

# Minutes of the 175<sup>th</sup> Meeting of the Council of the South African Institute of Physics

National Research Foundation, Pretoria

20 October 2006, Time: 12h30 – 17h30

## 1 Opening and Attendance

**Present:** Prof. N. Chetty (President-Elect), Dr. S.H. Connell, Prof. J.A.A. Engelbrecht (Treasurer), Prof. W.D. Heiss, Prof. H. Moraal (President), Dr. J. Padayachee (Secretary), Dr. E.G. Rohwer, Prof. E.C. Zingu. Apologies were received from Mr. A.Z.A. Combrink and Prof. D.J. Grayson.

The President, Prof. Moraal, chaired the meeting and welcomed Council to Pretoria. He congratulated Prof. Grayson on her marriage in July as well as for the Honorary Doctorate she was receiving from the University of Umea in Sweden. Prof. Moraal also congratulated Dr. Padayachee on her recent graduation with a PhD.

## 2 Items for Discussion under General

The following was added to the list for discussion:

- 2007 Council Elections

## 3 Minutes of Council Meeting 173 held on 3 July 2006

The minutes were accepted with the following corrections:

- Heading: Changed from *Agenda* to **Minutes**.
- Item 4.1. Action 2.: Date corrected to 12 May 2007.
- Item 6.6.: Sentenced re-phrased from *South Africa is not interested...* to *South Africa is not able...*
- Item 6.6.: Action should be **Marketing Committee**.
- Item 7.3.: Formatting corrected from *HartRao* to **HartRAO**.

## 4 Matters arising from the Minutes

### 4.1 Human Resources Development (Item 4.3)

The draft letter to the new NRF president, Prof. Mangaliso, was discussed. The letter describes:

1. the increase of grant-holder bursaries to cater for increases in tuition fees and living expenses
2. bursaries for Honours study
3. the problem identified at the HoD meeting in July about special programmes.

It was hoped that Prof. Mangaliso would be available on 20 October for an informal introduction to these issues, but was not. An appointment will be made for the near future and Prof. Zingu (Past President), Prof. Moraal (President) and Prof. Chetty (President-Elect) will attend.

It was decided that explicit mention of the funding of Honours study should be excluded from the letter but should be mentioned during the discussions with the NRF President.

The language of the remaining two points should be simplified.

**Action:** Moraal

## 5 Shaping the Future of Physics in SA (ECZ)

### 5.1 Physics500 - Progress Report (EGR)

The committee consisting of Dr EG Rohwer (SAIP Council - Convener), Prof N Chetty (SAIP Council), Dr I Gledhill (CSIR), tasked Dr K Meyer, (Chair - Applied and Industrial Physics Specialist Group) to suggest a plan of action. The plan of action together with a budget which was presented by Dr. Meyer and accepted by the committee. The full plan is attached for information in Appendix A.

#### Plan of Action

A sustainable, web-accessed database of employed graduate and employer information will be created. A mechanism to produce brochure-like outputs based on information contained within the database will be developed. Once this is in place, then a brochure-like output can be generated at any time, based on the number of people already surveyed. By maintaining the data base updated brochures can be generated from time to time.

#### Monitoring

The output produced will be examined, evaluated and approved by the committee. Payment will be approved by SAIP Council.

#### Project Status

Prof. Moraal has submitted the plan and budget to DST. Funds will be made available by DST once the project proposal by the Marketing Committee has been presented to and accepted by DST as well. The project execution will start then.

### 5.2 Marketing and Public Understanding of Physics

The Marketing Committee has revised its proposal based on feedback received during the July 2006 Council meeting. The proposal will be submitted to DST before 31 October 2006.

### 5.3 Funding of SAIP Secretariat (ECZ)

Prof. Zingu presented a revised strategy for the funding of the SAIP Secretariat, following discussions at the last Council meeting. The full plan is attached for information in Appendix B.

The revised plan proposes one full-time person with a salary at the level of a senior lecturer.

The proposal will be submitted to DST together with the Physics500 and marketing proposals above, with the target date of 31 October.

**Action:** Zingu,Moraal

## 6 Financial Matters(JAAE)

### 6.1 Report

The financial situation at the time of this report is as follows.

#### 6.1.1 Arrears 2003

A total of 13 members (down from 15 at last meeting), still owe their membership fees for 2003, totaling an amount of R 2 380.00 (Table 1).

Table 1: List of Members in Arrears from 2003  
[restricted]

#### 6.1.2 Arrears 2004

There are currently 51 members (down from 65 at the last meeting) in arrears for 2004. The outstanding amount is R 9 615 (down from R 13 580), which includes the amount in arrears for 2003 (Table 2).

Table 2: List of Members in Arrears from 2004  
[restricted]**6.1.3 Arrears 2005**

At the time of this report, 106 members (down from 130) are still in arrears with their membership. The amount owed is R 25 385 (down from R33 635 - this number of course includes the arrears for 2003 and 2004).

**6.1.4 Membership fees 2006**

R 59 785 was still due for 2006 membership, which includes the amounts in points 1 to 3 above. There are 259 members that still owe fees, and reminders of membership fees were sent by email and ordinary mail at the end of September.

