Physics Comment

A Southern African Physics Magazine

Vol. 3, Issue 3, September 2011

http://www.saip.org.za/PhysicsComment
PhysicsComment@saip.org.za

56th Annual Conference of the South African Institute of Physics organized by UNISA

Editor: Prof. Thomas Konrad

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Editor's Note

Physics Comment (PC) is published online, which means you visit a website and open (or download and print) a file. I find it a peculiarity of virtual media that they might announce in the table of contents, like this issue does, photos of a conference or a feature on 'why the SKA should be built in South Africa', but the corresponding pages contain only a link to an online folder tree with photos or a brief sketch of 12 reasons for the SKA and a pointer to a detailed article. This keeps these publications relatively light (not to say empty) and might lead to future journals consisting of decision trees that direct the reader to the article with the length and depth of his or her choice. All jokes aside, the current PC issue offers the possibility to page through the full SAIP collection of photos (p. 7) and download an interesting article on SKA (p. 9) which otherwise would have gone beyond the frame of PC – it fills a whole special-edition SKA newsletter.

Moreover, this issue contains a first report on the statistics of graduates in Physics in South Africa (p. 13) collected by means of the *SA Physics Graduates Database*. It shows the distribution of their degrees, what they specialised in, where they work (51% teaching, 24% in research facilities and 11% in industry) and that 23% of Physics graduates are female.

I hope you enjoy the new issue of PC!

I am grateful to Mr Brian Masara for assisting me with the editing process.

Prof Thomas Konrad

Captions for pictures on title page. Upper row: conference group photo, lower row: Dr Rob Adam, CEO of the South African Nuclear Energy Corporation, during his presentation (middle) and audience (left and right).

Physics Comment is a journal published by the South African Institute of Physics (SAIP) and appears quaterly . The vision of the SAIP is to be the voice of Physics in South Africa.

SAIP2011 conference - a fusion of Physics phenomena

by Kirosha Naicker, written on the 14th July, 2011.

Hosted by Unisa's Department of Physics this year, the 56th conference also coincides with the celebration of three centenary milestones on the Physics calendar: the discoveries of the nucleus and superconductivity; together with the Chemists – the International Year of Chemistry; and the remarkable work in radioactivity and the discovery of two elements by one of the greatest woman of science, Marie Curie, who was the first person honoured with two Nobel prizes in Physics and Chemistry.

Welcoming key SAIP figures, distinguished keynote speakers, sponsors, delegates and students at the opening dinner, was Unisa's Pro-Vice-Chancellor, Prof Narend Baijnath. He shared his excitement, on behalf of the university, as this conference celebrates boundless contributions of the field of Physics to humankind across the ages, including those who currently stand at the frontiers of knowledge. He said: "Through your great intellectual exploits, we have witnessed unparalleled technological innovation and advancements of which we are all beneficiaries. And so, Unisa is delighted to host a gathering of this prominence."

Pictured at the opening of the conference, from left: Dr Gugu Moche (Director: School of Science), Dr Peter Martinez (SAIP President), Dr Rob Adam, Prof Narend Baijnath, Prof Ilsa Basson (Chair: Department of Physics & Chair of the local organising committee), Brian Masara (CEO: SAIP office) & Prof Ian Alderton (Acting Executive Dean: College of Science, Engineering and Technology)

Keynote speaker for the evening was CEO of the South African Nuclear Energy Corporation of SA (NECSA), Dr Rob Adam. As an alumnus of Unisa, who has gone on to make great strides in the industry, he was more than qualified to delve into his presentation topic "Nuclear technology: global trends and local possibilities". "Diversification from the reliance on coal must lead to more nuclear power because of the absence of other baseload options. If we don't diversify our carbon strategy, this will lead to a plea for special treatment as a developing world nation to avoid penalties." He also believes nuclear power will increase in South Africa and the trick is to make it work for us.

An exciting programme has been compiled along the traditional seven tracks of the conference, namely Condensed Matter Physics and Material Science; Nuclear, Particle and Radiation Physics; Lasers; Optics and Spectroscopy; Astrophysics and Space Science; Physics Education; Applied and Industrial Physics and Theoretical and Computational Physics. The participation of a number of eminent international Physicists will add immense value, through their plenary lectures in the

areas of Complexity, Soft Condensed Matter, Photochemistry of DNA, Mass Distribution of Galaxies, Nuclear Theory and Computational Physics education.

