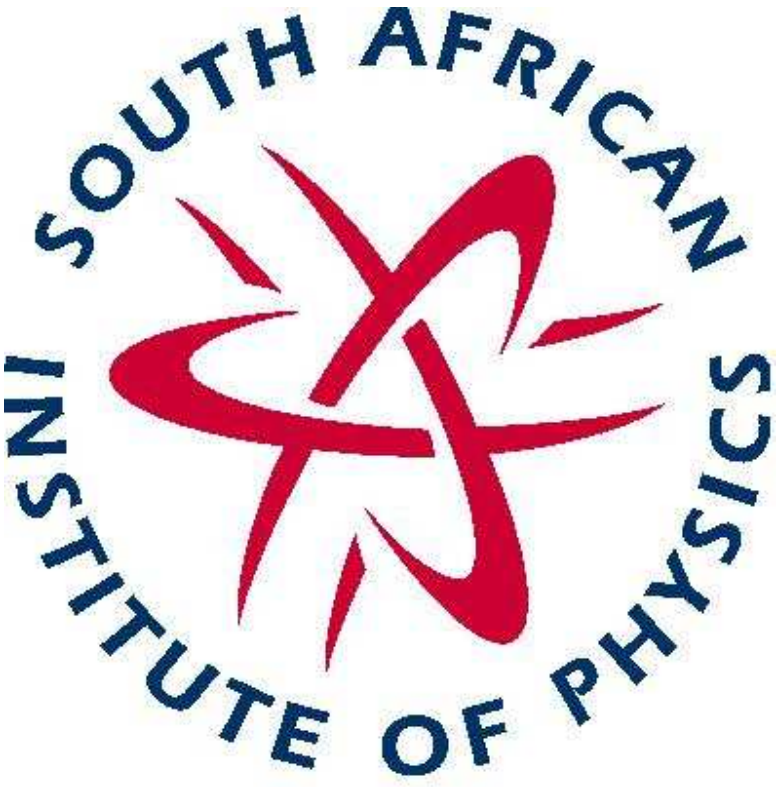
SOUTH AFRICAN INSTITUTE OF PHYSICS



2007/08 Annual Report

Foreword

This annual report covers the activities of the South African Institute of Physics for the period July 2007 to July 2008. During this period activities of the Institute continued to expand, notable was the establishment of the SAIP Office and employment of full time staff to implement projects of the institute. In July 2008 we also awarded the most prestigious award of the SAIP, the De Beers Gold Medal which was awarded to Prof Krish Bharuth-Ram. Two members Prof Patricia Whitelock and Prof Edmund Zingu were elected to Honorary Membership Status of the Institute.

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1 President's Report

1.1 Introduction

The year July 2007 to July 2008 was a very successful year with significant progress, with several projects and initiatives coming to fruition.

1.2 53rd SAIP Annual Conference

Appreciation is expressed to the Physics Department and the Materials Modelling Centre for a successful hosting of the 53rd annual conference. A year ago, the proposal to host the conference was still being negotiated with Council. So, it is remarkable that U. Limpopo were able to stage the conference at such short notice. A special thanks to Dr Erasmus Rammutla and Dr Lutz Ackerman and the Local Organising Committee (LOC) for there sterling efforts. I wish to express gratitude also to Dr Peter Martinez for representing Council on the LOC.

Council agreed to a shortened version of the conference for logistical reasons, but the expectation is that we will return to the full four day format in future.

Council has been treated very well indeed in terms of the many meetings that were arranged on behalf of Council, and this is gratefully acknowledged. Council congratulates Prof Phuti Ngoepe for hosting a very successful Winter School on Computational Materials Science in collaboration with the Royal Society and the CHPC.

1.3 Council

The members of the outgoing council in 2008 are

Table 1: SAIP Council

Council Member	**Portfolio**	
1. Prof N. Chetty (UKZN)	President - Exec	
2. Prof. J.A.A. Engelbrecht (Treasurer - NMMU.)	Treasurer - Exec	
3. Dr Andrew Forbes (NLC-CSIR and UKZN)	Secretary - Exec	Co-opted
4. Prof. H. Moraal (North-West U.)	International Liaison - Exec	Co-opted
5. Dr. S.H. Connell (UJ)	Ordinary Member	
6. Dr. I.M.A. Gledhill (CSIR)	Ordinary Member – Industrial Liaison	
7. Prof. W.D. Heiss (U. Stellenbosch),	Ordinary Member - Awards	
8. Dr. P. Martinez (SA Astronomical Observatory)	Ordinary Member - Conference	
9. Dr. A.Z.A. Combrink (HartRAO)	Ordinary Member – Marketing	
10. Prof. E.G. Rohwer (U. Stellenbosch)	Specialist Group Rep	
11. Mr. G.W. Bosman (U. Stellenbosch)	Student Rep	
12. Mr Byren Archary (DST)	In attendance	Co-opted
13. Mr Brian Masara (SAIP)	Executive Officer in attendance	

Dr Jaynie Padayachee resigned due to work pressures. Dr Andrew Forbes was co-opted as secretary on 08 July 2008.

The Council Executive consisted of Prof Nithaya Chetty, Prof Japie Engelbrecht, Prof Harm Moraal and Dr Andrew Forbes. The Executive was depleted for much of this year, and I would like to

express sincere thanks to Prof Harm Moraal and Prof Japie Engelbrecht whom I leaned on greatly as we dealt with many challenges issues during this time, such as setting up of the Executive Office.

1.4 Meetings of Council During the year

Council meets three times per year. We keep our travelling expenses down to a minimum: For the July conference all councillors pay their own way. At the October council meeting, Council doubles as the SA IUPAP Liaison Committee; the meeting is held at the NRF and the SA ICSU office pays for travel. Furthermore some councillors pay for their own travel for the February meeting.

1. October 2007 – National Research Foundation – Pretoria
2. February 2008 – University of Limpopo – Polokwane
3. July 2008 – University of Limpopo – Polokwane

1.5 President-elect

The Council established a task team comprising Prof N. Chetty, Prof H. Moraal and Prof J. Engelbrecht, to assess the circumstances surrounding Prof Simon Connell's dismissal from Wits. After a lengthy consultative process, where all affected parties were interviewed and where all relevant documents were considered, the task team made the following concluding recommendations to the Council:

In the final analysis, without casting aspersions on SC's testimony, as well as not calling into question the independence of the Wits disciplinary process, the TT notes that SC's dismissal from Wits is an unsettled matter that is under appeal. In discussions with the TT, SC has agreed to relinquish his position as the president-elect of the Institute, and to return as an Ordinary member of the Council, subject to a resolution to this effect by the Council. This does not preclude SC from standing for elections again as the president-elect or for any other position on the Council at a time when the matters around his dismissal are properly resolved.
SC has the opportunity to clear his name through the appeal process that is underway, and to continue re-building his career.

Council accepted the recommendations of the task team on 08 July 2008.

I would like to express gratitude to Dr Connell for his sterling contributions as the president-elect over the past year, and now he continues to do so as an Ordinary Member of the Council, and for his fullest cooperation with the task team process. I wish him success in his new associate professorship at the University of Johannesburg.

1.6 Council Elections 2009

Council resolution: At the next round of Council elections scheduled for March/April 2009, there shall be a call for nominations for the president of the SAIP. Any member of good standing with a minimum of two terms on the Council shall be eligible.

It is important that we give serious thought to our election processes, within Council and also within all groupings of the Institute. We need hard working and dedicated individuals who are serious about moving the agenda of physics forward. The work of the Institute has become much greater. We also need to give attention to electing a good balance of youth and experience. Issues around diversity are important in the South African context, and due consideration should be given to this. In relation to ICSU-related funding recently, this matter was brought up.

1.7 Constitutional amendments

The Council should be free to choose not to fill a vacancy if it so wishes, or to fill a vacancy in a manner as it deems fit, i.e. either hold a by-election, or co-opt an individual, or re-arrange the current portfolios amongst the current Council members.

A new constitution is being drafted by the Council Constitutional Committee. This is an enormous task that began in 2006 that involves assessing the changing environment that the SAIP currently finds itself in, for example in terms the Executive Office, tax, VAT, and NPO status. Also we increasingly need to adopt the principle of delegated authority in overseeing the work of the SAIP, and this principle should be applied to the multiply levels of the Institute with respect to to Specialist Groups, committees, task teams, etc. The manner in which various groupings of the Institute are constituted is being given due consideration. Also clauses around code of conduct and conflicts of interest are being drafted for ALL officers of the Institute. Constitutions from allied bodies such as the SACI, the ASSAF, Royal Society, and elements of the IoP and APS are being considered. This shall become a widely consultative process involving the Constitutional Reference Group, and then the full membership. It is intended that a draft document will be presented at the 2009 AGM.

1.8 Membership

As of July 2008 the membership stood at 468 a decrease of 11% from the 2007 figure of 548 members. The decrease was due to a decision by council to terminate membership for all members whose membership fees were in areas. A membership drive is being instituted by the Council Marketing Committee.

