ordinary and partial differential equations. He is regarded as one of a

small number of leading researchers in symmetry analysis of differential equations. An outstanding feature of his research is the breadth and depth of his contribution. His publications include 130 research papers in peer-reviewed ISI journals. He has received international recognition for his work on conservation laws, classification of ordinary and partial differential equations and symmetries of stochastic differential equations. He has changed the way of thinking of conservation laws by introducing the concept of the partial Lagrangian for differential equations which do not have a Lagrangian. He has derived new and relevant solutions of the differential equations of classical and fluid mechanics, general relativity and finance.

He is the Director of the strong and productive "Centre for Differential Equations, Continuum Mechanics and Applications" at the University of the Witwatersrand and is joint leader of the NRF Research Niche Area "Symmetry approaches in differential equations, continuum mechanics and applications". He is highly committed to promoting research in symmetry analysis of differential equations at other Institutions. He established groups at North-West University in South Africa, at King Fahd University in Saudi Arabia and at Quaid-i-Azam University in Pakistan. He has an outstanding record of supervising students. He has supervised successfully 3 Masters students and 15 PhD students. His former PhD students currently hold academic positions in Universities in South Africa, Lesotho, Pakistan, Sri Lanka and the United States. He is currently on the Editorial Board of five journals and he has reviewed papers for over fifty different journals. His distinction as an outstanding researcher was recognized by the University of the Witwatersrand when he received the Vice Chancellor's Research Award for Research Excellence in 1997. He was cited by the University for research excellence in Science in 2008 and 2010. He has advanced significantly the field of symmetry analysis of differential equations in South Africa and internationally. His distinguished mathematical career has earned him the respect of the international community in differential equations.

SUSAN WENDY NICOLSON

Professor and Head of the Department of Entomology/Zoology, University of Pretoria

Prof Nicolson is a committed educator and she has supervised or co-supervised 9 MSc's and 10 PhD's, and maintains excellence in undergraduate teaching. She has authored and co-authored over 120 papers in peer reviewed zoological and physiological journals and penned two books and five book chapters. Prof Nicolson was Editor-in-Chief of the South African Journal of Zoology and is on the Editorial board of Journal of Insect Physiology. She has also received the University of Pretoria's Exceptional Achievers Award twice. She currently holds a B2 rating from the South African National Research Foundation. Sue's contribution to Zoology and Physiology had been recognised by awarding her a Fellowship of the Cambridge Philosophical Society as well as Fellowship of the Royal Entomological Society. Sue currently has an h index of 21.

Having been awarded her PhD from the then University of Cambridge in 1984, her early career focussed on investigating insect excretory physiology. Upon subsequently taking up a research position at the University of Cape Town, she focussed her attention to general insect physiology with special preference for Malpighian tubule function. In the 1990's she switched her research focus to feeding physiology in sunbirds and sugarbirds, but she retained an interest in her field of insect physiology. Today she is one of the leading zoologists unravelling the physiology of avian nectivores. During the course of her career, this interest led her to co-author a seminal book on Insect Physiological Ecology and more recently on Nectaries and nectar.

MICHAEL RICHARD PERRIN

Professor of Zoology & Director, Research Centre for African Parrot Conservation, University of KwaZulu-Natal, Pietermaritzburg

Professor Perrin, a Fellow of the University of KwaZulu-Natal, has lectured at Makerere University, Rhodes University and the University of Natal in addition to having been a Research Fellow at the Whiteshell Nuclear Research Establishment, Atomic Energy of Canada Limited. He has been Dean of the Faculty of Science for five years and is currently Prof of Zoology and Head of Discipline of Zoology.

Prof Perrin has supported the research of more than 40 MSc and 20 PhD students to the successful completion of their theses, has authored and co-authored 215 scientific papers between 1975 and the present, of which 68 were as senior author. In addition to his teaching and publication record, he is a member of numerous scientific associations, has been an editorial referee for numerous journals of international status, has been a convenor of four international conferences and has served on numerous prestigious university administrative committees. Prof Perrin is a member of the KwaZulu-Natal branch of the Royal Society and participates regularly in committee meetings and lectures.