**6.1.5 Balance of Accounts**

There are some outstanding claims from iThemba LABS from the organisation of the 2005 IUPAP General Assembly in Cape Town. These claims would be paid out of the SAASTA grant.

Current Account	R 37 552.39 (2006/09/30) - including some of the Women in Physics money.
Stanlib Money Market Account	R 794 528.87 (2006/09/05) vs R 578 973.54 (05/05) - some of WiPiSA money, and SAASTA Grant of R 188 250 included herein.

The financial statements appear in Table 3 for the SAIP and in Table 4 for WiPiSA.

Table 3: Budget vs. Actual Spending for the Financial Year ending 31 March 2007

Income	Budget	Actual	Expenditure	Budget	Actual
			R		R
Donations	100	150	Affiliation fees	500	450
Membership fees	66,275	60,060	Bank charges	1,500	314
Interest	5,500	4,536	Honoraria	6,000	
Conference surplus	50,000		Overseas speaker	15,000	
Sponsorships	1,000	7,000	Science olympiad	1,000	
Transfer from 32 Day Account	48,000		Scifest	1,000	
			Secretary/Treasurer Expenses	5,000	2,560
			Travel expenses (Council)	25,000	1,254
			Meetings : Specialist Groups	10,000	
			Specialist group prizes	3,000	8,500
			Website + Postnet	2,000	990
			Audit of Financial Statements	750	1,000
			SAIP Office	100,000	
			Excess for year	125	56,678
	170,875	71,746		170,875	71,746

**6.2 [Restricted Item]**

Table 4: WiPiSA Financial Statements

INCOME	R	EXPENDITURE	R
DST	214,000.00	Pre-workshop (travel)	4,654.20
		WiPiSA Launch :	
		Blue Waters Hotel (package)	91,407.63
		Conference bags, etc.	8,122.50
		Travel	36,587.37
		Planning meeting (Feb 2006) :	
		TuksSport (travel, diverse)	4,185.70
DST	300,000.00		
		Surplus (31/3/2006)	369,042.60
		Travel (April meeting)	1,418.00
		TuksSport (April meeting)	1,200.00
		Workshop (Kgabi)	2,700.00
		Travel (June meeting)	1,122.00
		Maths-Science Clinic (travel)	1,450.00
		TuksSport (June meeting)	774.60
		Surplus (30/6/2006)	360,378.00
		Prelaunch work (D Grayson)	8,000.00
		Travel (July meeting)	180.00
		Travel (July meeting)	1,541.50
		TuksSport (July meeting:travel)	300.00
		Girls in Physics program :	
		University of Venda	30,000.00
		University of Stellenbosch	17,410.00
		Jhb Planetarium	7,000.00
		Travel (October meeting)	1,371.50
		Surplus (30/9/2006)	294,575.00
	514,000.00		514,000.00

## 7 Conference Matters (PM)

### 7.1 2005 - Pretoria (U. Pretoria)

The report from the has still not been received, despite numerous attempts by Dr. Martinez to contact Prof. Malherbe.

Dr. Martinez suggested that a report template might help the local organising committee with drawing up reports. It was agreed that a template would be included in the *Guidelines to Conference Organisers*.

**Action:** Martinez, Padayachee

### 7.2 2006 - Cape Town (U. Western Cape)

A preliminary report has been received from Dr. Theron and Prof. Madjoe. There are indications that there might be a shortfall, as insufficient sponsorships were received to cover the costs of the conference. The report contained 11 recommendations, which the organisers of the 2007 conference might find useful. The preliminary report will be forwarded to the local organising committee of the 2007 conference.

**Action:** Padayachee

The National Research Foundation will be contacted to confirm procedures for obtaining funding for delegates from Africa.

**Action:** Martinez, Moraal

### 7.3 2007 - Johannesburg (U. Witwatersrand)

A comprehensive report was received that detailed the status of the dates for the conference, plenary speakers, reservation of venues, conference bank account, sponsorships, website and use of a professional conference organiser. The conference will be held from 3 to 6 July 2007 with a Winter School entitled *Dynamics of Solids* on 2 July 2007. Dr. Martinez will liaise with Dr. D. Naidoo to confirm the portability of the online conference registration package being developed.

**Action:** Martinez

In response to the queries of the local organising committee raised in the report, the Council:

1. recommends that the local organising committee not try to publish full proceedings of the conference.
2. recommends that presentations of the plenary talks be published on the SAIP website
3. supports the proposal that a short list of presenters' names be submitted to the editor of the South African Journal of Science. The editor can then send out invitations for a paper to be written based on the presentation at the conference.
4. would like the conference organisers to make the software that is developed for the online registration system to be made available to the future organisers.

**Action:** Martinez

In addition:

1. There will be a workshop for Heads of Physics Departments on Monday, 2 July where undergraduate curricula are discussed. Prof. Grayson has offered to organise the workshop provided she can obtain funds for an assistant to help with the paper-work for the workshop. Prof. Grayson is invited to submit a budget for the funds required for the assistant.

