



Minutes of the 168th meeting of the Council of the SAIP

3-6, Natural Sciences Building, University of Pretoria, Pretoria
4 July 2005

1. Opening

The President of the SAIP, Prof. E.C. Zingu, chaired the meeting and welcomed all present to the final meeting of the outgoing Council.

2. Attendance

Present: Dr. N. Chetty, Dr. D.N.W. Chinnery (Temporary Secretary), Mr. A.Z.A. Combrink, Dr. S.H. Connell, Prof. J.A.A. Engelbrecht, Prof. W.D. Heiss, Prof. D.J. Grayson, Prof. H. Moraal, Dr. P.A. Whitelock, Dr. E.G. Rohwer, Prof. E.C. Zingu.

Apologies: Dr. P. Martinez, Ms. J. Padayachee.

3. Items for discussion under general

There were no additional items.

4. Minutes of previous meeting

The minutes of meeting 167 were adopted with a request to the Treasurer to balance the figures in Table 1 correctly.

Action: Engelbrecht

5. Matters arising from the minutes

There were no matters requiring discussion.

6. Shaping the Future of Physics in South Africa

Prof. Zingu tabled two documents that were compiled by Prof. Moraal: The first one, "Responses by physics departments and SAIP Specialist Groups to recommendations of the International Panel on the future of physics", contains detailed suggestions and comments which were incorporated into the second document, viz. "Implementation and costing of recommendations of International Panel on the future of physics". Copies of the documents are attached as Appendices 1 and 2 respectively.

Prof. Zingu explained that the second document (App. 2) is extremely urgent and needs to be finalised before the end of July so that it can be

submitted via the NRF to DST, or directly to DST, to be included in their budget for 2006. Contributions must be sent to Prof. Moraal by 22 July so that a copy of the final document can be sent to Dr. Nevhotalu for comment by the end of July.

Action: Council

After discussion it was generally agreed that:

- the text should be added to or expanded where possible and appropriate,
- the initiatives should be supported without specifying details,
- it should be indicated where physics as such fits into the current items,
- the table on page 2 should not contain zeros, comments should be made where appropriate.

The following summarises further action suggested by Council with regard to the 14 Executive Recommendations of the panel plus the extra item 15:

1. Include supplement from Prof. Grayson. Show representation in initiatives related to physics and science education. Include courses for teacher training; co-ordinate the universities in the provision and content of such courses.

Action: Grayson, Whitelock

2. Include university curricula.

Action: Grayson

3. Resubmit document on the marketing of physics.

Action: Connell

4. The costs of representation need to be included. Show the linkage between science centres and the universities; the SAIP could have a stand at the SCIFEST. Further examples include exhibits to be organized at science centres in shopping centres.

Action: Moraal

5. Double the number of postdoctoral fellowships; increase salaries. Indicate that the maximum durations of the NRF grants are too short.

Action: Whitelock, Moraal

6. Support initiatives by the AAICT.
Action: Chetty
7. Confirm figures. What proportion of costs should be allocated to physics. Note the strategy adopted by Astrophysics.
Action: Engelbrecht
8. Focus on the cost that will required for capacity development of potential users of large equipment such as the femto-second laser.
Action: Connell
9. Include the costs of, for example, running workshops, transport, three-day meetings.
Action: Moraal
10. No further suggestions.
11. Emphasize why a special pool of equipment needs to be created for physics. Consult Profs. Hellberg or Baruth-Ram if necessary.
Action: Zingu
12. No further suggestions.
13. No further suggestions.
14. No further suggestions.
15. To show the commitment of the SAIP it was decided that the SAIP would contribute R100 000 per year towards the salary of an officer in such an office. Confirm that the SAIP funds will support this. A further R100 000 may have to be considered for an assistant.
Action: Engelbrecht

7. Financial matters

7.1 Treasurer's report

The Treasurer tabled his report (see App. 3), indicating that the finances of the SAIP are in a healthy position. He emphasized the difficulty of tracing the members who made bank deposits without giving their details. A list has been circulated to try to solve this problem.

The financial statements for the year ended 31 March 2005, to be presented at the AGM, were also tabled (see App. 4). These were accepted by Council with the request that the organizers of the CIMSTE conference should be asked to indicate in writing what should be done with the surplus of R1 632 from their conference. Suggest donating it to education.

Action: Engelbrecht

Council agreed that the 32-day account be closed and the funds be transferred to the money market account which offers slightly better interest and is more convenient.

Action: Engelbrecht

7.2 Proposed budget for 2007

The Treasurer tabled the proposed budget for 2007 (see App. 5). This was accepted by Council with the following three amendments:

- Although the finances do not require an immediate increase in membership fees it was felt that a small increase of R10 would be appropriate in view of the proposed SAIP office to be opened.
- The R100 000 contribution to the running of the SAIP office should be shown as an annual expenditure.
- The R1 000 allocated to the Science Olympiad should rather be allocated to the Physics Olympiad.

Action: Engelbrecht

7.3 Budgets for 2005 and 2006

The Treasurer tabled the provisional budget for the financial year ending 31 March 2005 (see App. 6) as well as the proposed and actual budget for the financial year ending 31 March 2006 (see App. 7). These were accepted without amendments.

7.4 Membership fees in arrears: T.T. Netshisaulu

The Treasurer tabled a report explaining the dispute that arose between him and Mr. Netshisaulu (see App. 8). After discussion Council agreed to accept that the amount of R320 was, in fact, paid to the 2003 Conference organizers and that it should simply be included in the profit of the conference.

Action: Engelbrecht

8. Conference matters

Nothing to report

9. Committees of Council

Nothing to report

10. Portfolios of Council

10.1 Communication

A report on matters dealing with the website was submitted by Ms Padayachee (see App. 9). A discussion was held on whether or not to include the History of the SAIP on the website. It was decided to hold this in abeyance until this document is finalised or updated (see item 15.6 below).

10.2 - 10.4 Nothing to discuss.

11. Specialist Groups

11.1 - 11.6 Nothing submitted for discussion

11.7 Theoretical physics

Prof. Heiss informed Council of two forthcoming events:

- The 17th Chris Engelbrecht School of Physics will present the "Dark side of the universe" in Jan. 2006.
- A workshop will held in Stellenbosch on "The physics of non-Hermetian operators", Nov. 2005.

12. SAIP Affiliations and representations

Nothing to report

13. International liaison

Nothing to report

14. Membership matters

14.1 List of new members since last meeting

Council noted the list of new members submitted by Ms Padayachee (see App. 10).

14.2 Membership statistics

Council noted the membership statistics submitted by Ms Padayachee (see App. 11).

14.3 Application for Emeritus membership

Council agreed to the application for Emeritus membership submitted by Dr. E.J. de Villiers (see App. 12).

14.4 Benefits for Corporate membership

Council agreed to items 7 and 8 being added to the current list of benefits of Corporate membership (see App. 13). Additional benefits can be included at a later stage. For example, vacancies in companies can be placed on the SAIP website, companies would have access to a database of experts.

Action: Dr. Connell

14.5 Language on certificates

Council decided to retain the existing format of the Afrikaans and English certificates, but that

certificates in all the official languages should be available on request. Accurate translations in the other 9 languages must be obtained.

Action: Ms Padayachee

15. Physics 2005

Council noted that the commemorative issue of the SA Journal of Science, which was planned to be available at this year's conference, would not be ready on time.

15.1 Report on IYP2005

Nothing submitted for discussion

15.2 IUPAP General Assembly 2005

Prof. Zingu reported that the General Assembly of IUPAP will be held in Cape Town during the last week of October 2005. The Minister would welcome delegates on Wednesday, 26 Oct. It is hoped to find a slot for the President of SAIP to make a presentation.