In addition to the formal conference and Winter School, there will also be numerous meetings of the various specialised groups, providing a forum for the Physics community to debate several topical issues.

Remark by the editor: As anticipated by the author, Ms Naicker, who wrote her article on the second last day of the conference, the plenary lectures and numerous meetings took place and contributed to a successful annual conference.

SAIP2011 annual conference photos

Photos for the SAIP2011 Conference are available for download from

http://www.saip.org.za/index.php/news-and-events/photo-galleries/category/2-saip2011.html

UKZN successfully hosts workshop on constructive and perturbative aspects of Quantum Field Theory

By Sharmini Pillay (UKZN, Durban)

The KZN node of the National Institute for Theoretical Physics hosted a workshop entitled *Constructive and Perturbative Aspects of Quantum Field Theory* from 17 August to 23 August 2011. Quantum field theory as the quantum theory of systems with an infinite number of degrees of freedom started in the 1930's. It takes into account the theory of special relativity and is extremely successful in the form of quantum electrodynamics. Nonetheless, the rigorous mathematical foundation is still not settled. The algebraic aproach to quantum field theory addresses the related problems and has been developed over the last fifty years.

The workshop was attended by prominent physicists in the field of algebraic quantum field theory. One of the key speakers was Prof. Detlev Buchholz of the Institut für Theoretische Physik, Universität Göttingen, Germany. He is a specialist in algebraic quantum field theory and the 2008 recipient of the prestigious Planck Medal, which is the highest award for a theoretician in the German Physical Society. He is a student of Prof. Rudolph Haag who is one of the founders of this field. Another key speaker was Prof. Yasuyuki Kawahigashi of the University of Tokyo, Japan. He is a specialist in non-commutative geometry and is one of the editors of the influential journal *Communications in Mathematical Physics.* The workshop gave South African researchers and students the opportunity to network with and learn from researchers from Europe and Asia. It also allowed our local researchers to show that Africa can also provide relevant contributions to leading-edge scientific ventures.

Quantum Cryptography in the Swiss Alps

By Sharmini Pillay (UKZN, Durban)

Author Biography: I am from Durban and I am currently working towards my Masters degree in physics at UKZN. My research focuses on the experimental aspects of Quantum Key Distribution. I am particularly interested in polarisation encoded Quantum Key Distribution in fibre optic cables. Email address: 206507614@ukzn.ac.za.

In January of this year, Sharmini Pillay, a post graduate student of UKZN, attended the 3rd Winter School on Practical Quantum Cryptography which was hosted by IDQuantique. The aim of the winter school was to introduce concepts in quantum cryptography to physicists and computer scientists with no expertise in this subject. The winter school was held in the picturesque country village of Les Diableret and was attended by post graduate students and industry professionals from around the world. This provided the perfect platform for cryptography enthusiasts from all areas to network and share ideas whilst learning more about the latest developments in this field.

The key note speakers included Prof. Nicolas Gisin of the University of Geneva and Dr. Vadim Makarov of the Norwegian University of Science and Technology. These world leaders in the field of quantum cryptography were able to provide invaluable information on a wide range of topics. The content of the course included an introduction to quantum cryptography protocols, system design and quantum hacking. Learning about all aspects of quantum cryptography highlighted the crucial steps in developing this new technology. The interactive lecture sessions encouraged discussion and input from all participants.

The course also included hands-on practical sessions based around the products of IDQuantique [a swiss company selling quantum cryptographic devices – the editor]. The participants were taught how to operate single photon detectors and real quantum cryptography systems. The

beneficial hands-on sessions provided an opportunity to become familiar with real applications of quantum cryptography. The course also introduced the participants to exciting winter sports in the Swiss Alps, such as skiing, curling and sledding. The sporting and social activities allowed everyone to sample Swiss culture while learning about a new and innovative technology. The informative course and beautiful backdrop of snow and mountains made for a wonderful experience.