**Action:** Grayson

2. The following might be held around the conference: South African Physics Olympiad, Talent Search Symposium, African Women in Physics Conference

With regards to the proposed plenary speakers, the Council advises that plenary speakers should be chosen with the following in mind:

- The Condensed Matter Physics and Materials Science Specialist Group funds a speaker to the Winter School.

- The SAIP pays R15 000 towards a speaker.
- Air-fares from Europe are less than air-fares from the US.
- Specialist Groups should be contacted for information on scientists who might be in the country around the time of the conference. These scientists could then also be considered as plenary speakers. There should also be a call for speakers for the non-specialist lectures.

**Action:** Martinez,Rohwer

## 7.4 2008

The University of Limpopo has agreed to host the 2008 Conference. The head of the Physics Department (Dr. K.E. Rammutla) has already (9 October 2006) faxed a letter of intent to Dr. Martinez.

## 7.5 2009 - Durban (U. KwaZulu-Natal)

Nothing submitted for discussion.

## 7.6 Second International Physics Talent Search Symposium 2007

An application for funding for the Second International Physics Talent Search Symposium 2007 was submitted to DST on 2 October 2006. There has been no response to the application. The Marketing Committee will help with the Symposium by sourcing a proportion of the Speakers and also some special Demonstrations by accessing the resources of the SAIP membership.

## 7.7 Plenary Day

The local organising committee of the 2006 SAIP conference reported that the plenary day was poorly attended. It will be suggested to the 2007 local organising committee that they have a half-plenary day with activities focussed on the Physics Pavillion, Physics in Industry and learners. Plenary talks should then be scattered throughout the conference. It is also suggested that each day should have a focus: e.g. industry, education, etc.

**Action:** Martinez

# 8 Committees of Council

## 8.1 Awards Committee (WDH)

### 8.1.1 Silver Jubilee Medal for 2007

Members of the Council are reminded to contact Heads of Physics Departments to encourage the nomination of younger physicists for the Silver Jubilee Medal.

### 8.1.2 Silver Jubilee Award Requirements

As a result of the decision taken at the 2006 Annual General Meeting, the re-wording of the by-law referring to the age limit imposed on nominees for the Silver Jubilee medal was discussed. In order to keep in mind the spirit of the award (i.e. young scientist), the proposed re-wording is:

The Silver Jubilee Medal is awarded for outstanding achievements by a younger physicist in any of the following facets of any branch of physics: research, education, technology and industrial development. Awards will be made to persons who are 35 years old **plus up to 8 years not spent in activities in physics** on the closing date for the receipt of nominations.

Following a lengthy discussion it was agreed that proposed phrasing would be circulated amongst the membership for final acceptance at the 2007 AGM.

**Action:** Padayachee

The current wording is:

The Silver Jubilee Medal is awarded for outstanding achievements by a younger physicist in any of the following facets of any branch of physics: research, education, technology and industrial development. Awards will be made to persons who are less than 35 years old on the closing date for the receipt of nominations.

### 8.1.3 New Gold Medal Sponsor

Element Six will investigate taking over the sponsorship of the DeBeers Gold Medal however with an expected change of name. Preliminary discussions indicate the medal may be part of a set which also involves similar medals to other disciplines which are related to the interests of Element Six.

The SAIP would welcome the support of a medal by Element Six. However, the SAIP feels the current DeBeers Gold Medal represents a heritage it would like to develop. Of importance is the terms and the tradition associated with the medal. These are research excellence as identified by SAIP members and as arbitrated by a SAIP Council Committee. As such, the SAIP is the custodian of all aspects of its most prestigious award. This tradition now has several tens of former awardees stretching back deeply into the SAIP history. The previous awardees have become a significant alumni and the SAIP would like to preserve and continue the ethos of the DeBeers Gold Medal.

A SAIP delegation will meet with both Element Six and DeBeers to inform them of the importance of the DeBeers Gold Medal to the SAIP. The delegation will first establish whether there is any possibility of continuing with the DeBeers Gold Medal as it stands, considering the input of Element Six. In the case that the Element Six medal is indeed distinct from the former DeBeers Gold Medal, then the SAIP will welcome the new Element Six medal. The discussion can then address whether DeBeers would allow the SAIP to continue to use the name of DeBeers, as is current practice, for its most prestigious medal, under the understanding that there will be no cost to DeBeers. The SAIP would offer DeBeers the honour of continuing to award the DeBeers Gold Medal on the occasion of the Conference Banquet of its National Conference.

**Action:** Moraal, Connell

### 8.1.4 Proposal for New Award

Dr. M. Gaylard (HartRAO) submitted a request for the SAIP to consider a prize named after O.R. Tambo, as he taught Physics and Mathematics in London for ten years.

It was agreed that Prof. Moraal would contact Mrs. Tambo to request whether the SAIP can name an award after her husband. The award would be in the form of a medal and would be named the *The O.R. Tambo Development in Physics Award*. The award will be made for development, promotion and education in Physics.