Delegates would be visiting the iThemba laboratories on 27 Oct. where it is planned that four physicists would give presentations on any suitable topics. Specialist Groups will be requested to provide names of suggested speakers.

Action: Zingu

15.3 World Conference on Physics and Sustainable Development

Prof. Zingu reported that this conference would be held in Durban in the week following the IUPAP General Assembly.

15.6 History of the SAIP

The report by Prof. P.C. Wagener on the History of the SAIP will be included in the conference documents. The account for R3 000 for this work is still outstanding. Prof. Zingu will express the appreciation of the SAIP formally to Prof. Wagener in a letter and publicly at the AGM.

The Treasurer reported that the funds donated by the AIP have been used in the production of this report. A copy will be sent to the AIP. It was felt that the report should be extended to include the contributions by other communities who were previously excluded. The report does not really reflect the current status of the SAIP.

Action: Engelbrecht, Zingu

15.9 Commemorative stamp issue

Prof. Moraal reported that a copy of the commemorative stamp will be presented to the

Minister at the opening ceremony. Delegates to the conference would receive their copies at the banquet on Thursday. The President expressed his thanks and appreciation to Prof. Moraal for his hard work in getting the stamp launched.

16. General

16.1 Accreditation of nuclear physicists as radiation protection scientists

A course on additional training could be provided. A draft response must be provided which the President will sign when finalized.

Action: Connell, Moraal

16.2 By-law changes

See App. 14. The changes would be presented to the AGM for final approval.

Action: Zingu

16.3 2nd IUPAP Women in Physics Conference

Council noted the information provided (see App. 15.)

16.4 Comment by B.J.E. van Tonder re language

See App. 16. Council agreed with Prof. Engelbrecht's draft reply with the following changes:

- Use "grondwet" instead of "konstitusie".
- Indicate that the reply quotes a direct translation of an extract from the English version of the Constitution.

Action: Engelbrecht, Moraal

16.5 Co-opting additional members to Council

The outgoing Council was not in a position to co-opt members and would leave this to the incoming Council.

Next Meeting

The next Council meeting will be decided by the incoming Council.

Closure

The President thanked all members for their contributions over the past two years. Prof. Moraal, in turn, thanked Prof. Zingu for all the hard work that he has carried out in the same period. The meeting closed at 16:00.

Responses by Physics Departments and SAIP Specialist Groups to Recommendations of the International Panel on the future of physics in South Africa

Physics departments and SAIP Specialist groups were requested to respond to the recommendations in the Future of Physics report, with the specific request for information on:

1. A prioritised list of recommendations that they consider important to be implemented in order to achieve the objectives. Their opinions would guide the various stakeholders in developing a strategy to implement the key recommendations.
2. A list of recommendations that their department/specialist group is considering implementing, or that have already been implemented.

Responses were received from:

1. University of the Free State
2. University of the Western Cape
3. University of Stellenbosch
4. North-West University (Potchefstroom Campus)
5. University of Port Elizabeth
6. Port Elizabeth Technikon
7. University of South Africa (Astronomy Department)
8. Specialist Group Astrophysics and Space Science
9. Specialist Group Condensed Matter Physics and Materials Science
10. Specialist Group Theoretical Physics
11. Specialist Group Lasers and Spectroscopy
12. Specialist Group Education
13. Specialist Group Applied and Industrial Physics
14. Physics Students

These responses are summarised as follows:

A. Recommendations that are strongly supported (In order of most frequently mentioned.)

1. Importance of education at secondary and primary schools, and of teacher training. UWC, UPE, UNISA, US, EDU, NWU, STUDENTS
2. Links with industry and other groups. APPLIED, UWC, UPE, SSPMS, ASTRO, CMPMS, EDU
3. Central laboratory/equipment facilities UWC, UPE, CMPMS, ASTRO
4. Importance of broadband links, a central digital library, and the Saris initiative. UWC, ASTRO
5. Establishment of an SAIP office APPLIED, NWU
6. Free tertiary education for physicists (as a scarce skill). ASTRO
7. Audit of academic support programmes in South Africa. UPE

B. Shortcomings of the report

1. No mention of the importance of Physics Education research. UWC, EDU
2. Concern that too little consultation/background work has gone into the flagship concept. US
3. No recommendation about Physics as a separate school subject. EDU
4. The section dealing with "women in physics" is unacceptable. ASTRO

C. General comments

1. Many of the recommendations cannot be followed up by individual members of the community unless the relevant funding bodies take note of the recommendations.
ASTRO
2. There is a lack of critical mass in research areas, too many small and diversified departments/activities. Need to form a smaller number of larger, stronger departments and provide only service courses at other campuses.
ASTRO
3. SKA ambitions will grow cross-discipline interactions.
ASTRO
4. Astronomy in SA provides numerous examples of how an apparently "blue-skies" science can lead students to financially and intellectually rewarding careers. ASTRO
5. Students are not convinced of the benefit of student physics societies.
STUDENTS
6. Students do not perceive funding during study as their biggest problem, but finding a job afterwards.
STUDENTS
7. Physicists are not empowered to become technology transferers.
APPLIED

D. New projects/initiatives as a result of/aligned with the recommendations

1. The Theoretical Physics Specialist Group/Organisation of Theoretical Physicists focuses on the recommendation concerning the establishment of a National Theoretical Physics Facility. A committee is writing a proposal, asking for endorsement by Council on 29 October.
THEOR
2. The Lasers, Optics and Spectroscopy Specialist Group is in the process of identifying femto-second laser research as an interdisciplinary flagship project. A steering committee is drawing up a proposal to be submitted to DST by the end of October, and endorsement is sought from Council on 29 October.
LASER
3. The establishment of an Institute of Astronomy on the grounds of the SAAO in Cape Town as a University National Facility is being discussed.
ASTRO

E. Initiatives taken by departments and specialist groups

Teaching, Recruitment and Outreach:

1. Active involvement (leadership role) of the Education Specialist Group in the final form of the FET Physics curriculum.
EDU
2. Departments are actively involved in recruitment programmes. Holiday work for students is standard practice, as is the attempt to enable third year students to attend the annual SAIP Conference. Departments continue to play an active role in obtaining funding for students. If students fail to qualify for funding, NRF Grantholder bursaries are used to fund such students. Schools are invited to initiate science societies.
PETech, UWC, UPE, UNISA, UNW, EDU
3. Establishment of a Physics Olympiad from 2005.
EDU
4. Improved teacher/physicist interaction (Physics on Parade) as from 2005
EDU
5. UPE has registered academic programmes with SAQA, implemented in conjunction with the Department of Science, Mathematics and Technology Education (SMATE) at UPE. The department is willing to assist with the training of school laboratory assistants, in collaboration with SMATE. UPE
6. The Physics Departments at UWC and at Zululand University have started a graduate school in Applied Physics in conjunction with iThemba LABS in 2004. There are two complimentary endpoints, a Masters in Accelerator and Nuclear Science and one in Material Science. The honours year will be followed by a one-year Masters course with a full research thesis. Funding for such collaborative teaching should be made a priority.
UWC
7. Bursary schemes at undergraduate level to attract students to postgraduate studies. NWU, PETech
8. The RTCC of the SKA makes provision for post-doctoral grants, and will pro-actively seek candidates for these grants.
ASTRO

Marketing and public image

1. Awards Programme of the CMPMS and its media coverage. CMPMS
2. Minquiz Science quiz for secondary schools competition, radio and TV programmes (Semaka). CMPMS, UPE
3. PETech has invested in three astronomical telescopes for public viewing/lectures. The Physics Department of UPE has recently joined this initiative. PETech
4. Astronomy presentations with actual (mobile) telescopes on HET level. UNISA
5. Unisa has an introductory astronomy course from which all mathematics has been removed. Teachers could register for this module for non-degree purposes if they want to improve their astronomy knowledge. UNISA