Table 2: Membership Statistics

Category	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**
Associate	25	26	19	17	18	16	13
Emeritus	10	12	10	11	28	33	33
Honorary Inst	1	1	1	1	1	1	1
Honorary	11	12	12	12	12	11	12
Institutional	4	3	4	4	3	3	3
Ordinary	291	295	274	260	258	273	245
Retired	25	26	20	18	6	4	6
Student	48	113	154	166	173	207	154
Subscriber							1
Total	**415**	**488**	**494**	**489**	**499**	**548**	**468**

1.9 The Executive Office

The SAIP is moving into a more modern and professional era with the establishment of the Executive Office of the Institute. Mr Brian Masara has been appointed the Executive Officer (EO) in January 2008, and has been hard at work managing SAIP projects, and helping the Council initiate new projects. It is exceedingly more helpful now to have the professional assistance of the EO to see many of our projects through to completion. The SAIP now has a physical address at the DST Buildings in Pretoria, which puts Mr Masara in constant contact with key government officials. Mr Masara will be spending a week with the IoP in September to learn more about the management of IoP programmes, and fundraising projects. The financial viability of the EO is an enormous challenge for the Institute. The aim is for the EO to be involved in income generation projects that are of benefit to the SAIP and to physics nationally. Miss Isabella Melato has recently been appointed as the personal assistant to the EO. A marketing officer will be appointed soon jointly by the SAIP and the NLC. All funds to date are though a grant from the DST, and this is secure for three years with the condition that the EO work toward financial sustainability over this period of time. The document "Role of the Secretariat" available on the SAIP website needs to be widely circulated.

1.10 Women in Physics

The Women in Physics in South Africa Committee is chaired by Ms Mmantsae Diale. A report is presented by the WiPiSA representative.

1.11 Specialist Groups

Council has met with all Specialist Group Chairs on Thursday 10 July 2008. A brief report is presented by Prof Erich Rohwer who is the Specialist Group rep on Council.

1.12 Council Education Committee

This committee is chaired by Dr Case Rijsdijk. We have discussed a clear distinction between the CEC and the ESG. Current work of the CEC includes managing the FET project on behalf of Council. Also, the CEC is in discussions with Deloitte and Touche on the "Teach South Africa" project which is creating an exciting opportunity for the SAIP to assist in addressing many of the difficulties around the changed high school curriculum in physical science. Thanks to Prof Simon Connell for initiating this project with D&T.

Efforts are being made to institute an annual Physics Olympiad. Also, the CEC is investigating the potential for a new publication to be drafted with school children and teachers as the market, following similar lines to the 'Mathematical Digest'. The CEC was requested to make a proposal to Council for this initiative.

The CEC is an example of Council adopting the principle of 'delegated responsibility'.

1.13 Council Marketing Committee

This committee is chaired by Dr Attie Combrink. New publicity materials are being produced for the SAIP that includes a branding campaign. A membership drive is being initiated. Benefits for members are being communicated to the physics public. The SAIP website is being managed A marketing officer funded by the DST is being recruited to produce materials. There is close cooperation with SAASTA.

A new quarterly publication "Physics Comment" is being designed – this will be managed by an independent Editorial Board. Dr Jaynie Padayachee has been appointed Editor-in-chief. PC will be in the form of a colour PDF electronic document with digital images. Advertising revenue will be solicited. It is hoped that this new medium will stimulate more discussion about future directions in physics in South Africa and beyond.

1.14 Industrial Liaison

This portfolio is held by Dr Igle Gledhill, and she is chairs the Council Industrial Liaison Committee. The Physics500 project is tracking physicists working in industry. Dr Kevin Meyer was contracted to develop a web-based system to manage the data collection. Brochures focussing on physics and physicists in industry may be automatically generated for publicity purposes. Physics500 will be the basis of a more concerted strategy for the SAIP to engage directly with industry in the future, primarily through the Council Industrial Liaison Committee, and the Applied Physics and Industry Specialist Group.

It is very heartening to see the tremendous increase in the contributions to the Applied Physics academic sessions at this conference after some years of difficulties. Council views this change very positively, and emphasises the need for a strong and vibrant Applied Physics community within the Institute.

1.15 International Liaison

Prof Harm manages this portfolio on Council. The Council doubles as the SA IUPAP Liaison Committee. IUPAP related matters need to become more prominent in South Africa, and I urge Specialist Groups to become more strongly coupled to IUPAP activities, especially international conferences – the SA-ICSU office is encouraging this, and some new funding mechanisms are emerging.

Our representatives at the IUPAP GA in Japan in October 2008 are Prof Erich Rohwer (voting candidate), Dr Igle Gledhill (alternate candidate) and Dr Attie Combrink (developmental candidate). Currently Prof Patricia Whitelock, Prof Diane Grayson, Prof Ockie de Jager and Prof Nithaya Chetty represent South Africa in their respective commissions on the IUPAP. New South Africa nominations have been submitted to the IUPAP for the election process that will take place at the GA in Japan. The names of successful candidates will be announced at the appropriate time.

The ICSU GA is to be held in Maputo in October, and Council will be represented by Mr Brian Masara. Mr Brian Masara will be visiting the IoP in September. The lecture series proposed by Dr Herrman Uys from Arizona State University awaits his further communication. Two publications appeared in the APS News in January and March 2008 co-authored by Moraal, Connell and Chetty.

1.16 De Beers Gold Medal

The 2008 De Beers Gold Medal was awarded to Prof Krish Bharuth-Ram at a SAIP De Beers banquet held at Polokwane on Friday 11 July 2008. A high level delegation in the name of Mr

Manne Dipico (former premier of the Northern Cape) and Mr Nico van Zyl (marketing manager of DebTech) graced the De Beers banquet to do the honours of making the award to Krish.

I wish to thank the Awards Committee chaired by Prof Dieter Heiss for their outstanding job. The selection committee comprises physics researchers of high standing, and the committee is independent of the Council.

We have just one more medal left! Council has been able to successfully negotiate with de Beers for the SAIP to continue to use the name "de Beers Gold medal award" into the future. No financial support is guaranteed at this stage. We believe that irrespective of the funding, we must continue with the tradition of excellence that is associated with the name of the award.

1.17 Prof CB van Wyk donation

Council is very grateful to Prof van Wyk for his fantastic generosity. An amount of R50 000 was donated to the Institute to recognise excellence. Council has decided that the interest from this fund will contribute toward a cash prize in the name of Prof van Wyk that is awarded to the Silver Jubilee winner.

Council is contemplating the establishment of a trust fund for recognising excellence in physics. More philanthropy is hoped for, and more funding is being solicited. The EO is actively pursuing these matters on behalf of the Council.

Under these circumstances, Council could re-visit its decision on the future of the CB van Wyk donation, as a separate and more substantial CB van Wyk Fellowship or Award may be contemplated.

1.18 OR Tambo Award

Prof Simon Connell and Mr Brian Masara have met with Mr Dali Tambo about the establishment of an award to honour his late father who himself was a physics and mathematics graduate from Fort Hare University, and who taught science during his exile years in England. There is strong support for the establishment of a suite of awards, and Mr Tambo has pledged to assist in fund raising for the Institute.

1.19 History of Physics

Prof Runan de Kock (US) is compiling a publication on the History of Physics in South Africa. He has requested submissions from all physics departments and institutions. 63 manuscripts have been solicited and 45 have been received. If your institution has not responded, please do so. Council fully supports this project despite some concerns that were raised at the AGM last year.

1.20 Council meeting with Heads of Departments

A proposal has come from our meeting on 09 July 2008 calling for a high level review of the state of high school teaching of physical science and our state of undergraduate teaching at our universities. A suggestion was made that this should be a collaborative effort with other professional societies (chemistry and mathematics), and that this be a presidential intervention. This is a matter that Council plans to take very seriously, and could be named "Shaping the Future of Science Education in South Africa". A task team has been elected to advise Council on the broad principles by which such an exercise could be governed.

1.21 Honorary members

The Council has elected Prof Patricia Whitelock and Prof Edmund Zingu to honorary members of the institute.

1.22 Representatives of the SAIP on various bodies

There is some confusion about who represents the SAIP Council on various bodies. We need to accept that ALL appointments cease at the end of each Council term, and it is incumbent on the new Council to make new appointments.

1.23 Tax Exempt Status

Thanks to Prof Japie Engelbrecht and Prof Simon Connell for helping us achieve the SARS Tax Exempt Status. Deloitte and Touche were paid to act on behalf of the Council on this matter. The expectation is that the SAIP will now need to file income tax returns annually to the Tax Exempt Office. Thanks to Prof Japie Engelbrecht for taking on this additional burden.

1.24 SAIP Conference

Despite detailed Council conference guidelines, there is still too much of "re-inventing" the wheel. We need to centralise many key services in the EO. Also, the EO needs to get more directly involved in the financial planning and financial management of the annual SAIP conference.