**Action:** Moraal

### 8.1.5 Bronze Medals

Mr. C. Rijdsijk proposed that the Bronze medals in the possession of the Treasurer be awarded to the winner of the South African Physics Olympiad (SAPhO) and that the medal be presented at the Annual Conference Banquet, in the year following the win. **Approved**

**Action:** Padayachee

## 8.2 Marketing Committee (SHC)

### 8.2.1 Member Recruiting at SAIP2006

The Secretary and Treasurer were available during the morning tea-breaks at the UWC Conference to address membership issues. 10 new applications were received during the conference.

### 8.2.2 Talent Search

The Marketing Committee will continue with planning a Physics Talent Search using the Indian model. There are however time constraints. The Marketing Committee has agreed to help with logistics of the Talent Search Symposium. The proposal for the Talent Search should be circulated among the Council members.

**Action:** Connell

## 8.3 Women in Physics in South Africa Working Group (DJG)

The working group is making progress with building up a database of representatives at universities around the country.

## 9 Portfolios of Council

### 9.1 Education (DJG)

#### 9.1.1 South African Physics Olympiad

The Department of Science and Technology (DST), in collaboration with the Department of Education, has taken the decision to use Olympiads, Competitions and Camps as vehicles to improve participation and performance, and identify and nurture talent and potential in Science, Technology, Engineering and Mathematics (STEM). As a result, the National Plan for Science, Technology Engineering and Mathematics Olympiads, Competitions and Camps was approved for implementation in February 2006 after intensive stakeholder engagement.

Mr. C. Rijdsijk has submitted a description of the South African Physics Olympiad in response to the invitation from DST for Olympiads, Competitions and Camps that want to be considered in the national plan.

Prof. Zingu pointed out that DST might not fund the Physics Olympiad because Olympiads for other disciplines were funded by commercial companies.

#### 9.1.2 Second Physics FET National Curriculum Statement Workshop - November 2006

Prof. Grayson met with Koki Selepe last month and was told that DST would fund a follow-up workshop for physics lecturers. The purpose of the workshop is to provide physics lecturers with information, contacts and ideas so that they can offer in service programmes to physical science teachers who must teach the new curriculum in the Further Education Training band. It was agreed that the workshop would be held early in November. Unfortunately, soon after the meeting, Prof. Grayson received a message from Lebs Mphahlele, who heads the Youth and Science Division at DST (which is funding the workshop) to hold off on organising the workshop because DST and DoE are holding discussions about how they should work together on promoting maths and science teacher development. Mr. Mphahlele will inform Prof. Grayson when these meetings have reached a stage where she can go ahead with the workshop, hopefully before the end of the year.

### 9.2 Communication (JP)

#### 9.2.1 Website

The website has been updated regularly.

#### 9.2.2 Newsletter

One edition of the newsletter was sent out in August 2006.

#### 9.2.3 Tender for New Editor, incorporating Physics Comment

This item has been incorporated into the SAIP secretariat in Item 5.3.

### 9.3 Role and Function of the SAIP (NC)

#### 9.3.1 Proposal to re-write the SAIP Constitution

The Constitutional Committee met on 25 August 2006 on the Westville Campus of U. KwaZulu-Natal and Dr. Padayachee and Prof. Chetty subsequently met on two full days in September (4 and 5). Prof. Hellberg has been working on issues around the preamble and the constitutions of the Academy of Science of South Africa, South African Chemical Institute, Institute of Physics and American Physical Society.

Thus far, only the following physicists have accepted to serve on the constitutional reference group:

- Dirk Knoesen
- Matie Hoffman
- Johan Malherbe
- Mmantsae Diale
- Patricia Whitelock
- Igle Gledhill
- Dave Walker

- Hendrik Geyer
- Bouke Spoelstra
- Chris Engelbrecht
- Japie Engelbrecht

Another reminder will be sent to those who have not responded. All Council members are assumed to be members of the reference group.

It is anticipated that a first draft of the constitution will be mailed to the reference group at the end of November. The committee aims to work with the by-laws in conjunction with the constitution.

The Council generally approved of the directions taken by the Constitutional Committee.

## 10 Student Liaison

### 10.1 2007 AAPS Conference

Prof. Moraal contacted Dr. A.C. Mahlase with regards to the organisation of the above conference. While it appears that not much progress has been made, the local organising committee for the 2007 SAIP conference must be made aware that there is a possibility that this conference might happen around the 2007 SAIP Conference.

**Action:** Martinez

### 10.2 Interaction: Physics Students and Industry

Mr. Combrink is in the process of setting up a meeting with Dr. I. Gledhill. The aim of the meeting is to see whether it would be possible to organise a small workshop where students can interact with industry role players to provide the students with some exposure. This is part of an SAIP Student initiative, following the accepted terms of reference. Dr. A. Forbes will also be invited to the meeting.

## 11 Specialist Groups

### 11.1 Student Prizes

There was a discussion regarding the eligibility of students for prizes (i.e. is this restricted to student members.) at the 2006 meeting with Specialist Group Chairs. It was **agreed** that all students can participate in the student prizes.