Research

1. National/shared equipment is already being implemented for electron microscopes, atomic force microscopes, etc. Existing Innovation Fund projects are examples of such sharing of resources. UPE hopes to submit a proposal for the establishment of a national facility for High Resolution Electron Microscopy. UPE
2. The National Astrophysics and Space Science Programme (NASSP) is a consortium of SA universities and national facilities that has been set up to train MSc and PhD students. ASTRO
3. HartRAO plans to extend its National Facility mandate to include a microwave laboratory, a digital electronics laboratory and a configurable/high performance computing facility, freely available to academic researchers. ASTRO
4. Material Development and Characterization. This is built around the Center of Excellence project on Strong Materials led by Wits, but include many other initiatives at many universities. CMPMS

Applied Physics/Industry collaboration

1. UWC has initiated a number of research projects with direct applications, e.g. research on radon detectors for use in South African Gold mines, research into Bio-ceramics, innovative solar cells, and the use of natural radioactivity. Projects have been done for or with ESKOM, TELKOM, NAMPAK, SANS and the NNR. UWC
2. Both the Innovation Project of RAU/UPE/UP on cheaper solar cell material and the PBMR project have technological spin-offs, and bring academe and industry together. UPE
3. Photo-responsive Materials NRF Innovation Fund project for the production of cheaper solar cells is led by the group at RAU, together with UPE and UP. CMPMS
4. Pebble Bed Modular Reactor. Led by NECSA. Apart from the huge industrial impact, many other spin-off projects will originate from this project, where material properties need to be assessed. CMPMS The RTCC management of the SKA will identify partnerships and pro-actively drive industrial collaboration. ASTRO
5. HartRAO is increasing its user base in various ways - will engage engineering faculties in SA and extend interaction beyond Physics departments. The RTCC will provide mobility funding for SA researchers to partake in SKA-related work at HartRAO (and other institutions). The SKA will engage a wide range of scientists and engineers in the project. ASTRO
6. A major objective of the Astronomical Geographical Advantage Programme (AGAP) funding instrument from DST and the SKA RTCC is the establishment of a technology hub that is driven by the high technology requirements of astronomy. Many technologies used in modern astronomy have generic applications, and thus have commercial value. We are investigating the application of the "ASTRON model" where the RTCC would develop into a technology centre that would service the needs of international observatories and any industry that requires a high-tech partner. ASTRO
7. The Applied and Industrial Specialist Group undertakes to provide a forum for communication between industry and academia – in various ways. APPLIED

DRAFT DOCUMENT

Implementation and costing of recommendations of International Panel on the future of physics in South Africa

The science and engineering base in South Africa is a major user of high technology – the innovative product of physics endeavours. In recent years the South African Institute of Physics has felt increasingly concerned with the state of support for physics, the interest in physics, and the impact that physics has on the economy of South Africa. Reflecting these concerns during the years 2001 to 2003, Council and in particular the President of the South African Institute of Physics, engaged with the Department of Science and Technology and the National Research Foundation, to initiate a process that would have as its ultimate result, the repositioning of physics in South Africa. These three principals (DST, NRF and SAIP) collectively developed and launched the project to shape the future of physics in South Africa.

The project was to be both a review of the state of physics and a foresight into the future. An International Panel that was tasked to undertake the review and foresight operated under huge time constraints, consulted with various stakeholders and submitted their report to the SAIP, DST and NRF. Whereas the report does not propose concrete reforms, the report advanced a series of suggestions for future action by Council of the SAIP, the Management of Physics departments and research centres, and the South African authorities, ranging from mechanisms for coordination, to policies for training of physics (scientists and engineers), to the identification of strategic projects in physics (science and technology).

The Physics community was invited to identify strategic initiatives that they wished to pursue, or projects that they consider important to be initiated by one or more of the stakeholders, based on the recommendations of the International Panel. It was also important that the projects be costed for budgeting purposes. The Council has considered these proposals, and where necessary, refined the project suggestions and proposals.

Not all of these recommendations require direct funding, while others are interdisciplinary in nature and will be funded by other means. Therefore, only direct funding that is required specifically for Physics, is listed.

Each of the 14 Executive Recommendations of the Panel is listed, together with suggestions for implementation and projected costs. A summary of the cost is provided. The projects are of such a nature that the regular funding for Science and Technology would probably not cater for these activities, and substantial additional funding directed at these activities is required. Council is mindful of National initiatives in SET that might have similar objectives and would welcome the inclusion of our recommended projects in those initiatives.

The second part of this document summarises the responses that were received from the Physics community to the report.

Summary of costs

	1 st year	subs. years	5 year total
1. Primary and Secondary Education	0	0	0
2. Undergraduate and Postgraduate Education	70 000	70 000	350 000
3. Marketing of Physics in Industry	79 000	0	79 000
4. Public Understanding	0	0	0
5. Bursary Scheme	4 500 000	4 500 000	22 500 000
6. Research Information Network	0	0	0
7. National Research Digital Library	0	0	0
8. Flagship Projects	0	0	0
9. Long-term Strategy	0	0	0
10. Small Science	0	0	0
11. Infrastructure and Equipment	20 000 000	10 000 000	80 000 000
12. Theoretical Physics	3 500 000	4 700 000	23 000 000
13. Technological Spin-off	0	0	0
14. Management and Policy Committee	20 000	20 000	60 000
15. SAIP Office	564 000	527 000	2 672 000
Totals	28 733 000	19 817 000	128 661 000

- 1. Primary and Secondary Education.** In many countries, elementary and secondary school teaching of mathematics and science is a considerable worry. In South Africa this situation is exacerbated in the historically black schools. Although beyond the scope of this inquiry, we must flag this very serious situation. We acknowledge that steps are being taken to address this matter, but urge the relevant authorities to pursue it with even more vigour, as it is a crisis situation. Individuals in the physics community are to be commended for their activity in this regard, but more involvement is needed, particularly at the structural level. [SAIP, NRF, DOE].

Implementation and Costing

Long term DOE strategy required; no physics specific costing.

- 2. Undergraduate and Postgraduate Education.** The long-term sustainable future of physics in SA depends on the country's commitment and investment in the development of a workforce that is representative of its demographic diversity. Evidence indicates that, while there is a rapidly growing cadre of physics students from previously under-represented groups, there are perceived difficulties that need to be addressed by the established physics community and by the funding authorities. Apart from financial barriers to both undergraduate and postgraduate study (addressed below), there are others matters of concern, such as that relating to the integration of students of different cultures into existing departments, particularly in regard to the transfer of students from HBU's to HWU's. These questions need to be addressed urgently, and interpersonal communication is of the essence. [University community].

Implementation and Costing

The most important requirement is to identify the problems being experienced by students. This can be done by means of an annual face-to-face interview or a written survey.

There are two options:

1. Define a doctoral project. Identify universities to be included in the survey. Interview physics-major students at identified universities at all levels of study (under-grad to post-grad). The doctoral student then analyses data and writes up a thesis. Time Span: 3 years (full-time). Funding requirements: Cost of Doctoral Student = R 60 000 per year for three years. Cost of transport, accommodation to travel to 10 universities for a 5-day stay, to conduct interviews = R 40 000 once off. Total Cost = R220 000.
2. Identify universities. Identify all first-years indicating they wish to major in physics. Interview these same students (annually) over the course of their degree. Data are analysed annually and mini-reports submitted. Time span: 6 months per year for 5 years. Funding requirements: Cost of transport, accommodation to travel to 10 universities for a 5-day stay, to conduct interviews = R 40 000 per year. Cost of salary for 6 months = R 30 000 per year. Total Cost = R 350 000.