The Durban conference organisers need to be aware about these shifting responsibilities. In addition to the Council Conference portfolio being represented on the LOC, so too should the Executive Office.

There have been significant delays in publishing the selected papers from the 2007 conference in the SAJS. Dr Graham Baker has communicated with Council about this on several occasions. Many of the student submissions fell short of acceptable standards. This could reflect badly on the SAIP.

1.25 International year of Astronomy 2009

A national committee is in place, and SAIP has adequate representation. This is a very special opportunity, not just for Astronomy but also for all other disciplines of physics, especially with regard to the promotion of science to our learners and students. It is intended that the 2009 SAIP conference which will take place in Durban will be the focal point of the SAIP celebrations, but other events are also being planned for the year.

Nithaya Chetty
President

2 Executive Officer's Report

The South African Institute of Physics Executive Office was established in January 2009 to function as the administrative arm of Institute. The mission of the Executive Office is to support the Institute in being the voice of physics in South Africa.

The central goal of the Executive Office is to solicit and implement donor- and grant-funded projects that promote the role of Physics in education, re-search, health, the environment, technology and sustainable economic development, thereby enhancing the influence of Physics in South Africa while ensuring that the Institute operates as a world class Physics professional body with a sustainable business footing.

2.1 Major Functions of Executive Office

The major functions and services of the Executive Office are to:

General

(a) Provide executive and administrative support to the Council, and its committees, task teams and working groups, as well as to the Forums and Divisions of the Institute;
(b) Administer the day-to-day affairs of the Institute;
(c) Provide a postal box for the Institute;
(d) Provide policy advice and advocacy on physics related matters.

Project Management Services

(a) Identify physics project opportunities for the Institute;
(b) Formulate, submit and follow up on Institute project proposals and business plans;
(c) Manage, implement and monitor Institute projects; and
(d) Report to Council on the status of all current and proposed projects.

SAIP Conferences, Seminars and Meetings

(a) Standardize and co-ordinate the annual SAIP conference; and
(b) Provide general events management and logistical services for Institute meetings, seminars, conferences, etc.

Maintaining National and International Networks

(a) Forge links between universities, national facilities, industry and commerce;
(b) Maintain a database of physics grant providers, sources of scholarships and research funds; and
(c) Keep members informed of physics opportunities and developments, e.g. bursaries, workshops, conferences, policy matters, etc.
(d) Provide an interface between the Institute and donors, government and the international community;
(e) Maintain a database of national physics stakeholders, e.g. physics departments, National Facilities, Heads of Departments, etc.; and
(f) Maintain a database of international physics stakeholders and relevant institutions such as international Physical Societies, ICSU, IUPAP, etc.

Membership Matters

(a) Receive membership applications and transfer to the secretary for processing;
(b) Maintain a database of the membership; and
(c) Devise strategies for increasing the membership of the Institute.

Physics Marketing and Public Understanding

(a) Market physics, increase the public awareness of physics and enhance the public understanding of physics in society;
(b) Increase the understanding of physics training for jobs in industry and commerce; and
(c) Communicate the availability of jobs in physics to schools, universities and the community-at-large.

2.2 Establishment of South Africa Physics Graduates Database

One of the main objectives is to respond timeously to challenges facing the physics community in South Africa. One such challenge, not only in physics but in other science and technology disciplines also, is the drastic shortage of skills that are needed to service the South African research, teaching and economic sectors.

There is a critical skills shortage in physics. However, there is no single body of information tracking the statistics on the extent of the skills shortage in physics. These statistics are required by SAIP in order to effectively:

1. Liaise with government and to make an input to relevant legislation and decision-making affecting physics.
2. Advise the NRF and other funding agents on matters related to physics funding required for training more physicists.

The Executive Office prepared a project proposal that was submitted to the NRF to fund the establishment of a South African Physics Graduates Database. It is anticipated that this database system will give critical information and statistics to enable South Africa to effectively plan for its physics needs, e.g. funding for research, bursaries for postgraduate training, increasing the number of physicists needed to staff large-scale physics initiatives such as SALT, HESS, KAT, PISA , PBMR and so on. This effort will help underpin the important role of physics in economic development, technological advancement and improving the quality of life.

Confidentiality

Information on the database will be treated confidentially at all times and will be made available only to selected people. For example, you may choose whether you want your details available for further post graduate study, consultancy and employment opportunities.

Benefits of registering and updating your details

1. **Further Post Graduate Study** – The DST and NRF have a vision of a five-fold increase in the number of graduating PhDs. Once you are on the database and you answer YES for further study, your contact details will be passed to universities and funding agents looking for post graduate students. There is a huge shortage of students to train for post graduate studies, and we definitely do not want to loose you!

2. **Consultancy Opportunities** – If you answer YES to consultancy, your information will be made available to organizations and people requiring your services. Hence free advertising of your services!

3. **Employment Opportunities** – Many companies approach SAIP looking for physicists to employ. Once you register and indicate that you are available for employment, the SAIP will refer you to these employers.

3 Treasurer's Report

3.1 2007/08 Audited Accounts

The financial report is attached as appendix 1.

4 Marketing Committee

Implementing the Marketing Committee's Business Plan

This depends on the appointment of the Marketing Co-ordinator. This appointment will be a partnership with the NLC. It has involved the development of the Memorandum of Understanding. Other steps are mentioned below too.

1. **MoA**.
   The MoA between SAIP and CSIR/NLC was finalised and signed ready for implementation and hiring of a joint PULSE SAIP marketing and outreach coordinator.

2. **Budget**
   This is the original SAIP-agreed budget modified to include contribution in kind from the NLC. We accommodate a 12 month "5/8 time" appointment for the Marketing Co-ordinator. (If the PULSE project has evolved to a state of greater financial endowment, it may be possible to reflect this in the budget.)

3. SAIP Executive office will now work with the marketing committee to appoint a suitable candidate for outreach and marketing position.

UN Declaration of the International Year of Astronomy

Kevin Govendor has submitted proposals on how the SAIP could get involved and SAIP has endorsed this proposal.

1. IYA Co-ordinator to work with SAIP Marketing Co-ordinator
2. 2009 SAIP conference themed in line with IYA and astronomy
3. SAIP nominate a contact person to link to IYA

These proposals to assist SAIP participation in IYA

The International Physics talent Search Symposium

In 2006, Council decided to participate. An application was made to the DST for funds to be the Host and Organising Country. Case would be the Organiser. We registered SA as an interested country for participation. The event should take place in mid 2007. No funds were forthcoming from the DST, so the plans to host and organise the event in SA fell through. We drew up the documents for the Talent Search National Competition in SA. Over a long period, up to April 2007, we were not informed of an event date and venue. We were reluctant to initiate the National Competition for the

Talent Search in SA without a firm commitment on the status of the event. Eventually, we sent them a message we would not participate.

The matter is now revived for 2008. The organiser, Sonja Draxler, is back in contact. They do not yet have a venue and a date, and would like us to run the National Competition for the Talent Search in SA, and come up with participants (young ambassadors) so that they can then apply for funding. We feel that we should only run the National Competition for the Talent Search when we are sure the event will take place and have full details

A further point is to establish funding for the participation (travel and subsistence) of the SA Ambassadors who are selected by the Talent Search program. I seem to remember the DST was very committed to this previously.

Current docs have prize winners from the Talent Search as

3 Educators
6 Learners
4 Students

In the 2005 International Symposium, the average delegation per country was 5 people. So we would need about R50k to participate.

5 Students Committee

Chairman: Mr. G.W. Bosman

The following proposals have been put to the SAIP council from the SAIP student members over the last few years:

1. **2004:** A request was put forward that students should have access to information about career and research opportunities. Subsequently a page with relevant information was linked to the SAIP website.

2. **2005:** A request was put forward that students would like to opportunity to interact more with the invited plenary speakers. From the following year (2006) a special lunch was organized for students and plenary speakers where they could interact on a social level.

3. **2006:** The issue about insufficient NRF funding (both in duration and quantity) was again raised. This is an ongoing issue which is raised nearly on an annual basis.

   In 2007 there were no serious issues raised at the 2007 by the students committee.

Dr Peter Martinez addressed the students meeting, on behalf of Mr K Govender, on the upcoming international year of astronomy (2009). He also wished to express council's appreciation of its student members. The United Nations has proclaimed 2009 the international year of astronomy. This serves as the 400 year anniversary of Galileo first looking at the stars with a telescope. Events will be planned across the country, the details of which will be published on the SAAO website. All the students were urged to become involved in the various activities.

A database containing information about physics students is being developed. This is a NRF and SAIP initiative. The database will contain information about a student's qualifications, personal

information, etc. The idea is that this information be made available to prospective employers. The questionnaire that will need to be completed is yet to be finalised.

Publishing of SAIP conference proceedings: Sampson Mamphweli. It was noted that there was an intake of manuscripts from the SAIP conference in 2007 for publication in the South African Journal of Science. This was a pilot program and was not repeated in 2008. Students are however encouraged to submit their research to the SAJS for consideration.