### 11.2 Applied and Industrial Physics

Nothing submitted for discussion.

### 11.3 Astrophysics and Space Science

Nothing submitted for discussion.

### 11.4 Condensed Matter Physics and Material Science

Nothing submitted for discussion.

### 11.5 Education

There was a request from the Chair of the Education Specialist Group, Dr. G. Arendse, regarding whether the Education Group should be involved in the organisation of the lecture demonstration competition at the Annual Conference. Drs. Rohwer and Martinez will liaise with the local organising committee and the Education Specialist Group to get them working together.

**Action:** Rohwer, Martinez

### 11.6 Lasers, Optics and Spectroscopy

Nothing submitted for discussion.

## 11.7 Nuclear, Particle and Radiation Physics

Nothing submitted for discussion.

## 11.8 Theoretical Physics

Nothing submitted for discussion.

## 12 SAIP Affiliations and Representations

### 12.1 Representations

Nothing submitted for discussion.

### 12.2 SACNASP

Nothing submitted for discussion.

### 12.3 NSTF

#### 12.3.1 NSTF Representative

It is affirmed that Prof. Grayson will represent the SAIP at NSTF and SETAG meetings and that this has been communicated to Prof. Malherbe.

#### 12.3.2 NSTF-SETAG meeting Reportback

Mr. Combrink attended the NSTF-SETAG meeting on 20 September 2006 and reported that:

1. The meeting did not complete the agenda, time ran out because of extended discussions on some of the first points on the agenda.
2. The meeting was opened with a keynote address on networking.
3. Feedback was given on a study about "Numbers and Needs" in engineering in S.A. Other disciplines were encouraged to do similar studies, since this example proved to be helpful to policy makers who adapted their strategies accordingly. SAIP's "Future of Physics" report was also held up as an example of the types of foresight studies required.
4. The present R35K budget of SETAG will be increased in the near future when the old AS&TS trust fund of R1M will be transferred to SETAG.
5. Meeting participants urged SETAG's exco not to attempt duplicating work that has already been done, e.g. setting up libraries / databases of research in S.A.
6. A resolution was taken to publish some of the meeting resolutions in newspapers on the days following the meeting. However, nothing could be found in newspapers.
7. The questionnaire feedback was not discussed.
8. Recommendation: SAIP should continue sending representatives to these meetings. SETAG seems to be an active subset of NSTF and SAIP should be represented when resolutions are formed by professional bodies to be presented to policy makers.

### 12.4 Affiliations

Nothing submitted for discussion.

## 13 International Liaison

The South African IUPAP Liaison Committee met on 20 October 2006.

## 14 Membership Matters (JP)

### 14.1 New Members Since Last Meeting

The list of new members since the last Council meeting appears in Table 5.

Table 5: List of New Memberships since last meeting

Mnr. I.G. Morkel (S)
Mnr. A.E. van der Schyff (S)
Mr. M. Danda (Sub)
Ms. P.W. Mampe (S)
Mr. S.M. Phoku (S)
Mr. D.M. Murape (O)
Mr. N.C. Mashao (S)
Dr. J-N. Maran (O)
Mr. L. Kotsedi (S)
Miss. M.C. Langa (S)
Mr. K.G. Sekonya (S)
Mr. B.W. Mwakikunga (S)
Mr. S. Ntlamele (S)
Ms. R.A. Hlozek (S)
Miss. Z.P. Dlamini (S)
Mr. T.P. Nkuna (S)
Ms. B.M. Mhlungu (S)

### 14.2 Membership Statistics - October

Membership statistics appear in Tables 6 and 7.

Table 6: Membership statistics 1

Category	2002	2003	2004	2005	2006
Associate	25	26	19	17	17
Emeritus	10	12	10	11	33
Honorary Institutional	1	1	1	1	1
Honorary	11	12	12	12	11
Institutional	4	3	4	4	3
Ordinary	291	295	274	260	266
Retired	25	26	20	18	1
Student	48	113	154	166	185
Total	415	488	494	489	518

Table 7: Membership statistics 2

Specialist Group	2002		2003		2004		2005		2006	
	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd
Applied and Industrial	41	74	38	81	27	77	30	75	38	81
Astrophysics	3	8	66	12	88	17	92	25	93	27
CMPMS	122	43	141	44	152	37	151	36	153	38
Education	30	41	34	53	30	54	25	48	26	51
Lasers, Optics and Spectroscopy	33	19	40	26	33	29	33	28	47	35
Nuclear, Particle and Radiation	59	34	67	37	65	33	57	35	59	40
Plasma	4	7	6	8	8	11	10	11	9	14
Solar-Terrestrial and Space Physics	15	14	19	17	17	25	19	26	20	27
Theoretical	18	29	26	31	27	31	27	37	24	36
General	8	20	8	24	8	21	9	23	8	24

### 14.3 Translations for Membership Certificates (JAAE)

Prof. Engelbrecht reported that the translations have been completed and are being typed up.

### 14.4 New Membership Certificates to all Members (JP)

No progress has been made because the translations have not been received.