Once the problems have been identified, a new budget should be drawn up for the implementation of the solutions to the identified problems.

- 3. Marketing of Physics in Industry.** Job prospects in Physics are perceived by many young people to be poor, and this affects the take-up of the subject in schools and universities, but this is illusory. Both industry and business welcome them, for both technical and managerial careers, but this is not made apparent. The fault appears to lie on both sides, employers not making it clear that physicists are welcome to apply for their vacancies, and physicists not being sufficiently proactive. We recommend that the SAIP mount a "connectivity-campaign". [SAIP]

Implementation and Costing

Contact physicists in academia for information of their past graduates. Contact these graduates for updated information about their status. Cost over 12 months: R18 000

Get list of key industries employing physicists. Find names of physicists working there. Contact these physicists for updated information about their status. Work with Human Sciences Resources Council. Cost over 12 months: R24 000+ payment to HSRC approximately R10 000

A final category would be "Unlikely jobs that physicists have been employed in". This would require more research and effort. Still, the contracted staff member should make an effort to track down physicists working in, for example, commercial banks. Cost over 12 months: R12 000

The job must involve setting up a database. The entire process of information gathering and storage and reporting must be sustainable for future years. Work with NRF. Implement a data capturing process whereby all graduate students who are currently in the system are tagged and surveyed on an annual basis. Cost over 12 months: R12 000

The task should involve gathering some information on international trends. Cost over 6 months: R3 000.

"Cost" above refers to payment to contracted staff. The contracted persons must have good interpersonal skills and good computer skills and data management skills. Must be able to work independently. It is recommended that we employ different people (students?) to perform the different tasks, all of whom are supervised by an SAIP-NRF appointed working group.

Total cost: R 79 000

- 4. Public Understanding.** The "Public Understanding of Science" is increasingly important, not least for a democratic nation where the wide appreciation of science is vital. Much is being done but we recommend more, particularly as "the public" consists of many constituencies, all of which are important. [SAIP]

Implementation and Costing

This action is wider than Physics alone and should continue to be funded as such (e.g. through SAASTA). The SAIP part of the responsibility will primarily be conducted from the SAIP office (see recommendation 15 below), and it should mainly consist of the officer using the existing opportunities optimally. An amount of R 79 000 is also budgeted in the previous item for marketing in industry, which is part of the package. Therefore, no additional direct costing is included.

- 5. Bursary Scheme for Undergraduate and Postgraduate Studies.** There is considerable concern in the science community about the low level of remuneration in academe, school-teaching and student bursaries. In particular, we propose a revised bursary scheme with the intention of minimising the financial barrier for students to enter physics and to stay in physics, especially in comparison with competing career paths. The proposed bursary scheme is ideally based on the concept of free tertiary education for science students. We recognise the competing claims on national resources, but an upward revision of salaries and bursaries is essential. A serious "brain-drain" will result if salaries are kept low. [SAIP, NRF, DOE, Universities].

The following explicit recommendations were made

1. The state should introduce a bursary-loan scheme for students training as teachers of “scarce skills” such as physics.
2. Differential salaries should be introduced, with science teachers being paid a premium over and above salaries paid to teachers involved in subjects that are not designated as “scarce skills.
3. We recommend free education for all physics major students, and the replacement of race discrimination in bursaries by means tests.
4. Realising that strong measures such as these may not be immediately implementable, but without abandoning the rigorous position, we suggest as interim measures: (a) providing tuition and accommodation loans for all 3rd year students in Physics, which are transformed into bursaries for those completing their degrees in the minimum period (three years), (b) providing tuition and accommodation bursaries for all Honours students in Physics, including Medical Physics students.
5. We recommend that a much more vigorous policy of providing postdoctoral fellowships be pursued, and that special funds be made available for outstanding young scientists to develop new lines of research (existing funding for P-rated scientists does not provide adequately for equipment infrastructure).

Implementation and Costing

Items (1) and (2) are DoE responsibilities, while (3) is an ideal. Therefore, they are not costed here. The projected cost for (4) is based on an estimate of the number of students who graduated in Physics in 2003, as submitted by individual departments to the SAIP: B.Sc. 145; B.Sc. Hons. 29; M.Sc. 18; Ph.D. 8. The assumption is made that there are sufficient B.Sc. students, but that the postgraduate numbers should double. Thus, the estimated requirement is:

• 145 B.Sc. 3 rd years @ R 15 000	R 2 175 000
• 60 B.Sc. Hons @ R 30 000	R 1 800 000
• 36 M.Sc. @ R 40 000 x 1,5 years study period	R 2 160 000
• 16 Ph.D. @ R 65 000 x 3 years study period	R 3 120 000
• 24 Postdoctoral fellowships (12 persons x 2 years each) @ R 90 000	R 2 160 000
Total A	R 11 415 000

In 2003 the NRF funded the following numbers in Physics (these are numbers of bursaries per year; not number of persons as above):

• 2 B.Sc. 3 rd years @ R 6 000	R 16 000
• 13 B.Sc. Hons + BTech Final @ R 8 000 (Grantholder bursaries)	R 104 000
• 7 B.Sc. Hons @ R 15 000(?) (Prestige & Equity bursaries)	R 105 000
• 13 B.Sc. Hons @ R 25 000 (Scarce Skills bursaries)	R 325 000
• 39 M.Sc. @ R 20 000 (Grantholder bursaries)	R 780 000
• 12 M.Sc. @ R 33 000 (Prestige & Equity bursaries)	R 396 000
• 23 M.Sc. @ R 40 000 (Scarce Skills bursaries)	R 920 000
• 35 Ph.D. @ R 30 000 (Grantholder bursaries)	R1 050 000
• 11 Ph.D. @ R 50 000 (Prestige & Equity bursaries)	R 550 000
• 11 Ph.D. @ R 65 000 (Scarce Skills bursaries)	R 716 000
• 12 Postdoctoral fellowships @ R 82 500 average	R 1 980 000
Total B	R 6 942 000
Net cost (Total A – Total B)	R 4 473 000

Note: According to HoD statistics, 18 M.Sc. students (on average) are delivered per year. The NRF, however, lists 74 M.Sc. bursaries. These numbers do not match, unless M.Sc. students take four years on average to complete their degrees, or if the NRF numbers are the bursaries that are reserved (but not necessarily taken up). The same discrepancy holds for Ph.D.s. This means that it is impossible to make a reliable cost projection with the information at hand. It therefore seems that the amount of R 4 473 000 is an upper limit.

6. **Research Information Network.** We recommend the creation of a fast, inexpensive, broadband National Research Information Network to support non-commercial research. This is vital not only for the National Research Digital Library suggested below, but in order to permit the maximum exploitation by South African scientists of data provided by national investments similar in scope to the proposed

Square Kilometer Array. Projects of this type are likely to be the trend of the future and the lack of a system like the NRIN will mean that the dissemination of high value knowledge skills will, at a minimum, be severely constricted. [NRF, DST]

Implementation and Costing

This is a much broader issue than Physics. No Physics-specific costs foreseen.

- 7. National Research Digital Library.** We recommend the creation of a National Research Digital Library Resource. Such a structure would provide subscription to electronic journals that will be accessible over the internet, and hence available to all universities (both staff and students), and selected non-commercial researchers. If the physics programmes of this nation are to be competitive, this is a vital need. It is clear that such a resource will have a transformational nature also, since even remotely located Universities will also be able to access the latest research findings, with the caveat of the necessity of ready internet access. [NRF, DST]

Implementation and Costing

A workshop regarding the creation of a NRDLR was held earlier this year at the NRF, in collaboration with the Coalition of South African Library Consortia (COSALC). The CSIR and the University of Pretoria are busy with a feasibility study on the South African Research Information System (SARIS). Money for the study was allocated by the Ford Foundation, and their report is expected early in 2005. Please refer to the accompanying document for full details of this project, which also involves DoE, DST and DTI. A central facility should probably be situated in Pretoria/Johannesburg. It is suggested that an appropriate facility could be the NRF, as this certainly would fall within the mandate of the NRF. It is envisaged that all tertiary institutions and national research facilities will form part of the NRDLR, and provide some financial assistance for annual costs of subscribing to the journals. Funding would also have to be provided by government probably through the DoE, DST and DTI. These departments, together with the NRF, would then form the governance of the NRDLR. Tertiary and research institutions currently spend about R 100 million on electronic sources (SARIS information).