WHY SOUTH AFRICA OFFERS AN OUSTANDING SOLUTION FOR THE SKA

By Marina Joubert (SKA South Africa Project Office, Johannesburg)

To read more on the 12 reasons why South Africa offers an outstanding solution for the SKA download the SKA Special Edition Newsletter online at
http://www.ska.ac.za/newsletter/print/14_ska_newsletter_jun2011.pdf

Printed copies of the newsletter are available. To order, please send your request to Marina Joubert (email marina@southernscience.co.za).

Physics 500

By Brian Masara (SAIP office, Pretoria)

Physics 500 is an ongoing SAIP project and aims to identify and track physicists in Industry. The purposes of the project are to:

- Identify industries in South Africa that employ physicists,
- Identify physicists working in South Africa,
- Use this information to promote physics,
- Promote collaboration between the SAIP and industry.

Physicists who have a BSc degree (or higher) in physics and work in industry are encouraged to participate in the project and register on its website in order to strengthen the link between physics and industry in South Africa.

For more information and to register visit the project webpage at

http://www.saip.org.za/physics500/

SA PHYSICS GRADUATES DATABASE

By Thomas Konrad (UKZN, Durban)

The database created by the South African Institute of Physics (SAIP) with support from the National Research Foundation is used to monitor the number of graduates in physics and their specialisation. It now shows first results: a corresponding report written by Mr Brian Masara can be found on page 13 pp. of this issue of *Physics Comment.* In order to be able to give crucial input to government and funding agencies to plan for the needs of South Africa's manpower in physics for research at public institutions and staff in industry, SAIP encourages all graduates to register (cp. http://graduates.saip.org.za/index.php):

"If you have a degree in physics and you are currently working, studying or unemployed and resident in South Africa, or have studied physics in South Africa we kindly request you to sign up and give us your personal statistics. We need you! The statistics we collect, with your help, will be used to influence legislation, decision-making and all matters related to physics funding required for training more physicists.

Read more details on confidentiality and great benefits of signing up and updating your details

http://graduates.saip.org.za/background.php"

To register click here http://graduates.saip.org.za/register.php?action=new

For enquiries contact SAIP Office at info@saip.org.za

An initiative to promote the use of Easy Java Simulations in South Africa

By Trisha Salagaram, Johan Janse van Rensburg, Nithaya Chetty (University of Pretoria)

Introduction

Prof Wolfgang Christian (Davidson College, USA) and Prof Francisco Esquembre (Univ. Murcia, Spain) hosted a workshop on computational modeling with Open Source Physics and Easy Java Simulations at the Physics Department, University of Pretoria (UP) from 04-06 July 2011.

Illustration 1: Prof Wolfgang Christian (Davidson College, USA) and Prof Francisco Esquembre (Murcia, Spain), the original authors and developers of OSP and EJS.

Professors Christian and Esquembre are the original authors and developers of the Open Source Physics (OSP) [1] and Easy Java Simulations (EJS) platforms. The workshop was sponsored by the National Institute for Theoretical Physics and the UP Physics Department. More than 20 participants drawn from universities and research institutions from across South Africa attended the workshop.