ALLEN LAWRENCE RODGERS

Head of Department of Chemistry, University of Cape Town

Prof Rodgers studied Chemistry at UCT, where he was awarded the BSc (Honours) in 1966, MSc in 1969, and PhD in Chemical Crystallography in 1974. After his PhD he joined the academic staff of the Department of Medical Biochemistry, UCT from 1976 to 1981, after which he returned to the Department of Chemistry, where he was promoted to Associate Prof in 1987 and to a full chair in 1999. When appointed to the UCT Medical School he sought a research topic, which would be medically relevant and yet allow him to use his expertise as a crystallographer, and he chose to work on the characterisation of kidney stones. He has stayed with this theme for the last 30 years and he is now regarded as a leading authority on the problem of kidney stone disease. Prof Rodgers has published 160 papers most of which deal with various aspects of super-saturation of salts in urine, leading to crystallisation and aggregation. His most quoted publications discuss:

The effects of mineral water containing calcium and magnesium urolithiasis risk factors.

Calcium oxalate crystallisation, comparing theory, in vitro and in vivo studies.

The influence of various diets on renal stone risk factors.

The effects of certain proteins in the urine as possible inhibitors to stone formation.

Prof Rodgers has participated in many international congresses, often as an invited speaker or session chairman, and he was the Conference Chairman of the 9th International Symposium on Urolithiasis which was held in February 2000 in Cape Town, attracting more than 400 delegates from across the world. He has an active research group and has supervised more than 20 MSc and PhD students and has a B1 NRF rating. He has established himself as a leading scholar in the field of Urolithiasis, analysing its various clinical, chemical and crystallographic aspects. In his work he has involved researchers from Chemical Engineering, Microbiology, Medical Biochemistry and Chemistry, making his research multidisciplinary and international.

He has established numerous international research collaborations with laboratories in Sweden, Italy, France and Hong Kong. He has been a member of several Conference Advisory Boards and is an Associate Editor of the journal, Urological Research and was elected as a Fellow of the University of Cape Town in 2004. In addition to his significant research record, Prof. Rodgers has made noteworthy contributions to the administrative and popular dissemination of science. He is currently a most successful Head of Department of Chemistry at UCT, chairs the Committee for Undergraduate Education in Science at UCT, and has given numerous lectures in schools and gatherings of people interested in science. Prof. Rodgers is a distinguished scholar who has made significant contributions, both in research and the dissemination of Science.

MEDALS

Meiring Naude Medal

Dr Stephan Wagner, Associate Professor, Department of Mathematical Sciences, University of Stellenbosch.

John Herschel Medal

(not awarded)

Honorary Memberships

Mark Read, Chairman of PAST (Palaeontological Scientific Trust), Director of Everard Read Gallery;

Cornelis Leendert Rijdsdijk, Physics/Astronomy Education & Communication

Richard Stephen Rubidge, Farmer; Curator of the Wellwood Collection of Karoo Fossils.

PUBLICATIONS

Transactions 2010

The following report by the editor Margaret Avery:

Issue 65(2) the commemorative volume for Derek Henderson FRSSAf has appeared in hard copy and 65(3) is available online.

NISC (National Inquiry Services Centre) in Grahamstown has taken over distribution of hard copies of TRRS in southern Africa and I am assured that this will lead to an improvement in service delivery.

Each member of the RSSA is entitled to free online access to another Taylor & Francis journal, from a selection of agreed journal titles (Clause 18.iv)

All members qualify for a 20% discount on all T&F/Routledge books (Clause 18.v)

News Bulletin Report for 2010

Dr S P Sasidharan continued as Editor of the Bulletin and published four editions in 2010.

The Editions featured:

Awards and Achievements

Society Events and Lectures

Profiles

Book Releases and Reviews

Meetings and Conferences

Opportunities - for study and employment.

Profiles:

Jannie Hofmeyr (Council Member)

Mary Seely (Fellow)

Margaret Avery (Executive Council Member and Editor-in-Chief of Transactions)

COOPERATION WITH OTHER BODIES

The Society maintains contact and has representatives on the following bodies:

National Science and Technology Forum including the Scientific, Engineering and Technological Societies and Allied Professions Group of SA: Northern Branch Committee

Claude Leon Foundation – Prof D.E. Rawlings FRSSAf

ACKNOWLEDGEMENTS

The Office Administrator, Sandra de Villiers-Soltynski is thanked for her efficient administrative services to the Council and membership. We wish to thank all the chairpersons and committee members of Branches for voluntarily giving of their skills and time, as well as organisers of lectures, speakers and those who delivered votes of thanks at lectures as well as the Director of the South African Astronomical Observatory for lending the boardroom for Council meetings. The Dean and staff in the Science Faculty Office at the University of Cape Town are thanked for kindly accommodating the national office and for sharing faxing and photocopying facilities.



Ansie Dippenaar-Schoeman
General Secretary
10 March 2011