It is proposed that the SAIP join forces with SARIS, as this venture has already done a lot of groundwork towards a central digital library facility in South Africa. The annual cost of subscribing to ScienceDirect and other Physics related electronic journals is ~ R 70 million. Together with operating costs, the cost of such a centre would be in the order of ~ R 100 million.

Much research will have to be done to determine the Physics-specific costs, and it is therefore costed at zero.

- 8. Flagship Projects.** The Panel noted with pleasure the overall level of research and the existence of some excellent projects, although relatively few in number. Particularly impressive is the attitude of researchers towards the new “flagship projects” - projects that we applaud. We recommend that these projects be seen both to act as a focus for much of the scientific work in their respective areas, and to provide links to apparently unrelated branches of physics. [SAIP, DST, Physics community]

Implementation and Costing

No costing included because this will require extensive consultation and planning in the community.

- 9. Long-term Strategy.** The onus is on the physics community to develop a long-term strategy for the subject, which addresses national developmental priorities as well as keeping the research internationally competitive. Such a strategy should, inter alia, aim at optimising both access to and the efficient use of, expensive equipment, and to facilitate the use of existing expertise by encouraging collaboration, thereby reducing the barrier to innovation. This may lead to the establishment of a limited number of other “flagship” projects and/or National User Facilities (NUF’s) on a scale more comprehensive than hitherto, and with an emphasis on facilitatory governance. Proposals for such projects should ensure a balance between funds for equipment, including its periodic updating, and those of staffing and maintenance. The concept of a NUF is described in more detail in Chapter 4 and Appendix 4 of the Report. [NRF]

Implementation and Costing

The strategy is the joint responsibility of DST/NRF/SAIP and can only be implemented through a series of workshops and planning sessions. Therefore, direct costing zero for the moment.

- 10. Small Science.** Preoccupation with flagship projects and National User Facilities should not lead to the neglect of other areas of research. International experience has shown that “small science” has not only been a major training ground, and the forerunner, scientifically, of many large projects, but has also been a major vehicle for innovation and intellectual property development. Thus there is a need for strong support for “small science”, preferably in the context of collaboration. [NRF, SAIP]

Implementation and Costing

No direct action; no direct costs.

- 11. Infrastructure and Equipment.** There is considerable concern about the state of the research infrastructure. According to the data received, much of the equipment in university departments is out of date or inadequate. The Panel recommends that SA makes a rational investment in modernizing its research infrastructure to meet the scientific requirements, as well as with the objective of training the future generation of young scientists and engineers with globally competitive skills. The Panel recommends that appropriate mechanisms for funding and optimal utilization of existing resources be put in place at all levels of the scientific needs. [NRF, DST, Department of Education]

Implementation and Costing

A due diligence study needs to be performed by the SAIP/NRF regarding the state of research equipment available at all tertiary institutions. The data supplied to the International Panel can be used as basis for this study, and needs to be updated where submissions had not been made to the IP. The study could also entail a “wish list” of research units regarding new equipment, and the cost of such equipment. The SAIP/NRF/DST should then prioritize the needs, based on Centres of Excellence or “flagship” projects originating from the Recommendations of the IP. A Replacement Fund should be set up by the DST and administered by the NRF, enabling the timely replacement of aging equipment.

Cost:

- Due diligence study. This could probably be done by HoDs, project leaders and such, at little or no cost. Someone from the NRF needs to coordinate the inputs. Cost: R 50 000.
- Replacement Fund. This would depend on the need arising from the due diligence study. As an example: no new Transmission Electron Microscope (TEM) has probably been acquired the past 10 years. A modest instrument would cost anything from about R 9 million upwards. (A high resolution, high voltage instrument with analytical capacity is ~ R 24 million new). Cost: R 20 million for critical replacements of much-needed, but currently outdated equipment, to start the process.

- 12. Theoretical Physics.** The state of theoretical physics is characterised as internationally competitive in some areas, but there is fragmentation and a coherent policy is needed in the nation. We recommend the establishment of a National Theoretical Physics Facility (either real or virtual); the theoretical physics community will then be able to respond nimbly to national science policy initiatives. [NRF]

Implementation and Costing

A document “A proposal for the establishment of a South African National Institute of Theoretical Physics (NITheP) by the Organization of Theoretical Physicists (OTP) supported by the South African Institute of Physics (SAIP)”, endorsed by the SAIP, projects costs of R 3,5M, R 4,7M, and R 5,6M for 2006, 2007 and 2008.

- 13. Technological Spin-off.** An important effect of physics research projects is technological spin-off. Advanced research projects not only bring immediate “rewards” to industry and commerce in the form of orders for technologically advanced equipment, but they also raise the possibility of new, previously unforeseen, developments. “Astro-technology” is an excellent example and we recommend that it be used as a prototype, and that physicists make use of the structures that encourage links to industry and innovation. [NRF, DST, SAIP]

Implementation and Costing

An extensive network for the support of innovation, industrialisation and commercialisation is in place. It consists of programmes such as Thrip, the Innovation Fund, and the Special Programme for Industrial Innovation, operated by the NRF, DTI, and IDC. These programmes each have their own criteria, but generally they focus on support from the stage of patent registration/functional demonstrator to a production data pack. The issue here is not the direct availability of funding, but rather an education amongst scientists to build the bridge between these two phases through proper project management and systems engineering. Training courses, for instance offered by the Innovation Fund are available. All the relevant information is available on the web page of the Department of Science and Technology at http://www.dst.gov.za/programmes/research_funding/research_funding.htm.

This recommendation does not require any direct funding.

- 14. Management and Policy Committee.** We recommend that the Management and Policy Committee should remain in existence as a monitoring body, and that the SAIP, DST and NRF should report back to it in a year from now. The MPC should inform the community on the extent to which the Panel's recommendations have been implemented. [MPC]

Implementation and Costing

Travel and subsistence costs for 10 DTI people of R 20 000 per year for three years.

- (15.) SAIP Office.** This recommendation did not have a number in the Executive Summary of the Panel's document.