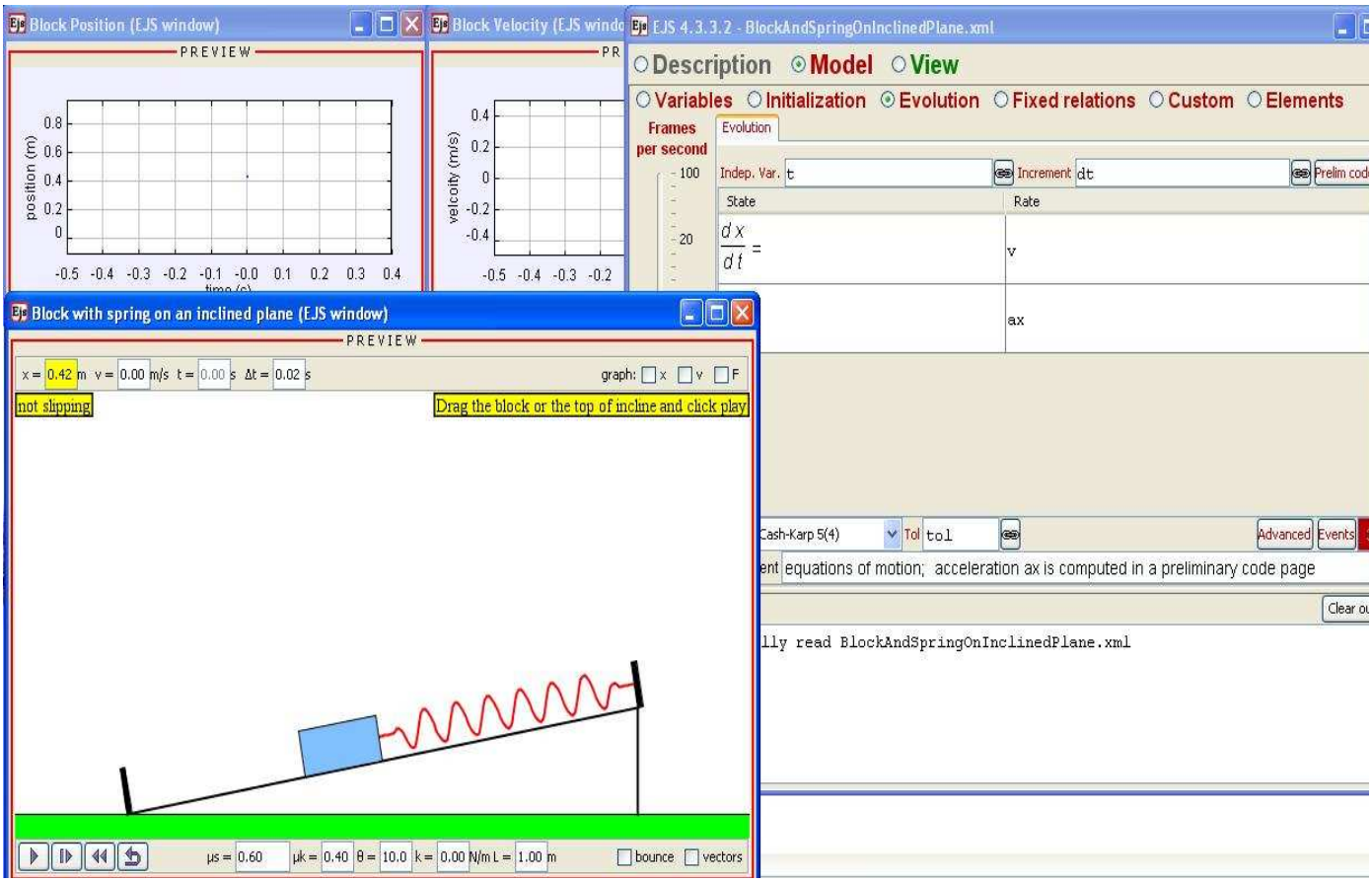
OSP is a facility championed by Prof Christian to enable the open sharing of computational code for curriculum development, computational physics and physics education research. A goal of the project is to make a large number of interactive Java simulations available for education using the GNU Open Source Model. EJS is a free, open-source software package which is used to create interactive simulations using Java. EJS which has been developed by Prof Esquembre makes it possible to utilise this growing computational resource in an environment that does not make it too onerous to learn and use Java programming. This allows one to focus on the physical model and, using the tools learnt at the workshop, simulate the model and represent it graphically relatively quickly. This way, a large community of computational physics teachers and researchers are able to easily integrate computation in an education and research setting.

There is enormous potential for these methods to become common place in the physics teaching and research environments in South Africa. These methods are easily transferable to other quantitative disciplines, especially in the teaching environment.

South African EJS Users Group Committee

In order to promote the use of EJS in teaching physics and to conduct research, workshop participants formed the South African EJS Users Group committee. The main objectives of the committee are to:

- Encourage the use of EJS for physics teaching purposes.
- Encourage the development of new or modification of existing EJS programs for our own educational needs.



- Encourage the development of new models which could be publishable in quality educational journals.
- Contribute to the existing database of EJS models on the ComPADRE database system.
- Share ideas, methods, and models that can be used directly in physics teaching.
- Act as a platform for various users to collaborate and share resources, experience and assistance.
- Plan follow-up workshops and conferences.
- To grow the community of active workers in this field in South Africa.