General

a. The chairman explains that student membership of the SAIP provides access to the SAIP council (through the student chairman). This provides a mechanism where issues and complaints, pertaining to students, can be raised at council meetings.

b. The issue about recognition of poster contributions was raised. Most of the subgroups are quite large and therefore a large number of poster presentations are presented at the annual SAIP conference. Not enough emphasis is placed on the poster presentations and the feeling exists that poster presentations are inferior to oral presentations. The general feeling was that this can only be addressed if the location and the timing of the poster presentation are such that it encourages delegates to attend. Having refreshments available, as has been done in the past, can help address this problem. A further question regarding the mechanism for deciding whether a presentation will be an oral or a poster was raised. It was explained by the chairman that the decision lies with the management of the subgroup, and that the decision is often forced by the quantity of the oral presentations that are applied for.

c. The issue of NRF funding for post-graduate studies was raised. There was a general feeling that the funding was insufficient considering the costs of attending university. Clarity on the criteria used to award bursaries was also requested. There was also feeling that 3 years of support is insufficient, especially for obtaining a degree in experimental physics, since often delays (power cuts at national facilities where experiments are planned months in advance) can cause a degree to overrun this time. At least there must be a mechanism where extended funding is available due to unforeseen circumstances. There was also a suggestion that all PhD students, especially with the NRF's goal of increasing the number of graduating PhD students, should automatically qualify for a NRF bursary.

d. There was a request that students be represented at the NRF. This would improve transparency in the decisions from the NRF and will ensure that the NRF policies are in line with the expectations of the students. Feedback on this issue was requested.

e. A request was made for a feedback mechanism for students and delegates to evaluate SAIP conferences. Dr Peter Martinez stated that, on behalf of council, he appreciates the comments. He pledges that such a feedback mechanism will be designed and will be distributed through the chairman (GW Bosman). In this way issues can be addressed. He also requested suggestions on possible questions that can be place on such a questionnaire.

f. DST camps: There are DST camps active in every province. The information on these camps is available on the DST website. There was a general complaint that people were finding it difficult to partake in these camps and that advertisement about the camps should be increased. Dr Peter Martinez confirmed that the SAIP council is the correct channel to approach the DST on this issue. The role of the DST camps, to help high school learners, was also stated.

g. There was a request that the PhD Project camps be distributed in the various provinces. This would cut costs and allow more delegates to attend. It was suggested that a national camp be held bi-annually, which would allow everyone to attend one such camp during their post-graduate degree.

6 Women In Physics

Introduction

The year started with great excitement in the WiPiSA working group camp, with the appointment of Brian Masara as our help during time of need. There was a too much to do, with the preparation of the ICWIP 2008 in Korea. This was tied to the network of African Women in Physics, in which WiPiSA is keen to interact with our African colleagues. We had a duty to inform the WiPiSA public about the ICWIP requirements and making it possible to have a bigger delegation in the country team. We have had a few meetings this year, February, April and June. All our meetings achieved great as we were all working in harmony. We have succeeded to raise some money to fund the ICWIP trip to Korea, for working group and few of WiPiSA members. The criteria for the choice of delegates have been done and we are on our way to ICWIP 2008.

Activities

Meetings of WiPiSA working group in 2008:

February 2008 came with the introduction of the SAIP head of secretariat.
The functions of the Head of Secretariat were clearly given.
The introduction of DST science platform- Mokgadi Madiga
Business plan, proposals to Astronomy week
Follow up meetings were focused on the baseline study report, ICWIP, Future of WiPiSA working group and Business plan.

Meetings with Brian Masara to raise funds for the ICWIP trip to Korea.

The business plan was submitted to DST Science platforms.
€ 2, 000.00 for pre-Korea workshop with African network
ICSU agreed to fund all travel to South Africa for the network and conference venue for pre-workshop.
ICSU will also fund the South African delegates to Korea.
SAIP WiPiSA funds will add R30, 000.00 to the workshop.
Meeting with French embassy to establish joint women in physics Exhibition in October 2008 was discussed, and an agreement was reached to change the idea of pre-conference workshop to post conference workshop.

There have been fruitful discussions from the steering committee for the fundraising and Korea activities. The steering committee was made of Brain, Mmantsae and Igle.

SET4Women

Mmantsae, Igle and Diane attended the SET4Women workshop by NACI.

SABC Dr Diarra

Mmantsae and Igle attended the SABC Africa presentation by Dr Diarra, as a result of SET4Women. WiPiSA has made contact with SABCA producer to engage with WiPiSA about the Women in Physics in South Africa and ICWIP 2008.07.07

7 Gold Medal

7.1 Professor Krishanlal BHARUTH-RAM : De Beers Gold Medal 2008

The 2008 De Beers Gold Medal was awarded to Prof Krish Bharuth-Ram at a SAIP De Beers banquet held at Polokwane on Friday 11 July 2008. De Beers sent a very highly level delegation to the banquet to do the honours of making the award. Mr Manne Dipico, who is the former premier of the Northern Cape, made the award on behalf of De Beers.

CITATION FOR 2008 DE BEERS GOLD MEDAL

Krish, as he is called by his colleagues, The Professor, as he is called by his students, was awarded a PhD degree from the University of Oxford. His research subject, experimental nuclear physics, formed the basis of a superbly successful career as a University teacher, researcher and manager covering the span of nearly forty years.

Krish is an excellent physicist and experimentalist. He has the ability to take the right steps in the design and analysis of experiments. He is known as an expert in Mössbauer spectroscopy and has championed the development of this technique in South Africa. Over the years he constantly sought opportunities to apply this technique to specific South African research problems, involving defects in diamond and related materials. With his strong background in nuclear physics he has broadened his research base to include Solid State Physics, thereby establishing himself as a pioneer in the new field now known as nuclear-solid-state physics. He has collaborated to this day with a number of leading research institutions in various European countries. He was a Senior Fellow of the Alexander von Humboldt Foundation, Germany. These activities have generated well over a hundred publications in international science journals and proceedings.

Krish is an inspiring University teacher. He supervised sixteen higher degree students, the majority of which came - at the time - from an underprivileged background. They, and many others he taught in undergraduate courses, chose physics - and not a financially more attractive subject - as their career. This must be attributed to the charismatic teacher that is Professor Krish Bharuth-Ram.

Krish served for sixteen years as Head of Department and a few years as Dean of the Science Faculty of the University of Durban-Westville. He served on numerous national committees as chairman and was invited to serve on many Organising Committees of International Conferences, at times as Chairman. Needless to say, frequent invitations as a speaker at International Conferences go to his credit.

Krish's unassuming personality - appreciated by everybody who knows him - has earned him unequivocal trust in his managerial skills and scientific expertise. It is also for this reason that he is now holding the position of an Executive Director: National Facilities at NRF.

It is the sum of his activities as teacher, researcher and manager, his unselfish devotion to his students and his steady interest in the development of physics in South Africa, which has led to the decision by the Institute to confer its highest distinction to Krish Bharuth-Ram.

8 SPECIALIST GROUP REPORTS

SAIP currently has seven specialist groups committees are given below

1. **Nuclear, Particle and Radiation Physics Specialist Group:**

- Chairperson: Dr. Simon Mullins (iThemba LABS) email: smm@tlabs.ac.za
- Secretary: Dr. Noel Jacobs (Univ. of Stellenbosch)
- Industrial liaison: Prof. Simon Connel (Univ. of Johannesburg)
- International liaison: Prof. Steven Karataglidis (Rhodes)
- Webmaster: Mark Dalton (Wits)
- Outreach: Dr. Gillian Arendse (iThemba LABS)
- Student representative: J. Diener (Univ. of Stellenbosch)
- Future projects: Prof. John Carter (Wits) and Dr. Rob Bark (iThemba LABS).