It is recommended that funding be made available (from DST) for a restricted period (say 5 years, renewable) to enable an office with a full-time secretariat of a small number of "employees" to be formed. They would be responsible for implementing the programme of the Council of the SAIP, which would include serving physics and physicists nationwide. Special emphasis would be placed on:

- developing a national strategy for physics;
- increasing public awareness;
- interfacing with government departments on science issues;
- interfacing with and improving the lot of physics teachers, particularly in schools;
- forging stronger links between universities, national facilities, science councils, industry and commerce;
- ensuring a greater acceptability of a physics training for posts in industry and commerce;
- improving students' access to information on both bursary sources and employers;
- making sure that both the joys of physics and the availability of jobs are known in schools and elsewhere; and
- monitoring the implementation of reviews such as this and reporting back to the community.[DST, NRF]

Implementation and Costing

It is essential that the SAIP has a permanent office if it is to be an effective body in the service of physics and society. The office would serve to link the physics community with its stakeholders and thereby facilitate the impact of physics on the national development agenda. The ideal location would be in close association with DST and/or NRF, allowing it to act as a conduit between the physics community and the policy makers. In the long run we see the office becoming a vibrant self funding operation of the nature of, e.g. the Institute of Physics in the UK. In the short term the appointment of an Executive Officer would go a long way towards enabling SAIP to function as the voice of physics in South Africa. The Executive Officer will take a leading role, under the guidance of the Council, in developing a strategy that will ensure a flourishing future for physics in South Africa. Specific responsibilities will include:

- Identifying public issues in which physicists should make a contribution;
- Supporting the teaching of physics at all levels;
- Supporting physicists in all professions and careers;
- Furthering the public appreciation of physics;
- Writing reports on issues of interest, as directed by Council;
- Ensuring that prospective employers understand the value of physics and physicists;

- Keeping database information on the employment of physicists in all professions;
- Fund raising;
- Identifying opportunities (e.g. jobs, grants, scholarships, equipment, etc) and bringing them to the attention of the membership;
- Liaising with other organization both nationally (e.g. DST, dti, DoE, NRF ...) and internationally (e.g. IoP, IAP, NSBP ...);
- Taking broad responsibility for communications with the public and particularly with the media;
- Participating in meetings of Council;

Qualifications: PhD in physics or a closely related discipline and several year's relevant experience, e.g. in industry, academia or government. The Executive officer must have a passion for physics and a clear understanding of the potential of physics to support development in Southern Africa. They must also be self motivated, self reliant and an extremely good communicator.

The preliminary budget given below is for 2005 and assumes that the officer operates within the NRF conditions of service. Office space and basic logistical support, IT, security, electricity, etc to be provided by hosts (DST/NRF) – no cost is included for this, although we assume a levy would be payable to the host institution. While a component for travel is included, because interacting with people will be essential, there is no attempt here to finance special projects or conferences.

Annual	R
Salary (including pension, medical aid, etc)	430000
Travel	35000
Stationary, printing, computer requisites etc.	9000
Phone, fax, post etc.	3000
Refreshments	2000
NRF/DST Levy	48000
Total	527000
 Start-up Costs	
Recruitment	15000
Furniture	9000
Computer Requirements (Laptop, printer, flash disk etc)	13000
Total	37000

TREASURER'S REPORT

The financial situation of the Institute is very healthy, despite the fact that many members have not paid their membership fees for 2004 and 2005. The financial situation at the time of this report is as follows :

1. Arrears 2002. Two members are outstanding, a total of R 240,00. The situation regarding one of them (TT Netshisaulu) is dealt with separately under the Treasurer's Report.
2. Arrears 2003. A total of 34 members (down from 44 at last meeting), are still owing their membership fees for 2003, totaling an amount of R 2 629,67. The number may be less, due to payments that were deposited directly into the bank account, without names or invoice numbers. Some of these "unknown" deposits have been identified during the recent year, when invoices were sent out, with the kind assistance of the secretaries/financial officers of universities or other entities.
3. Arrears 2004. There are currently 114 members (down from 147 at the last meeting) in arrears for 2004. The outstanding amount is R 28 651,56 (which includes the amount in arrears for 2002/2003). Please also refer to the attached Excel spreadsheets.
4. Membership of the IoP currently stands at 22 members, none of whom are in arrears. Membership fees have been paid over to the IoP.

Balance of Accounts

Current Account : R 38 292,54 (2005/06/04)

32 Day Call Account : R 154 886,58 (2005/03/31)

Stanlib Money Market Account : R 104 200,65 (2005/05/04)

Financial statements for the period ended 31 March 2005

PROPOSED BUDGET FOR 2007

In view of the current (almost too !) healthy financial position, the Treasurer proposes :

- The Stanlib Account be referred to a "Trust Fund", and an investigation be launched to officially create such a Trust Fund, before the SAIP is investigated by SARS.
- That membership fees NOT be increased for the upcoming financial year.

SOUTH AFRICAN INSTITUTE OF PHYSICS PROPOSED BUDGET FOR THE FINANCIAL YEAR ENDING 31 MARCH 2007

INCOME	R	EXPENDITURE	R
Donations	100	Affiliation fees	500
Membership fees :		Bank charges	1 500
Institutional members (2 X R 1 800)	3 600	Honoraria	6 000
Ordinary members (200 x R 240)	48 000	Overseas speaker	15 000
Associate members (15 x R 120)	1 800	Science Olympiad	1 000
Student/Retired members (160 x R 60)	9 600	Scifest	1 000
		Secretary/Treasurer Expenses	5 000
Interest on 32 day call account	5 000	Travel expenses (Council)	30 000
Interest on SME account	500	Meetings : Specialist Groups	10 000
Conference surplus	30 000	Specialist group prizes	3 000
Sponsorships	1 000	Website + Postnet	2 000
		Audit of Financial Statements	750
		Transfer to Trust fund	20 000
		Excess for year	3 850
	99 600		99 600

PROVISIONAL BUDGET FOR THE FINANCIAL YEAR ENDING 31 MARCH 2005

INCOME	BUDGET	ACTUAL	EXPENDITURE	BUDGET	ACTUAL
Donations	100	136	Affiliation fees	300	350
Institutional members (2 X 1800)	3 600	3 600	Bank charges	750	1 092
Interest on 32 day call account	3 000	6 981	Conference advance	2 000	
Interest on SME account	500	933	Honoraria	6 000	12 000
Subscriptions (250 x R220)	55 000	57 008	Overseas speaker	12 000	
Conference surplus	5 000	81 185	Science Olympiad	1 000	
Sponsorships	1 000		Scifest	600	
Deficit for the year	5 700		Secretary's expenses	4 500	2 782
Transfer from 32 Day A/C		100 000	Treasurer's expenses	750	551
Sundries		17 013	Travel expenses	35 000	15 480
Opening balance (1/4/2004)		20 290	FEST Prize	2 000	
			Specialist group prizes	6 000	1 000
			Website	-	-
			Logo Prize	3 000	3 000
			Sundries		21 103
			Transfer to Moneymarket		100 000
			Transfer to 32 Day		110 000
			Excess for year		19 787
	73 900	287 145		73 900	287 145

**SOUTH AFRICAN INSTITUTE OF PHYSICS
PROPOSED AND ACTUAL BUDGET FOR THE FINANCIAL YEAR ENDING 31
MARCH 2006**

INCOME	BUDGET	ACTUAL	EXPENDITURE	BUDGET	ACTUAL
Donations	100		Affiliation fees	500	400
Institutional members (2 X 1800)	3 600		Bank charges	750	237
Interest on 32 day call account	5 000		Honoraria	6 000	
Interest on SME account	500	618	Overseas speaker	12 000	12 000
Subscriptions (275 x R240 + 150 x R 60+15 x R 120)	76 800	36 525	Overseas speakers for WYP2005	20 000	
Conference surplus	25 000		Science Olympiad	1 000	
Sponsorships	1 000		Scifest	1 000	
			Postage, printing, Election 2005	5 000	
			Travel expenses (Council)	30 000	
			Meetings : Specialist Groups	10 000	
			Specialist group prizes	3 000	
			Website + Postnet	2 000	
			Audit of Financial Statements	500	600
			Transfer to Trust fund	20 000	
			Excess for year	250	23 906
	112 000	37 143		112 000	12 637

MEMBERSHIP FEES IN ARREARS : T T NETSHISAULU

A dispute has arisen between the above member and the Treasurer regarding a claim of membership fees having been paid. The member requested that this matter be brought to the attention of Council. Relevant information is as follows :

1. An email was sent out by the Treasurer to members who were in arrears for 2002 on 10 October 2003, including one to Mr Netshisaulu.
2. Mr Netshisaulu responded by email on 12 October 2003, informing the Treasurer that he had in fact paid his dues. A fax was sent to the Treasurer to confirm payment of R320,00 (R120,00 for 2002 + R200 for 2003).
3. Unfortunately the date on the deposit slip is not quite clear, but appears to be "2003-0?(9?5?)-2?(5/9)". Similarly the date stamp of the bank is undecipherable (05-2????). The amount deposited is indeed R320,00, but was not deposited in the SAIP bank account (017595932), but into 073006955. This account number was the 2003 SAIP Conference Account number for the SAIP Conference hosted at the University of Stellenbosch.
4. Mr Netshisaulu requested the Treasurer by email on 17 November 2003 to contact (Prof) Kobus Visser, and ask him to transfer the membership fee of R320,00 to the Treasurer.
5. The Treasurer contacted the Physics department by email with the above request on 19 November 2003.
6. On 24 November 2003, Prof Visser responded by stating that they were not able to trace the payment of R320,00.