## 14.5 Emeritus Memberships

Dr. Stanley Carswell who was awarded Emeritus Membership during the last meeting expressed his thanks to Council in an email dated 28 August 2006.

## 15 Physics in Africa

### 15.1 Africa Interaction

The SAIP intends to increase contact with African Physicists through AAPS and is investigating how to attract Physicists from Africa to the SAIP Annual Conference.

## 16 General

### 16.1 History of the SAIP

Prof. Runan de Kock who is retiring from the Physics Department of the University of Stellenbosch has agreed to produce the manuscript that would capture the history of the SAIP and its role in the development of physics in South Africa. He was responsible for compiling a manuscript that was produced on the occasion of the centenary celebrations in 2003 of the Physics Department of the University of Stellenbosch: "Die verhaal oor 100 jaar". He is preparing to commence with the research activities and will use the booklet produced by Pieter Wagener, and the material that was collected and archived by the late Chris Engelbrecht as the initial source material.

#### 16.1.1 Letter of Introduction

A letter of introduction by the President of the SAIP will be necessary to enable him to approach organisations, institutions and individuals for information and material towards writing the book.

#### 16.1.2 Scope

Physics in the South Africa started well before the SAIP was established 51 years ago. Whereas a review of the SAIP would be incomplete without some reference to the development of physics in South Africa, the SAIP should be the focal point of this manuscript, and the development of physics at the institutions (universities and national facilities) should be described in the context of their role in the development of the SAIP or the role of the SAIP in their development. Similarly the various individuals, who will be mentioned, will be referred to in the context of the SAIP and their influence on Physics in South Africa.

A possible title for the project and manuscript could be: "Physics and the SAIP - a partnership". This is a broad title and the scope should be reviewed by Council and the author(s) at an intermediate stage.

It would also be important to reflect on the political and educational development of the country where appropriate, so that the context is understood.

#### 16.1.3 Time limit

It is estimated that the project will take 12 months to complete. However, the project should be reviewed at regular intervals (4-6 months) and the necessary adjustments could then be made. It is proposed that the reviews coincide with the various meetings of Council. Reports will be required to be submitted by the author(s) at each of the Council meetings while the work is in progress.

#### 16.1.4 Cost

Prof de Kock has proposed a fee structure based on an hourly rate to produce the manuscript. However, he has not as yet been able to estimate the actual time that would be required to produce the manuscript. I propose that Council should agree on an overall budget for producing the manuscript.

Travel for interviewing people and accessing archived material  
Writing and research  
Printing  
TOTAL  
Authorship / ownership / copyright

Dr Chris Engelbrecht (junior) (U. of Johannesburg) has agreed to collaborate with Runan on this manuscript, partly because of the particular interest that he has taken because of his late father's role in the SAIP and the efforts that he (CE senior) made to document the development of the SAIP and Physics in the 70/80's.

It is envisaged that the final product will be a document that would have a market value with proceeds derived from the sale of the book. Council should give consideration to the aspect of ownership and copyright.

Since the SAIP has commissioned the work at a fee, does the ownership and copyright then reside with the SAIP?

#### 16.1.5 Decisions

It was agreed that before the start of the project, Prof. Moraal should introduce it to Heads of Physics Departments and National Facilities.

Prof. Heiss and Zingu will investigate the possibility of obtaining funding from the NRF.

**Action:** Heiss, Zingu

Printing options will be discussed when the manuscript is complete.

#### 16.2 2007 Council Elections

The upcoming Council Elections must be advertised. The members of Council are encouraged to speak to colleagues and Heads of Departments regarding nominees for Council.

**Action:** Council, Moraal

### 17 NEXT MEETING

Friday, 2 March 2007, U. Witwatersrand, Johannesburg

### 18 CLOSURE

The meeting closed at 17h40.

## A Physics 500

## **Physics in industry: Project Physics500**

### **Aim of project:**

The project can be summarised as follows: To find and describe working physicists.

The emphasis is on finding 500 physicists working for “business”<sup>1</sup>. This information is to be used to publicise the role of physicists and their career options.

The aim is to increase liaison with industry and to promote physics in industry. To this end a database of physicists in “industry”<sup>2</sup>, and a database of “industries” that employ physicists has to be constructed. Electronic brochures can be generated from the database content for distribution to students and to industry, with information on specific individuals with a physics background working outside academia in South Africa. The database will make it possible to generate brochures that illustrate the multitude of opportunities for physicists outside of academia, and the industries that employ them. These brochures will be used to encourage students to study physics, and to remind “industry” of the need for physicists and hence for support for physics in general.

### **Method of operation:**

A committee consisting of Dr EG Rohwer SAIP council (Convenor), Prof N Chetty SAIP council, Dr I Gledhill CSIR, tasked Dr K Meyer, chairperson of the Applied Physics and Industrial Specialist Group of the SAIP to propose a concrete plan of action. The plan of action, which was presented and accepted by the committee, together with a budget and time frame, is presented below.

### **Plan of Action:**

A sustainable, web-accessed database of employed graduate and employer information will be created.