To facilitate sharing and development of new and useful EJS simulations, a private South African EJS users group has been created on the ComPADRE system. Anyone who wishes to learn more about EJS is welcome to join this group by creating a users account on the comPADRE/OSP website [1] and requesting to become a member of the SA EJS Users group. Members of the group are then free to participate, share and provide ideas for new simulations. A database with relevant EJS simulations will be built over time, specifically for the South African context in physics education, ranging from high school to higher education level.

Although the initial focus of the committee is to promote the use EJS in physics education, another important objective is to encourage the use of EJS to conduct broader scientific research. The advantages of using EJS in teaching and to conduct research are discussed in [2].

References

1. [1] http://www.compadre.com/osp/
2. [2] Wolfgang Christian, Francisco Esquembre, "Modeling Physics with Easy Java Simulations", The Physics Teacher, Vol. 45, p.475-480, 2007

Email: trisha.salagaram@up.ac.za; jvr@up.ac.za

The South African Physics Graduates Database – Progress

By Brian Masara (SAIP Office, Pretoria)

Background

This report summarises progress and statistics from the South African Physics Graduates Database. The SA Physics Graduates Database emanated from the need to do a skills audit in physics and create a single body of information tracking the statistics on physics skills in South Africa. These statistics are required by SAIP and other physics stakeholders in order to effectively:

1. Liaise with government and help make informed decisions in matters affecting physics.
2. Advise the NRF and other funding agents on funding requirements for training more physicists.
3. Using the system as a decision support system in tracking of skills available to staffing national physics based projects such as Square Kilometre Array (SKA), industry and commerce needs.

The database at the end of June 2011 there were 926 physics graduates registered, the project target is to have 1200 graduates on the system by the end of the year 2011. The growth in the graduates registered on the system is given below in figure 1.

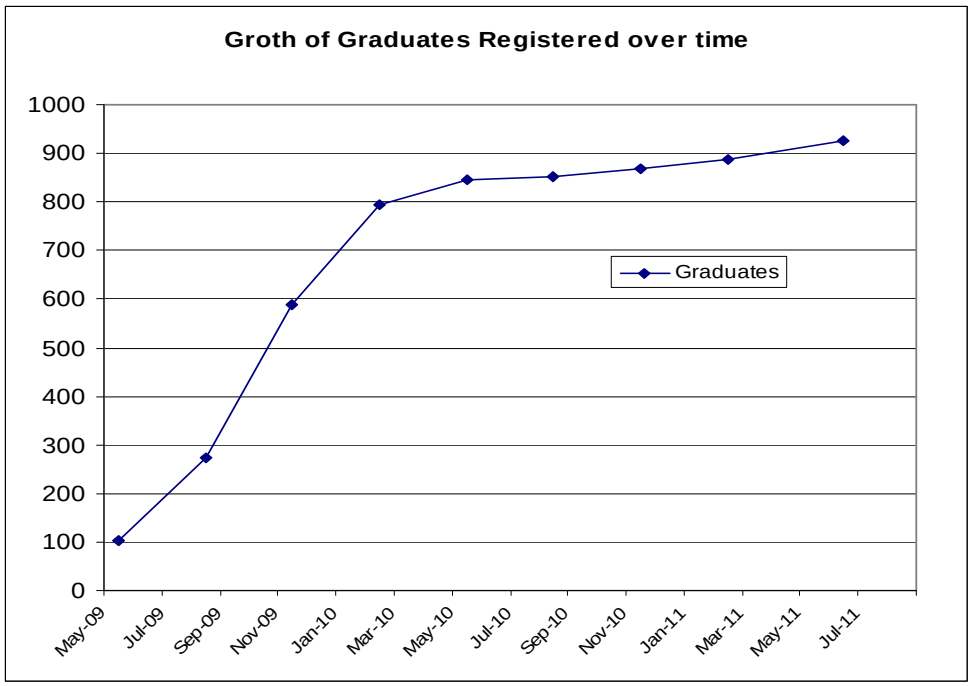


Figure 1: The Growth of Registered Graduates and Users of SA Graduates Database

Statistics

A summary of the key statistics that can be drawn from the graduates database are summarised below.

Graduates Highest Qualifications

Figure 2 below shows the distribution of graduates by highest qualifications.