7. The Treasurer reported this to Mr Netshishaulu, and advised Mr Netshisauluto to contact the Department of Physics or the Finance Department at US to resolve the matter, as the SAIP 2003 Conference account had been closed by that time, the Conference report was written and the Conference excess was soon to be transferred to the SAIP account. The Treasurer pointed out that, without written documentation of Prof Visser, acknowledging that R 320,00 was received by them, the Treasurer could not transfer some of the Conference excess to Membership fees in the Income and Expenditure.
8. On 29 March 2005, the Treasurer received an email from Mr Netshisaulu, in which he stated that "I will pay the current membership fee. Please note that I am disappointed to learn that you have not yet resolved the R540 saga (currently referred to as "arrears"). I tried my best to send you all the documentation to show that the membership fee for 2003 was paid. You should have presented my case to your colleagues and hear what they say instead of requesting me to liaise with the personnel at the University of Stellenbosch".

Appendix 9

Communication Report

- Newsletter: There has been 1 issue of the newsletter since the last meeting.
- Web-site: As of 22 October 2004, there were 6914 hits on the web-site.
- There is a problem with communication with the current web hosts and a new host will be identified as soon as Miss. Padayachee has some free time.
- Communication with Members: Items that are of interest to members but which would be out of date for the newsletter are e-mailed out as they arrive.

Appendix 10

LIST OF NEW APPLICATIONS PROCESSED SINCE LAST MEETING

C.J. Arendse (O)	G.I.E. Lawson (S)	P. Nkundabakura (S)
A.E. Botha (O)	J.A. Leach (S)	R.O. Ocaya (O)
P.A. Charles (O)	F. Maphaha (S)	P. Okouma (S)
O. Chimidza (S)	T. Mashamba (S)	S.O. Okpe (O)
C. Copley (S)	L.A. McKinnell (O)	C. Radue (S)
C.G. Deale (S)	M.E. Minani (S)	C.C. Schoeman (S)
T.A. Dyeyi (S)	D.M. Moeketsi (S)	N. Shafi (S)
N.E. Engelbrecht (S)	T.E. Mosuang (O)	J.L. Snyman (S)
J.B. Habarulema (S)	S.H. Mthembu (S)	J. Tagg (S)
R.A. Harris (S)	A. Muronga (O)	A.M. Ukpong (S)
P.J. Janse van Rensburg (S)	S. Ngcobo (S)	E. Zeitsman (S)
Z. Katamzi (S)		

MEMBERSHIP STATISTICS AS AT 19 JUNE 2005

By Category		By Specialist Area		
Honorary Members	12	Applied and Industrial Physics	30	75
Emeritus	11	Astrophysics	92	25
Ordinary Members	260	Education	25	48
Associate	17	Lasers, Optics and Spectroscopy	33	28
Student	166	Nuclear, Radiation and Particle Physics	57	35
Retired	18	Plasma Physics	10	11
Institutional	4	Solar-Terrestrial & Space Physics	19	26
Honorary Institutional	1	Condensed Matters and Materials Science	151	36
Total Members	492	Theoretical Physics	27	37
		General	9	23

APPLICATION FOR EMERITUS MEMBERSHIP

From: Etienne De Villiers

Sent: Monday, April 11, 2005 6:07 PM

To the Council of the South African Institute of Physics:

As I have reached pension status, being 66 years of age, and was a member of the South African Institute of Physics since 1960, I wish to apply to the Council of the Institute for Emeritus status. I appreciate the tremendous and invaluable contributions the Institute has made to Physics in South Africa over the past 50 years and I am therefore very much interested in the matters of the Institute and in the contributions and future of Physics in South Africa. It is obvious these days that Physics is playing an increasingly important role in shaping our world of the future. Fifty years ago when the Institute was established we would have barely recognised our world of today and I believe we will barely recognise the world 50 years from now in the future. I still wish to receive regular news, letters and announcements from the Institute and to attend the conferences from time to time if possible.

Yours sincerely

dr Etienne J de Villiers

11 April 2005

BENEFITS OF CORPORATE MEMBERSHIP

The current "benefits" for Institutional Members are:

1. Receiving the e-mail newsletter and all circulars of the SAIP.
2. You will receive a special invitation to all conferences organised by the SAIP.
3. Your delegate/representative will be able to attend the annual conference free of charge
4. Your delegate and his/her companion will receive an invitation to the conference banquet, as a nonpaying guest of the Council.
5. You will receive a copy of the conference programme.
6. The SAIP can assist with any communication with the physics community, local and abroad through our links with international physics societies.

To this can be added:

7. You are entitled to one free A5 size, black and white advert in the book of abstracts of the annual SAIP conference. The member will be responsible for getting the advert to the conference organisers in the format required.
8. You are entitled to have your company logo with a link to the company website, on the main page of the SAIP web-site.

Any comments?

FINAL ACCEPTANCE OF CHANGES TO BY-LAWS

During the AGM of 2004, the changes that needed to be to the constitution and by-laws were agreed upon. These changes were submitted to members for a postal ballot, and the changes were unanimously voted in. The constitutional and by-law changes came into effect immediately when the results of the postal ballot were known however, the constitution requires that the changes to the by-laws be submitted to the next AGM for final approval. The **old** clauses appear on the left and the **current** clauses, which have to be accepted appear on the right. The current version of the constitution and by-laws is available from <http://www.sajip.org.za> or on request from the Secretary, if you do not have access to the website.

Clause affected	Old	Current
ByL-2.4.	A person whose membership privileges have lapsed in terms of paragraph 2.2 or been terminated in terms of paragraph 2.3 may apply for reinstatement, and the Council, after review of his professional record, may reinstate him after payment of the outstanding fees, or on such conditions as Council may decide.	A person whose membership privileges have lapsed in terms of paragraph 2.2 or been terminated in terms of paragraph 2.3 may apply for reinstatement, and Council, after review of his/her professional record, may reinstate him/her after payment of the outstanding fees, or on such conditions as Council may decide.
ByL-3.1.	The notice announcing the General Meeting at which a newly elected Council is to take office, in accordance with clause 8.2.1 of the Constitution, shall call for nominations to the Council. The notice shall include the name of the member appointed by Council in terms of paragraph 5.3 of the Constitution.	The notice announcing the General Meeting at which a newly elected Council is to take office, in accordance with clause 8.2.1 of the Constitution, shall call for nominations to Council.
ByL-3.2.	The notice of paragraph 3.1 shall be sent by post to all voting members at least eighty days before the date of the meeting.	The notice of paragraph 3.1 shall be sent to all voting members at least eighty days before the date of the meeting.
ByL-3.3.	Nominations will be requested for: a) a Secretary b) a Treasurer c) six other members of the Council. The same person may be nominated under any of the categories.	Nominations will be requested from voting members for: a) a Secretary b) a Treasurer c) a President Elect d) four other members of Council. The same person may be nominated under any of the categories. Nominations will be requested from Student Members for: a) a Student Member on Council