A mechanism to produce brochure-like outputs based on information contained within the database will be developed.

Once this is in place, then a brochure-like output can be generated at any time, based on the information from people already surveyed. By maintaining the database content, brochures containing valid, up-to-date, information can be generated on demand.

### **Project breakdown**

#### **Outputs:**

- 1) A WWW-accessible database for capturing appropriate information.
- 2) A survey of employers and physicists in industry.
- 3) Capturing the above information into the database.
- 4) A mechanism to produce book-like outputs based on information contained within the database.
- 5) Determine international trends on similar projects.

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<sup>1</sup> A “Physics500” candidate is defined to be: A B.Sc. (Hons) Physics graduate (or higher) from a South African Higher Degree Certificate Issuing Authority, currently working in a “commercial” role. This definition specifically excludes full-time lecturers at universities and technikons unless they have an income-sharing arrangement with their academic institute.

<sup>2</sup> Industry here means any agency that employs physicists; excluding academic physics staff at conventional academic / teaching institutions (primary role).

**Costing breakdown and payment schedule:**

- 1) Database system: Create a database and a data capture process [R12k] R6k upfront, R6k on acceptance,
- 2) Survey and capture data [R57k], comprising:
  - a) Advertising & participation incentives [R10k]
  - b) Professional services, e.g. HSRC [R10k]
  - c) Communications costs [R5k]
  - d) Payment for services rendered [R32k] R16k + portion of R16k based on number of entries ((number of physicist entries / 100) \* R16k, limited to R16k). R8k upon initiation of survey process, balance on project completion.
- 3) Brochure generating system [R10k] 5k upfront, 5k on acceptance
- 4) Brochure content based on captured data [free]

“Acceptance” refers to acceptance of functionality, at the discretion of the project convenor.

**Time frame:**

The project will use a 6-month time frame, 1<sup>st</sup> of October 2006 to 31<sup>st</sup> of March 2007.

**Monitoring**

The output produced will be examined, evaluated and approved by the committee. SAIP council will approve payment.

### **Detail on plan:**

- 1) Create a database
  - a. Identify the desired information to be recorded
  - b. Identify the most appropriate database structure to represent this information
  - c. Identify the most appropriate database system
  - d. Implement the database, satisfying the above.
- 2) Create a data capture process:
  - a. Identify the likely desired usage (usage modes) of the potential users
  - b. Identify most appropriate interface between the usage and the database structure.
  - c. Implement and trial versions of the interface
  - d. Over the period of the project, revise the implementation according to user needs and feedback.
- 3) Identify sources of information (HSRC, NRF, University alumni organisations, etc)
  - a. Identify appropriate sources via discussion with likely individuals
  - b. Contact (telephonic) sources and identify appropriate departments and individuals.
  - c. Introduce project and establish working arrangement with individuals.
- 4) Contact likely facilitators (e.g. thesis supervisors) and encourage them to use the data capture process to record their past students.
  - a. Identify appropriate sources via discussion with likely individuals
  - b. Contact (telephonic and email) sources and identify appropriate departments and individuals.
  - c. Introduce project and establish working arrangement with individuals. Encourage them to discuss the project with their peers and promote the project.
- 5) Contact “captured” individuals.
  - a. Use the information available to contact some of the existing individuals and encourage them to promote the project with physicists they know.
  - b. Encourage them to register the names and possible contact details of physicists known to them.
  - c. Identify their employers and capture the employer details, if new.
- 6) Contact “captured” employer HR departments for details of other possible graduates.
  - a. Use the information available to contact (telephonically) the heads of HR departments of companies that employ physicists
  - b. Request information on other physicists.
- 7) Initiate programs to find physicists outside of the conventional channels.
  - a. Identify possible channels that can be used to identify physicists that have been missed by the above process.
  - b. Use these channels to identify the “unconventional” physicists
  - c. Encourage these physicists to provide desired information.
- 8) Encourage physicists to submit short descriptions.
  - a. Identify media ideas that can be used to promote the aims of this project.
  - b. Encourage registered physicists to provide information that satisfy the identified ideas.
- 9) Create documents that can be used for marketing physics.
  - a. Identify media professionals who can produce desired information
  - b. Negotiate for desired information
  - c. Get them to provide information and pay for services.

- 10) Determine international trends
  - a. Identify meaning of desired outcome.
  - b. Contact international bodies of equivalent nature (e.g. IoP, AIP) for their observations regarding the outcomes.
- 11) Create info packs for marketing the Physics500 project
  - a. Produce information packs that describe this project in varying amounts of detail e.g.:
    - 1) Less than 20 words,
    - 2) Less than 100 words,
    - 3) Less than 500 words.
    - 4) Content suitable for adverts, including logos, etc.
- 12) Use alternate promotion and incentive channels:
  - a. Consider awarding prizes as incentives to encourage participation. Categories could include:
    - 1) Random prize for self registration (awarded to valid physicist who registered self)
    - 2) Random prize for peer registration (awarded to individual who registered other valid physicists)
    - 3) Random prize for registering as an employer (awarded to “business” that registered itself as an employer of physicists)
  - b. Try and engage the print and voice media and get them to give (space and airtime) to the project (free advertising).