2. **Condensed Matter Physics and Material Science Specialist Group:**

- Chairperson: Prof. David Britton (Univ. of Cape Town) email: david.britton@uct.ac.za
- International liaison: Prof. Steven Karataglidis (Rhodes)
- Committee members:
    - Prof. David Britton
    - Prof. Hendrik Swart
    - Prof. Koos Terblans
    - Prof Japie Engelbrecht
    - Prof Karen Pruessner
    - Ms Mmantsai Diale
    - Prof Johan Malherbe

3. **Education Specialist Group:**

- Chairperson: Dr. Gillian Arendse (iThemba LABS) email: gja@tlabs.ac.za
- Vice Chairperson: Sam Ramaila (Univ. of Johannesburg)
- Vice Chairperson: Kevin Govender (SAAO)

4. Applied Physics Specialist Group:

- Chairperson: Trevor Derry Trevor.Derry@wits.ac.za
- Secretary: Chantelle Radue Chantelle.Radue@nmmu.ac.za
- Academic matters: Phil Ferrer Philippe.Ferrer@wits.ac.za
- Outreach: Freddie Vorster Frederik.Vorster@nmmu.ac.za
- Outreach: Katse Maphoto KPMaphoto@necsa.co.za
- Student rep: Angus Morrison angusjamesmorrison@gmail.com

5. Astrophysics and Space Science Specialist Group:

- Chairman : Dr Ramotholo Sefako (SAAO) email: rrs@saao.ac.za
- Secretary: Dr Stefan Ferreira
- Treasurer Dr Patrick Woudt
- Student representative (Space Science): Patrick Sibanda
- Student representative (Astrophysics): Marissa Koltze

6. Lasers, Optics and Spectroscopy Specialist Group:

- Chairperson: A Forbes
- Fund Raising: A du Plessis
- Industrial Liaison: LR Botha
- Secretary, Treasurer: H Schwoerer
- Publicity, Membership, General: E Rohwer
- Public awareness, Schools Liaison. D Esser
- Student representative: G Bosman
- Webmaster: P Neethling

7. Theoretical Physics Specialist Group:

- Chairperson: Prof. Hendrik Geyer (Univ. of Stellenbosch) email: hbg@sun.ac.za
- Student representative: Michael Nock (Univ. of Kwazulu-Natal)
- Committee members:
    - N Chetty

- R De Mello Koch
- WD Heiss
- A Muronga
- F Pettrucione
- FG Scholz

8.1 Applied and Industrial Physics Specialist Group

Report on 53rd conference:

- At 2008 conference the 31 oral presentations were made and 3 posters
- It was noted that SAIP 2008 produced 3 papers that were deemed to be suitable for submission to SAJS, and 2 of these have been accepted for publication.

Feedback on re-structuring of group:

Discussion revealed the following thoughts:

- The definition of the group name depends on where you are (industry / academia).
- It is important and necessary to have this group.
- That is serves a useful purpose is seen by the number of presentations.
- There is a problem in that the APSG seems to be seen as a "catch-all" group by the organisers and the other groups. If a paper can't fit, put it in applied physics.
- Presentations in other groups are also not dealing with fundamental issues – most talks are applied physics.
- How do we choose which presentations belong in the Applied Physics section? Do contributors think their paper belongs in the applied group? If so, accept paper as applied.
- Applied Physics is not a study area – other groups should take ownership in some way.

Committee elections:

It was suggested that other groups should have representation on the committee, and that this should be raised at the SAIP AGM. This was felt to be essential, and that the committee should consist of co-opted members from other groups. It was decided to liaise with members of other groups as necessary, invite them to sit in at meetings, and solicit their expertise when needed. Prof. Martinez suggested that the secretary of other Groups could act as a liaison with the APS Group

Nominations for committee:

The committee was duly elected and consists of the above members.

- Chairperson: Trevor Derry Trevor.Derry@wits.ac.za
- Secretary: Chantelle Radue Chantelle.Radue@nmmu.ac.za
- Academic matters: Phil Ferrer Philippe.Ferrer@wits.ac.za
- Outreach: Freddie Vorster Frederik.Vorster@nmmu.ac.za
- Outreach: Katse Maphoto KPMaphoto@necsa.co.za
- Student rep: Angus Morrison angusjamesmorrison@gmail.com

SAIP 2009:

- The APSG decided to select a theme for SAIP 2009. It was suggested that the theme should be topical, such as issues challenging SA today, for example, energy, climate, etc.

8.2 Astrophysics & Space Science Specialist Group

The current committee is as follows:
Chair: Dr Lee-Anne McKinnell (L.McKinnell@ru.ac.za)
Secretary: Prof. Phil Charles (pac@saao.ac.za)
Fundraiser: Dr Ramotholo Sefako (rrs@saao.ac.za)
Student Representative: Jasper Snyman (fskjs@puknet.ac.za)

Annual conference:

A total number of 52 abstracts were submitted for consideration in this year's program. The group was allocated 30 slots for oral presentations, resulting in a number of papers being moved to the poster session. The resulting SAIP 2008 programme was very full with 30 oral presentations, and 22 posters. There was good representation from the student community with 36 student presentations of which 11 were posters. However, the pressure on slots meant that disappointingly there was no room for non-specialist lectures this year. Nevertheless, an "extra" more general presentation was arranged on the Thursday evening (July 10) when Prof Roy Booth, Director of HartRAO, gave a "mini-plenary" talk on "MeerKAT and the road to the SKA", which was well attended.

Thanks to the generous contributions by the national facilities and the Center for High Performance Computing (CHPC), student prizes will be awarded again this year. The categories for student prizes have been reworked with 6 categories now existing as follows:
PhD 1st Prize, PhD 2nd Prize, MSc Prize in Astrophysics, MSc Prize in Space Science, a Poster Prize and an Encouragement Prize.
As in 2007, an encouragement prize will again be awarded in 2008 to a student who through the presentation of their paper demonstrates that significant effort has been put into producing a good presentation, but who does not necessarily qualify for one of the other prizes. This prize can be awarded to a student who is known to have overcome significant hurdles in order to present, for example, non-english first language background.
Prizes were funded by HMO, SAAO, HartRAO, CHPC and SAIP. Arrangements have been made for all funds to be transferred to the awardees electronically, using the SAIP account, in order to have greater accountability.

The SG committee would like to record the fact that significant problems were encountered with organizing the programme for the 2008 SAIP conference, and would like to request that the SAIP LOCs be expressly advised to communicate with the SG chairs all the time in respect of the programme. Also, our group found it particularly difficult to fit into 3 days when we already have a problem with the limited number of oral slots available. We are growing our group and trying to strengthen participation in SAIP especially by students, and some of the experiences in preparation for the 2008 SAIP will definitely hinder this growth.

Specialist Group Meeting

A specialist group meeting was held during SAIP 2008 on Wednesday 9 July 2008. About 50 people attended from within the Astrophysics and Space Science community, of which approximately half were students. There were 2 main items addressed by the group:

(i) Election of group officers. Single nominations were put forward for the posts of Chairman (Dr Ramotholo Sefako, SAAO), Secretary (Dr Stefan Ferreira) and Treasurer (Dr Patrick Woudt, UCT), and these were duly elected unopposed. Four nominations were received for Student Representative, and it was decided to elect one each from the astrophysics and space science communities. Voting by the students present resulted in the election of Patrick Sibanda (space science) and Marissa Koltze (astrophysics).

(ii) Operation of group at SAIP with single or parallel sessions. This issue was discussed at last year's meeting, at which there was no clear consensus on the way forward. However, the continued growth in both communities has led to an increased number of abstracts being submitted, which, combined with the reduction of this meeting from 4 to 3 days, made it impossible to accommodate all requests for oral presentations. Indeed, it was only possible to achieve the Limpopo schedule by omitting the non-specialist presentations at this meeting, a change that caused concern amongst all present. While efforts are underway to improve the participation in and profile of poster presentations, both the astrophysics and space science fields are clearly deserving of higher levels of support at SAIP. Following a lively discussion of how best to resolve this problem, there was unanimous support for moving to parallel sessions for the specialist presentations of each community, but with joint sessions for non-specialist lectures. It was proposed that the non-specialist talks be solicited in ways that would make them of interest to all. Such a change in organisation of group presentations would make it much easier to accommodate the 3 day meeting format if it is continued. This proposal was recognised as the best solution to the current problem (where several students who had wished to make presentations were unable to do so), while maintaining the cohesiveness of the astrophysics and space science communities. It was further proposed that, for the effective running of the group, the posts of Chairman and Secretary be divided and alternate between the two communities (as has informally been the case in recent years).

PAC also informed the meeting of the possibility of South Africa as a host for the 2015 General Assembly of the IAU, and what the consequences of doing this would be. Furthermore, Cape Town had already been offered as host of the 2011 regional meeting of the IAU for the Middle East and Africa (MEARIM).

HartRAO

The two most significant events at HartRAO during the past year are the final erection and commissioning of the XDM KAT prototype antenna, and the achievement of e-VLBI connectivity to Europe with a sustained data rate of 32 Mb/s

The 15m composite reflector of the XDM antenna, measured using photogrammetry, was found to have an rms surface accuracy of around 1.5 – 2.5 mm, making it a useful dish at frequencies as high as 12 GHz, as proven through observations of Venus with a HartRAO built 12 GHz receiver..