ByL-3.4.	<p>Nominations of candidates for the Council shall reach the Secretary at least fifty days before the date of the meeting. Such nominations shall bear the signatures of proposer and seconder and shall be accompanied by a signed acceptance of the nomination by the nominee.</p> <p>The Secretary shall prepare ballot papers in which:</p> <p>a) the names of the candidates for Secretary; b) the names of the candidates for Treasurer; shall respectively appear in alphabetical order.</p>	<p>Nominations of candidates for Council shall reach the Secretary at least thirty days before the date of the meeting. Such nominations shall bear the signatures of proposer and seconder and shall be accompanied by a signed acceptance of the nomination by the nominee.</p> <p>The Secretary shall prepare ballot papers for voting members in which:</p> <p>a) the names of the candidates for Secretary; b) the names of the candidates for Treasurer; c) the names of the candidates for President-Elect; d) the names of the candidates for Members of Council shall respectively appear in alphabetical order.</p> <p>The Secretary shall prepare ballot papers for Student members in which:</p> <p>a) the names of candidates for the Student Member shall appear in alphabetical order.</p>
ByL-3.5.	<p>The Secretary shall send out ballot papers for Secretary and Treasurer not less than forty-five days before the meeting mentioned in paragraph 3.1</p>	<p>The Secretary shall send out the ballot papers, in the manner laid down in Section 8 of the by-laws not less than twenty-five days before the meeting mentioned in paragraph 3.1.</p>
ByL-3.6.	<p>Properly marked ballot papers for Secretary and Treasurer shall reach the Secretary not less than thirty days before the meeting.</p>	<p>Properly marked ballot papers shall reach the Secretary not less than five days before the meeting.</p>
ByL-3.7.	<p>The ballot paper for Secretary and Treasurer shall be opened by the Secretary and two scrutineers, appointed by the Council. The signature portions of the ballot papers shall be removed, and the votes shall then be counted by the Secretary and the two scrutineers appointed by the Council, between thirty and twenty-five days before the meeting.</p>	<p>The ballot papers shall be opened by the Secretary and two scrutineers, appointed by Council. The signature portions of the ballot papers shall be removed, and the votes shall then be counted by the Secretary and the two scrutineers appointed by Council.</p>
ByL-3.8.	<p>Addition</p>	<p>In the transition from the old structure of Council to the new structure of council, the President will be chosen as previously, by members of Council, from members of Council, excluding the President-Elect.</p>
ByL -8	<p>Addition</p>	<p>8. Communication with Members</p> <p>8.1. Communication between the Institute and its members shall be in the manner selected by members.</p>

2nd IUPAP WOMEN IN PHYSICS CONFERENCE

MMANTSAE M. DIALE AND NNENESI A. KGABI RETURNS FROM INTERNATIONAL CONFERENCE IN BRAZIL

Mmantsae M Diale of the University of Pretoria and Nnenesi A Kgabi of University of North West in Mafikeng recently returned from Rio de Janeiro, Brazil. They were part of about 145 delegates from 42 countries at the Second International Conference on Women in Physics. Delegates came from Africa, Asia, Australia, Europe, North America, and South America. Worldwide, fewer than 15% of physicists are women. More than 90% of the attendees at this conference were women.

Physics plays a key role in understanding the world we live in. The problem-solving skills of physicists are essential in many industries and to society at large. Because there are so few women in physics internationally today, no country benefits fully from the ideas and efforts women physicists could offer.

The conference featured updates on the situation for women in physics in all the countries plus had a poster session in which the attendees presented their research. The energy level, enthusiasm, and passion were uniformly high for physics, for contributing to their countries, and for increasing the numbers and advancement of women in physics.

It was clear that the scarcity of women in physics, especially in leadership positions, is a problem for many countries, which cannot benefit fully from women's ideas and approaches. Yet women alone cannot solve these problems. Men, institutions, and governments--need to work together with women to encourage, educate, recruit, retain, advance, and promote more girls and women in physics and other science and technology professions.

All attendees at the Rio conference agreed to take action in their countries to disseminate the conference results. They vowed to network with each other and to work actively to promote the recruitment, retention, and advancement of women of all races and nationalities in physics.

Since the 1st International Conference on Women in Physics, held in Paris in March 2002, more attention has been paid to including women in physics in many countries. Some progress has been made, and the number of women in physics has increased in many countries. In South Africa, we do not have correct statistics of Women in Physics and Mmantsae Diale is making efforts to have this corrected. A survey has been sent through SAIP to update the statistics. Thus far only UNISA, WITS, UPE, North West, UNISA and Pretoria have responded by presenting their statistics. The agenda is to have correct statistics ready at the next SAIP conference in Pretoria.

One of the breakthroughs of Women in Physics in South Africa is the Launch of Women in Physics conference

The Second International Conference on Women in Physics met in Copacabana, Rio de Janeiro from 23 to 25 May, 2005. It was co-sponsored by the International Union of Pure and Applied Physics and governmental and private organizations in many countries, including. It was one of many events worldwide celebrating the World Year of Physics, WYP 2005 (for more information see <http://www.wyp2005.org>).

[Mmantsae Diale is a PhD student at The University of Pretoria and Nnesi Kgabi is a Lecturer in Physics at the University of North West.]

Appendix 16

COMMENT RECEIVED FROM MEMBER REGARDING THE SAIP AND AFRIKAANS

The Treasurer received an e-mail from a member of the SAIP, commenting on the fact that, in his perception, Afrikaans is being neglected by the SAIP, and that he is not going to pay his membership fees before receiving an answer to his previous letter to the SAIP (this member wrote a similar letter last year to the Treasurer. The Treasurer responded by stating that the issue of language will be addressed at the upcoming AGM, but that the principle of inclusivity will be of paramount importance).

The Treasurer responded this time by pointing out to the member that an INCLUSIVE language policy was accepted at the AGM. Nevertheless, it appears as if the member will not be placated until he receives a more official response from the Council.

PROPOSAL : The Treasurer has drafted a letter in Afrikaans, to be signed by the President (Secretary ?) and mailed to the member (refer to attached letter). The gist of the letter is to acknowledge the input of the member on the issue of language within the SAIP, and to (gently) point out to him that the Constitution now reflects an inclusive language policy of the SAIP.

J A A ENGELBRECHT
Honorary Treasurer : SAIP

Dr BJE van Tonder
Posbus 70166
Die Wilgers
PRETORIA
0041

Geagte Dr Van Tonder,

PLEK VAN AFRIKAANS IN DIE SAIF

Die Raad van die SA Instituut vir Fisika het met waardering kennis geneem van u skrywe gedateer 3 Mei 2005 in verband met die plek van Afrikaans in die SAIF.

Hierdie aangeleentheid is ook tydens die Algemene Jaarvergadering van die Instituut in Julie 2004 tydens die jaarlikse Kongres van die SAIF te Bloemfontein bespreek. Dit is vir die Raad aangenaam om u te verwittig dat die Konstitusie van die SAIF tydens die AJV sodanig verander is dat die Instituut nou 'n *inklusiewe* taalbeleid handhaaf. Die betrokke deel van die Konstitusie van die SAIF lui tans as volg:

„1.2 Die aktiwiteite van die Instituut kan bedryf word in enige van die offisiële tale van Suid-Afrika“.

Die Raad is van mening dat hierdie inklusiewe taalbeleid ruimte laat vir AL die lede van die Instituut om hulle uit te leef in die taal van hulle keuse.

Die Raad spreek hul vertroue uit dat u u sal kan vereenselwig met die verandering in die Konstitusie van die SAIF, soos bevestig deur lede van die SAIF tydens die Algemene Jaarvergadering in 2004.

Met vriendelike groete,

PROF EC ZINGU
President : SAIF