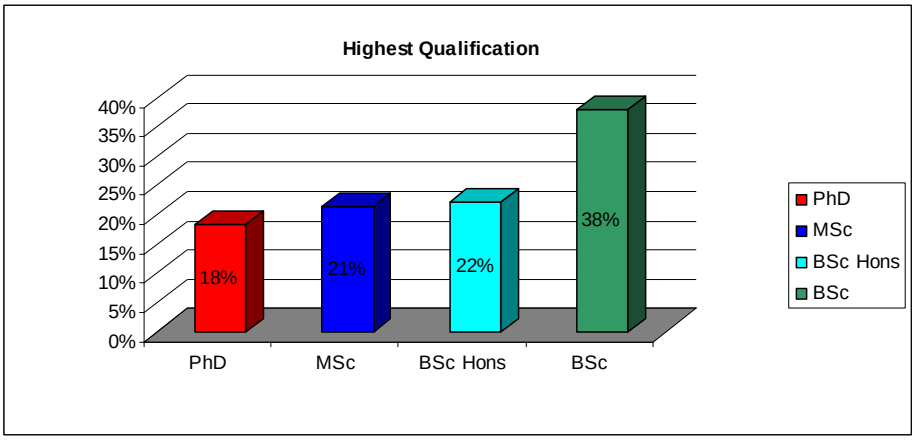


Figure 2: Highest qualifications for registered graduates

Percentage Drop Outs at Different levels

Figure 3 below shows the graduates drop out at various levels between BSc and PhD. The greatest drop out is between BSc and BSc (Hons). If strategies for graduate retention are required this is the most critical point. The next point is giving support for MSc to proceed to PhD.

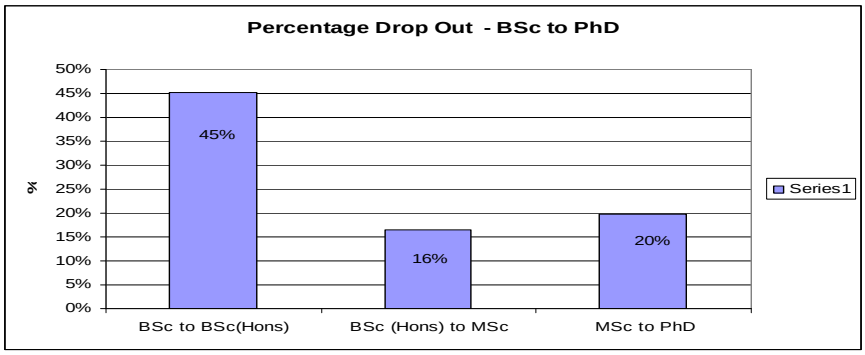


Figure 3: Relative Percentage Drop-out between BSc and PhD

Available for Further Study

Figure 4 shows graduates who are available to pursue further studies and their respective current highest qualifications

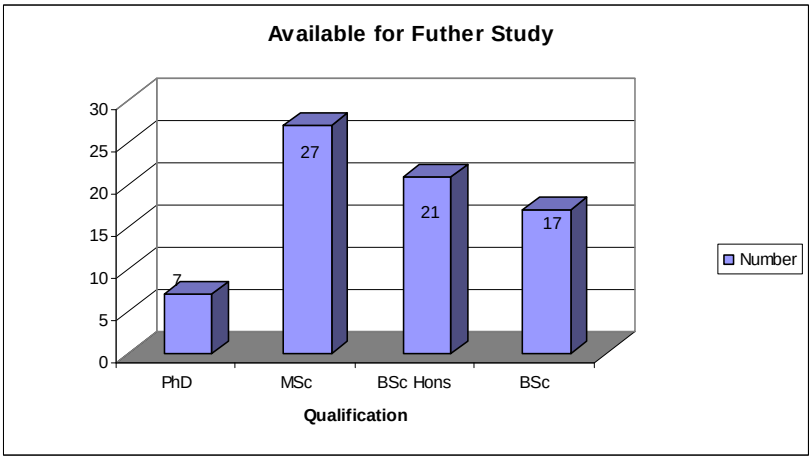


Figure 4: Graduates available for further study

Graduate Output

Figure 5 shows graduates output over the years. This shows we have younger graduates in the system although there is a drop between 2000 and 2005.