Hartebeesthoek is one of the few remaining antennas of the European VLBI network to achieve real-time fringes using the technique of e-VLBI. This was achieved in May 2008 when the final fibre connections from the observatory to the SANREN system were put in place. With pressure from DST and help from SANREN and the Muraka institute of CSIR, we were able to connect directly to the VLBI processor of the Joint Institute for VLBI in Europe. Connectivity was even achieved between HartRAO and the Arecibo telescope in Puerto Rico

HMO

This section contains highlights from HMO for the period July 2007 – June 2008.
During the year the HMO holds three major schools for students, namely:

- A summer school in Digital Signal Processing for 3rd year students;
- A summer school in space physics for NASSP honours students;
- A winter school in space physics for 3rd year students;

All 3 schools have been very well supported in the past year, and HMO has received good evaluations from the students attending. This year also saw a record number of students attending and there was support from a number of universities sending students for the first time.
During November 2007, Dr Lee-Anne McKinnell, Dr Pierre Cilliers and 2 students travelled to Ethiopia to attend the International Heliosphencal Year (IHY)-Africa 2007 workshop in Addis Ababa. This workshop was held in conjunction with the 2008 SCINDA workshop, and was well attended with some 60 African scientists.
Dr Lee-Anne McKinnell attended the annual International Reference Ionosphere (IRI) workshop in Prague, Czech Republic during July 2007. Two students also attended and all presented on their recent research findings.
Dr Ben Opperman and Dr Andrew Collier travelled to the SANAE Base in Antarctica as part of the summer take over team. Dr Opperman was assisting the IPY engineers with new equipment installation, and Dr Collier was performing maintenance on the VLF receiver equipment housed at SANAE. During the 3 months of the 2007/2008 take over, HMO had a record number of 8 staff members at the base.
The Department of Communications (DoC) has purchased a new ionosonde (Digisonde DPS-4D) which has been installed in Hermanus at the HMO. Much of the past year has been spent on the infrastructure required for housing the ionosonde, and the antenna fields. The ionosonde arrived at HMO in June 2008 and was installed on the 1 July 2008.

SAAO

2007/08 has been dominated by SALT commissioning and the ongoing investigations into the two main problem areas that have prevented SALT from reaching its design goals:

(i) the image quality (IQ) does not meet specification across its full field of view, and moreover shows variability in IQ. Extensive efforts by SALT and SAAO staff have shown that the problem likes in the opto-mechanical interface of the SAC (Spherical Aberration Corrector) to the payload structure. A mechanical redesign is now underway with major progress expected by the end of the year.
(ii) the blue throughput loss in the main SALT instrument, RSS (Robert Stobie Spectrograph) is due to an optical problem with the lens coupling fluid. This required dismounting and dismantling RSS so as to send the optics back to California for repair (and where necessary,

remanufacture). The problem is now fully understood. We are expecting the optics to return to SA imminently, when RSS will be reassembled, realigned and fully tested before remounting on SALT. This is likely to happen in Sep/Oct, but the precise schedule is linked to the SAC repair.

Meanwhile all SALT testing and observing is being performed with SALTICAM, the imaging camera, in both conventional and fast modes. At the Durban SALT Board meeting in October, both AMNH and IUCAA were formally welcomed as new SALT partners. At the Gottingen SALT Board meeting in May, the University of Wisconsin announced their receipt of a $3.3M grant to build the near-IR arm of RSS, and construction will begin shortly.

SAAO's Cape Town site is undergoing a major electrical upgrade/refurbishment in order to support a new IT centre which will house a data archive/processing facility for SALT data. In Sutherland, the new Recreation Centre for local staff, visitors and observers was opened by Prof Krish Bharuth-Ram. All these developments have been funded jointly by the SALT Foundation and NRF/DST.

Lee-Anne McKinnell, Chair Phil Charles, Secretary

8.3 Condensed Matter Physics and Material Science Specialist Group

The specialist group sessions were well attended, particularly by younger and student members, and available presentation slots were filled. The Awards Programme was again advertised widely in order to encourage students to present their research work in the fields of Condensed Matter Physics and Materials Science. Entries were received for all categories, except for the two Honours prizes: the essay and the poster presentation at the conference. The winners of the other 7 prizes will be announced at the conference dinner and published on the website.

An email call for nominations was issued in June. The only nomination received in addition to the existing committee was Prof Karen Prussner. Prof David McLachlan decided not to stand for re-election. The membership of the new committee was ratified by the AGM. The other elected members are Prof David Britton, Prof Hendrik Swart, Prof Koos Terblans, Prof Jaapie Engelbrecht, Ms Mmantsae Diale, and Prof Johan Malherbe. Dr. Chris Theron of Element Six will continue as the Industry Representative.

A third workshop in the highly successful “photonics materials” series will be organized by Prof Danie Auret to be held in 2009.

8.4 Physics Education Specialist Group

- The PESG will be headed by Gillian Arendse (iThemba LABS) as Chair. He will be supported by Sam Ramaila (UJ) and Kevin Govender (SAAO) as Vice Chairs.

- The primary and urgent task for the group is to carry out a detailed survey of all Physics Education Research taking place in South Africa and to establish links with these researchers and students. This will be a drive to re-invigorate the PESG in a climate when

the number of contributions is at a low. This will entail examining other similar conferences and communities such as the South African Association for Research in Mathematics, Science and Technology Education (SAARMSTE) and the South African Association of Science and Technology Educators (SAASTE). From these efforts the PESG will compile a database of researchers and students involved in Physics Education Research and use it to draw more people to SAIP.

- The PESG should, in conjunction with the LOC of SAIP, arrange for the involvement of local schools and education related activities at SAIP conferences.

- The issue of membership and registration of educators was once again brought to the table. The PESG proposes that there be greater marketing towards getting high school science educators onto SAIP membership and that the registration fees for such educators attending conferences should be as low as possible.

8.5 Lasers Optics and Spectroscopy Specialist Group

SAIP 2008

The 2008 conference has once again been a success for the group, with around 26 oral and 26 poster presentations.
The format of the conference this year resulted in the NLC user group report back meeting being held as an extension of the SAIP conference on Monday. This arrangement is mutually beneficial.
The subgroup again managed to secure sponsorship from the CSIR (NLC), the Laser Research Institutes and their respective OSA student chapters, Scientific Development and Integration, and the SAIP for student prizes.

Plenary speaker Prof Zumbusch, sponsored by LRI and NLC.

Photonics initiative.

The Photonics Initiative of South Africa (PISA) status: A workshop between representatives of stakeholders will be held on the 5-6th August to generate a strategy for PISA. All members are encouraged to contribute the take part in the initiative.

The NLC

The CSIR (NLC) continues to serve the lasers community through its rental pool program. The rental pool program feedback session was held on the Monday before the SAIP meeting. .

The ALC

The ALC is an ongoing initiative, fully funded by the South African government. An ALC course on an Introduction to Lasers at Stellenbosch was held in November. Another is planned for this year, funding is still pending. A successful students meeting was held at Kariega during 2008.

ICO: Application for membership in progress.

High power laser workshop:
The planned high power laser workshop (NLC IThemba LABS, LRI) has received funding and will take place in January at STIAS in Stellenbosch. Particle Acceleration and Generation of High Energy Radiation with High Intensity Lasers, January 12 – 16, 2009, Stellenbosch Institute for Advanced Study

OSA chapters:
Student chapters at NLC and LRI

Terms of Reference

The TOR was discussed at the specialist group meeting. Changes were made in view of potential outcomes of PISA. Out of one portfolio two were created:

1. Fund Raising
2. Industrial Liaison:

Election of committee for specialist group:

Portfolios of Specialist Group Committee

1. Chairperson: A Forbes
2. Fund Raising: A du Plessis
3. Industrial Liaison: LR Botha
4. Secretary, Treasurer: H Schwoerer
5. Publicity, Membership, General: E Rohwer
6. Public awareness, Schools Liaison. D Esser
7. Student representative: G Bosman
8. Webmaster: P Neethling

8.6 Nuclear, Particle and Radiation Physics Specialist Group

SAIP08 Conference Statistics
There was a total 35 presentations (28 oral and 7 posters) in the NPRP Specialist Group sessions. There was 7 M.Sc. and 4 Ph.D. level oral contributions, respectively and 4 M.Sc. and 1 Ph.D. level poster presentations, respectively. Due to time constraints 5 oral contributions had to be shifted to Applied Physics and Theoretical Physics sessions.

SAIP08 student prizes
Four cash prizes, namely 2 Ph.D. prizes of R1250 and R1000 (courtesy Bio-Teknik), 2 M.Sc. prizes of R1250 and R1000 (courtesy Bio-Teknik). Presentations are being judged by Dr. Zinhle Buthelezi (iThemba LABS), Prof. J.F. Sharpey-Schafer (UWC) and Prof. S. Karataglidis (Rhodes). Dr. Simon Mullins will hand over prizes at the banquet.

Activities associated with committee portfolios

- Future Projects: R Bark, J Carter

One of the possible future directions for nuclear physics research is to exploit radioactive beams to produce exotic nuclei. The possibilities for the production of radioactive beams at iThemba LABS were presented in a talk at SAIP07. They can be broadly classified under two techniques, Projectile Fragmentation (PF) and Isotope Separation On-Line (ISOL). The former technique typically requires relativistic beam energies while the latter technique requires two accelerators. At iThemba LABS, the installation of the GTS ECR ion-source will allow beams of up to A~40 to reach energies of up to 30~40 MeV/A, allowing some light exotic beams to be produced.

For ISOL beams, the possibility of a second accelerator at iThemba has been raised in discussions with NECSA, in connection with commercial isotope production. These discussions are still at a preliminary stage, but the new accelerator could deliver a high-intensity proton beam of 70 MeV, which could be split and used in two separate beamlines, one for isotope production and one for physics use. The second beam could form the driver for an ISOL system while the SSC would fulfil the role of post-accelerator.