## **B Funding of SAIP Secretariat**

## Funding of SAIP Secretariat

A Business Strategy for the sustainability of the National Office of the SAIP

This document should be read in conjunction with the document: *SECRETARIAT: SOUTH AFRICAN INSTITUTE OF PHYSICS* which served at the meeting of Council on 3 July 2006.

Comments from the meeting of Council, and comments received from two members subsequent to the meeting have been considered, and the following is presented for Council's consideration.

General comments from Council:

- The sources and level of income are unrealistic and overly optimistic.
- In order to generate funds to sustain the office, the tasks to be undertaken by the Secretariat could be expanded, but that would require additional staffing and funding.

Further comments:

The tasks and expectation should be scaled down to match a more realistic income of around R250 000 per year.

In order to compare ourselves with other Societies, I note the following:

- We aspire to provide a service comparable to that offered by the Institute of Physics, an organization that has a membership of 35000 and employs approximately 50 full-time staff (excluding those employed in the five IoP publishing houses around the world).
- The main source of income of the Institute of Physics is through its publication sales.
- The main source of income of the American Physical Society is through its large conferences.

In order to consider the level of activity that could be expected from an organization such as ours, the following information on the Dutch Physical Society (NNV) is provided:

Population of the Netherlands: 14 million

Membership of the Dutch Physical Society (NNV): 3400 members

Secretariat of the Society:

Officer: 4 days per week  
Secretary: 5 afternoons per week

Typical services provided by the Secretariat:

The Secretariat is responsible for various projects such as physics curriculum review, the various meetings, regional conferences and the journal.

Up until 2004, the Secretariat was managed by a part-time Officer. Full-time appointments became possible largely due to generous support from the Physics Foundation, an organization that has been operating for more than fifty years. It is not clear whether the Foundation was established by the Society, nor could I establish the source of income of the Foundation.

Membership dues of the Society

Category	Euro/year
Students in their second year of study	0,-
Student members up to Masters examination	10,-
With Masters, younger than 26 years	23,-
26 t/m 28 years	34,-
29 t/m 35 years	62,-
36 t/m 62 years	73,-
63 years and older	40,-

All members receive free subscription to the NTvN (Dutch Journal of Physics) and the European Journal of Physics.

In order to compare the membership fees to the cost of living in the Netherlands:

Typical salary of a physicist: Assistant Professor: 3000 – 5000 Euro's per month

Postdoc: 3000 – 4000 Euro's per month

The South African Liaison Committee of the International Union of Nutritional Sciences hosted (organized) an international conference in Durban in September 2005. Approximately 2000 delegates attended the conference, and the event generated a surplus of R6 Million.

Several South African Liaison Committees (learned societies) have now established Section 21 companies, primarily for managing the international conferences. At least one (Mathematics) has established a foundation.

Considering the information provided and the business ideas that were previously presented, I propose the following:

1. A Secretariat with two full-time members of staff should be established in a city that would limit the costs (of relocation).
2. National facilities should be approached to host the Secretariat in the City where the Staff will be located.
3. The salary of the Officer should be comparable to that of a Senior Lecturer or Senior Researcher.
4. The Secretary should have strong administrative and organizing skills and the salary should match that of a Senior Secretary in an academic institution.
5. The income of the SAIP should be based largely on the four sources:
  - a. The surplus of the Annual Conference of around R100 000.
  - b. Once every five years an international conference (at least 1000 paying delegates) should be organized in place of the annual conference with a planned surplus of around R2 Million.
  - c. Membership dues – income around R50000.
  - d. Specialized conferences – annual income around R50000.
6. The Secretariat should develop specialized skills to organize (administer) physics conferences around the country.
7. The SAIP should establish a Section 21 NPO Company (non-profit organization) as its business (fund raising) arm and apply for Section 18(a) status. This will make it attractive for individuals and corporations to donate money to SAIP and receive tax rebates, while SAIP would not have to pay any tax on monies received.
8. Funds should be raised by the Secretariat from a range of sources for sponsoring the physics conferences and undertaking projects. Professional fundraisers should not be engaged to raise funds for the SAIP on a commission basis (typically 33-40%). The South African Institute of Fundraisers advises against commissioned fundraising since donors often insist that their donation is to be used in full for a particular purpose. Furthermore, donations are often the result of a long process of establishing a relationship, and commissioned fundraisers are usually not keen on investing years in the building of relationships.
9. Negotiate dual membership with IoP so that every member of SAIP would receive free subscription to Physics World.
10. Increase the SAIP membership to cover IoP membership and generate additional income.
11. The Secretariat shall be responsible for editing the SAIP news letter and all other regular communications to the Members of the SAIP.

**Annual Budget**

**R450000**

SAIP Coordinator	R300000
(Salary of Senior Lecturer of R200000–R300000 pa +40% benefits)	
Secretary:	R80000
(1/2 of Salary of Senior Secretary of R80000-R100000 +40% benefits)	
Running costs	R70000