A possibility would be the fissioning of uranium to produce neutron rich isotopes. An ion-source would then need to be developed to extract the desired radioactive beam species. A promising method to selectively ionize the species of interest with high efficiency is to use laser ionization. This technique would need some development but sufficient expertise exists in South Africa to do so.

iThemba LABS has contacted Professors Heinrich Schwoerer and Erich Rohwer of the University of Stellenbosch (US) for advice on laser ionization. A current interest at US is the use of lasers to *accelerate* ions, with the iThemba LABS site being ideal for this purpose. Because of the mutual interest in lasers and accelerators, a workshop on “Lasers and Accelerators” has been planned for January 2009. Two speakers have been invited to give lectures on laser ionization, Dr Iain Moore from the University of Jyväskylä and Dr Ulli Köster from ISOLDE at CERN. The next stage would be to build a demonstration laser ionization source, using existing beams from the SSC.

In a separate development, the SA-CERN Programme has proposed travel money for use of South African researchers for visits to the REX-ISOLDE radioactive beam facility.

Outreach: GJ Arendse [iThemba LABS]

The activities related to the promotion of Nuclear Physics amongst learners, teachers, students and the general public has for the biggest part of the year been driven by individuals linked to the national facilities and universities without real input from the "liaison officer". To this extent a (very successful) summer school was held which was organized by staff at iThemba Gauteng and Wits. I have however had the opportunity to accompany students to Dubna in Russia, where I had limited input into what "we would like to get out of the exercise". The students did however get the opportunity to give short presentations on their experiences during the week. I have recently (1 January) joined iThemba LABS as Manager of their Science and Technology Awareness Programme. I have since my appointment presented an overview of the activities at iThemba LABS to learners who attended the science week in Stellenbosch. We have also had a learner from Rondebosch High who spent

three days jobshadowing staff at iThemba Labs (physics, medical radiation, isotopes and materials research). The interaction with learners and teachers are on-going and will definitely pick up in the near future.

International Liaison: Z Buthelezi [iThemba LABS]

The "newly" established SA-CERN programme: this is a huge initiative driven by SA scientist involved in CERN (European Centre for Nuclear Research situated between Switzerland and France) projects e.g. ALICE, ATLAS, ISOLDE, etc. The programme which includes scientists from iThemba LABS, UCT, WITS, Rhodes University and UKZN is funded by DST. The funds will enable scientists (and students, where applicable) to travel to CERN to partake in experiments and to attend collaboration meetings as well. There are many opportunities within this programme for both scientists and students alike. For more info contact Prof Jean Cleymans (chair), Jean.Cleymans@uct.ac.za or the secretary, Dr SV Fortsch (fortsch@tlabs.ac.za).

I would like to bring your attention to a training possibility in beam instrumentation for postgraduate students or young scientist (at MSc, PhD and/or Post doc level) which was advertised by Dr Anne Dabrowski (CERN Fellow working on a CLIC project). This is a European initiative (DiTANET: Diagnostic Techniques for future particle Accelerators, http://www.kip.uni-heidelberg.de/DITANET/) to encourage education in Novel instrumentation, funded through the Marie Curie fellowship program. Dr Anne Dabrowski is a former UCT graduate who holds a prestigious fellow position at CERN. Her group (CLIC: Compact Linear Collider is a future electron-positron collider proposed at CERN to explore energy regions beyond those reached by current particle accelerators) are opening 3 positions for "early stage researcher" and she'll be co-supervising one of the positions. This is a great opportunity for someone who is at MSc, PhD level and has interest in Accelerator Physics and associated fields.

Nuclear Physics Schools and Symposia

iThemba School on Nuclear and Particle Physics and Applications 2008
[report by Elias Sideras-Haddad, Chairman iThemba School 2008]

The 2008 iThemba School in Nuclear and Particle Physics organised by iThemba LABS Gauteng was held at the Skukuza Auditorium within the Kruger National Park from Sunday 27.01.08 to Sunday 03.02.08. A total of 62 students from various universities (North-West, Zululand, Wits, UCT, Nelson Mandela, Fort Hare, UWC, Pretoria and Stellenbosch) attended the School. The student audience was made up from about 25% B.Sc. level, 25% B.Sc. Honours and about 50% of postgraduate students (M.Sc. + Ph.D.). The interest and enthusiasm shown by the students for the School went well beyond the expectation of its organizers. The well selected and prepared material by the lecturers and sophistication in teaching style took the students aback. The School acted as an eye-opener for the students and motivated those to get involved in high standards postgraduate research studies.

Winter School for South African postgraduate students at the Joint Institute for Nuclear Research in Dubna, Russia

23 Students from across South Africa attended the Joint Institute for Nuclear Research (JINR) Winter Practice in Dubna, Russia from 9 to 19 December 2007. This visit was as a result of the Memorandum of Understanding (MOU) signed between South Africa and the JINR in October 2005, in Moscow. The JINR is an international organization that was established in 1956. It consists of eighteen member countries and 71 partnering institutions in 45 countries mostly from central and Eastern Europe. It is also one of the foremost nuclear research establishments in the world and is credited, for example, with the discovery of several new elements of the periodical table. Contacts between South African researchers and those based in the Russian Federation date back to the late nineties. The MOU designates South Africa, through the Department of Science and Technology (DST), an associate member of the JINR. South Africa's financial contribution covers its membership fee as well as support for joint projects with JINR. In 2006 an amount of $ 1 250 000 was earmarked for the collaboration and the DST has delegated the National Research Foundation (NRF) to administer the funds for future projects. The aim of the Winter Practice was to give its participants an idea of JINR fields of research and offer them a possibility to meet JINR research teams. Students worked on research projects at JINR facilities and attended lecture courses delivered by leading JINR scientists. Over the weekend they enjoyed social excursions to Sergiev Posad, the centre of the Russian Orthodox Church, as well as Moscow.

Inaugural mini-symposium on gamma spectroscopy

The inaugural mini-symposium on gamma spectroscopy was held on the afternoons of Wednesday and Thursday (23 and 24 April 2008), in the auditorium at iThemba LABS. There were informal presentations on some "hot" topics related to the present and future gamma spectroscopy research at iThemba LABS. Dr. Elena Lawrie (iThemba LABS) was the symposium organizer.

Symposium: From EARTH to the Moon

An afternoon mini-symposium surrounding topics related to the Earth AntineutRino Tomography (EARTH) project was be held at iThemba LABS (iTL) on Friday, 29 February 2008 in the iTL auditorium. EARTH is an ambitious international research programme with the aim of mapping the location of the radiogenic heat sources in the Earth's interior. The programme in South Africa is a collaboration of the three Cape universities and iThemba LABS. Presently a detector is being built with which the feasibility of such a project will be tested. After testing at iTL, further tests will be carried out using antineutrinos at Koeberg. This also signals a potential spin-off of the project, namely the monitoring and safeguarding of nuclear power reactors. Dr. Ricky Smit (iThemba LABS) was the organizer.

Future events

- September-October 2008: School on nuclear and particle physics (venue: JINR, Dubna, Russia)
- early January 2009: Workshop on lasers and nuclear physics (venue: iThemba LABS)
- late January 2009: Chris Engelbrecht Summer School focusing on Nuclear Astrophysics (venue: Stellenbosch Institute for Advanced Studies)
- February 2009: School on synchrotron physics (venue: to be announced)
- January 2010: iThemba LABS School on Nuclear and Particle Physics (venue: to be announced)

Report from the Director of iThemba LABS, Dr. Z. Vilakazi

This past year has been characterised by major challenges which iThemba LABS (and users) have had to contend with. Paramount of these is the power/energy crisis and its impact on beam availability for physics research.

- iThemba LABS' management was thus put in a position in which decisions had to be made; which - to this end - has meant that a new/revised schedule for physics was arrived at. This was part of iThemba LABS playing a role in reducing the baseline load demand on the grid (recall that iThemba LABS is considered a Large Power user (LPU) drawing close to 5.4 MW!). Proton therapy is now conducted on one weekend per month instead of on Monday and Friday mornings. On all other weekends the energy change for Physics beam will commence at 06:00 on Friday morning with beam on target expected at ~12:00. If there is a need for iThemba LABS to reduce average power consumption (voluntary load shedding) the accelerators will be switched off on Monday morning. However Physics will be able to continue until 12:00 on Mondays if the demand on the National Grid allows it.

- Positive news relate to the fact that we have had a bumper year with isotope production reaching an all-time high of R12.5m!

- The SA-CERN programme (headquartered at iThemba LABS) and chaired by Prof Cleymans (UCT) is a major South African initiative of a disparate consortium of researchers to leverage resources for access to world leading facilities. The programme consists of the following member institutes: iThemba LABS-UCT (ALICE); UJ-Wits (ATLAS); UKZN-Wits (ISOLDE) and Rhodes (nuclear and HEP phenomenology). A business plan has been submitted to DST and a governance structure is now finalised. The SAIP president will be kept abreast of the details of the programme.

- Development of ECR ion sources: The ECR ion source from the Hahn-Meitner Institute should be able to deliver beam by the end of August. The final components for the second new ECR source will be delivered within the next month, after which installation will commence.

- iThemba LABS Summer School: A very successful summer school was held at the Kruger National Park (Skukuza Camp) in January 2008. Following from the recommendations of last years' committee - the school has now been renamed iThemba Summer School in Nuclear and Particle Physics. The organisation and management was done by iThemba LABS under the chairmanship of Prof Haddad with Dr Machi providing institutional support. The school was - once again - a resounding success.

- Dubna agreement: The programme is now in its third year. Areas of success can now be noted. Dr Simon Mullins who is the DST linkman will give all details of the programme thus far. Suffice it to say that several joint experiments between iThemba LABS and Dubna were conducted. Furthermore, areas of mutually beneficial programmes between iThemba LABS and JINR are being explored.

Election of new specialist group executive committee

A new committee was elected at AGM of the specialist group which was held on 9 July 08.

The results of the election are as follows:

- Chairperson: Dr. Simon Mullins (iThemba LABS)
- Secretary: Dr. Noel Jacobs (Univ. of Stellenbosch)
- Industrial liaison: Prof. Simon Connell (Univ. of Johannesburg)

- International liaison: Prof. Steven Karataglidis (Rhodes)
- Webmaster: Mark Dalton (Wits)
- Outreach: Dr. Gillian Arendse (iThemba LABS)
- Student representative: J. Diener (Univ. of Stellenbosch)
- Future projects: Prof. John Carter (Wits) and Dr. Rob Bark (iThemba LABS).

General

At the AGM Prof. Connell discussed the context of a letter he sent to the chairperson of the specialist group concerning opportunities for interaction of the research community with the nuclear industry via the Nuclear Industries Association of South Africa (NIASA). He mentioned the fact that cabinet has adopted a strategy to significantly increase the percentage of electricity generated via nuclear power stations. In pursuit of this goal cabinet has earmarked at least R 200 billion over the next 20 years. Prof. Connell expressed the opinion that the specialists group community should interact with NIASA and demonstrate to role players the role research has played in training current and future staff in the nuclear industry. He also felt there was a lot of research opportunities related to the nuclear industry for South African researchers. After some discussion it was decided that a committee should be constituted to actively engage with NIASA, selected members of the nuclear industry and government to create an interface with the specialists group community. The elected committee members are as follows: Prof. Simon Connell (UJ) (chairperson), Prof. John Sharpey-Schafer (UWC), Dr. Richard Newman (iThemba LABS), D.Singo (UCT/iThemba LABS), and S. Ntshanghase (UCT/iThemba LABS). It was also suggested that Prof. Robbie Lindsay (UWC) should be approached to serve on the committee.

Prof. Jean Cleymans introduced the South African-CERN programme that was recently launched. Prof. Cleymans is the chairperson of the programme. The current activities in the programme revolve around the ALICE detector (Large Hadron Collider) and ATLAS (Large Hadron Collider), the ISOLDE facility where radioactive ion beams are used to study materials, atomic and nuclear physics and HEP phenomenology. The programme received seed funding from the DST and a full business plan was submitted for approval. More detail can be found in reports above.

8.7 Theoretical Physics Specialist Group

NITheP established during 2008.
Opening of NITheP in May 2008. Inauguration address delivered by Minister of Science & Technology, Mr Mosibudi Mangena; attended by Stephen Hawking and Nobel Laureates David Gross (who gave the inauguration lecture) and George Smoot

International and local advertisement: Prof F Scholtz the first Director; deputy-directors at nodes: Profs F Pettrucione (UKZN) and J Rodrigues (UWits); first 3 researchers and 4 postdocs appointed. Afman electronic structure workshop at AIMS after the conference, 14-25 July 2008; funded by NITheP, ICTP and Democritus Institute.

January 2008 Chris Engelbrecht Summer School on Soft Condensed Matter and Physics of Biological Systems – attended by 60 registered participants (seven lecturers); followed by week long workshop.

January 2009: Chris Engelbrecht Summer School focusing on Nuclei and Nucleonic Structures; some emphasis on Nuclear Astrophysics (venue: Stellenbosch NITheP/Institute for Advanced Study) details at www.sun.ac.za/summerschool

9 Appendix 1 – Audited Accounts

SOUTH AFRICAN INSTITUTE OF PHYSICS

FINANCIAL STATEMENTS
for the year ended 31 March 2008

The financial statements set out on pages 2 to 4 are certified as a correct reflection of the financial state of the Institute for the year ended 31 March 2008

President

Treasurer

ACCOUNTING OFFICER'S REPORT

I have determined that the financial statements are in agreement with the accounting records. No audit was required and none has been conducted, but I have adopted such procedures, and conducted such enquiries in relation to the accounting records as I considered necessary to ensure the correctness of the statements.

The financial statements do not reflect outstanding membership subscriptions, where a number of fees are still due.

The Accumulated Funds have not been apportioned to set aside funds for the provision of Bursaries and Prizes.

The budget for the year ended 31 March 2009 appears to be realistic.

Peter van der Merwe
B.A.(UCT) C.A.(S.A.)
Port Elizabeth
30 May 2008

SOUTH AFRICAN INSTITUTE OF PHYSICS

INCOME & EXPENDITURE ACCOUNT
for the YEAR ENDED 31 MARCH -

	Notes		2008 R		2007 R
INCOME					
Membership fees					
- Ordinary & Associate			66430		70985
- IoP Members			5640		5595
- Institutional members	1		6000		7600
Total membership fees			78070		84180
Conference Income (UP)	2		38441		0
Donations			225		200
Interest - on savings accounts			156315		56370
Sponsorships			8500		7000
TOTAL INCOME			281551		147750
Less : EXPENDITURE					
Affiliation fees -NSTF & NIASA		1500		450	
Membership - IoP to UK		0		7884	
Accounting fee		3000		2500	
Bank charges		811		556	
Conferences		0		15000	
Honoraria		10500		8000	
Meetings - Educational Committee		5011		0	
- IUPAP		17760		0	
Prizes - Astrophysics & Space Science		6000		4000	
- Theoretical Physics		1000		1000	
- Lasers & Photonics		3000		2500	
- Applied Physics		3500		2500	
- Nuclear		1000		1000	
Secretary's expenses		2419		1983	
Treasurer's expenses		215		971	
Travel expenses		27727		23747	
History of SAIP transferred to CD's		375		0	
Website & Postnet box		990		990	
Winterschool		7833		0	
Sundries - engraving of medals		0	92641	0	73081
SURPLUS for the YEAR			188910		74669
Conference Income - refunds			0		13113
ACCUMULATED FUNDS, b/fwd			369183		281402
ACCUMULATED FUNDS, c/fwd			558093		369183

SOUTH AFRICAN INSTITUTE OF PHYSICS

BALANCE SHEET
at 31 MARCH -

	Notes	2008 R	2007 R
ASSETS			
Cash at bankers			
- Standard Bank SME a/c 1 759 593 2		32821	38719
- Stanlib Moneymarket A a/c 75178308		1746621	748103
- Stanlib Moneymarket B (CB van Wyk Trust)		56091	51117
		1835533	837939
Accounts receivable		0	8000
TOTAL ASSETS		1835533	845939

FUNDED BY -

1. ACCUMULATED FUNDS		558093		369183
(i) DST - Women in Physics	193013		514000	
Less : Costs	66970	126043	320987	193013
(ii) DST : Contribution to Physics Office	527000		0	
Less : Costs	28256	498744	0	0
Contribution to Physics 500	79000		0	
Less : Costs - K Meyer	25000	54000	0	0
Contribution to Physics Marketing		250000		0
(iii) SAASTA Grant	175750		175750	
Less : Payment - Theoretical Physics	0	175750	0	175750
(iv) FET Project	46491		89100	
Further contribution	98010		0	
Less : Costs	30690	113812	42609	46491
(v) CB van Wyk Trust - Donation	51117		50000	
Add : Interest to 31 March 2008	4974	56091	1117	51117
CURRENT LIABILITIES				
Accounts payable		0		7884
Provision - Accounting fee		3000		2500
		1835533		845939

SOUTH AFRICAN INSTITUTE OF PHYSICS

NOTES TO THE FINANCIAL STATEMENTS
for the year ended 31 March 2008

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1. Institutional members : NNR
NECSA

2. Conference Income :

		R
Current year -		
2008	Pretoria University	38441

3. Future of Physics
The Department of Science and Technology met its commitment to contribute R 856 000 to the development of initiative in this area

4. Accumulated Funds
No decision has yet been made to set aside a portion of the Accumulated Funds for the provision of bursaries and prizes, which it is believed is the intention of the Institute. It is suggested that this be done