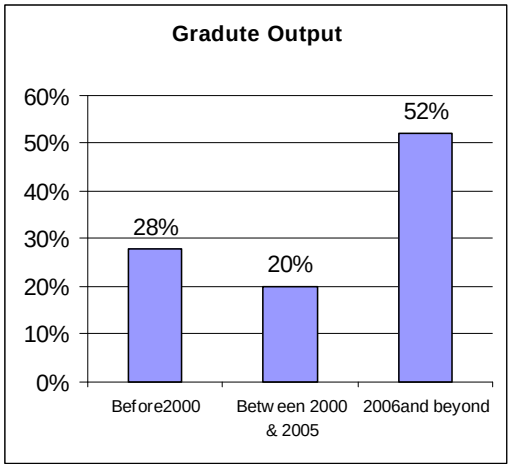


Figure 5: Physics graduates output over the years

Graduates by Field of Study

Figure 6 below shows graduates by field of study. Its important to note that these are figures only for those graduates who specified their fields of specialization, other graduates left the field blank. In order to improve the accuracy of the data and to encourage completion of this field it is suggested that we have a drop down menu in the field of specialisation so that it becomes easier for graduates to complete.

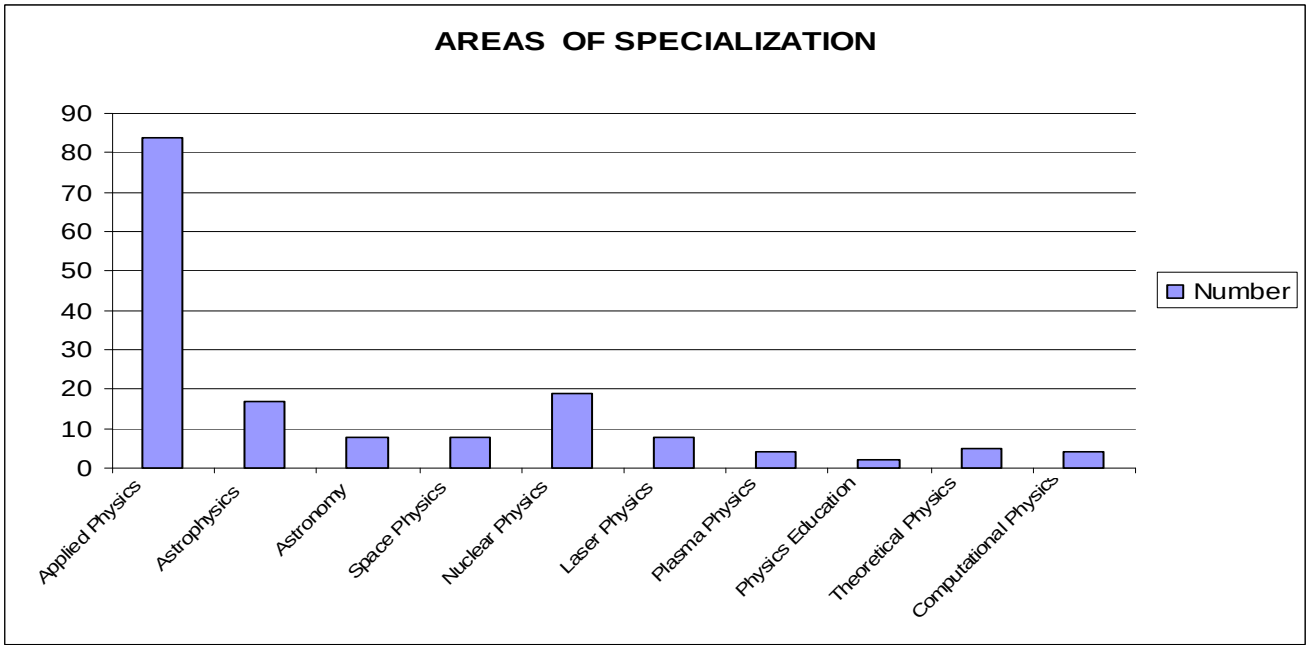


Figure 6 : Physics graduates fields of specialization

Physics Graduates Career Paths

The pie chart in figure7 below indicates the current employment sectors for physicists registered on the system. The biggest employer for physicists is the education sector at universities as lecturers and teachers in high schools and colleges. This is followed by research work in national research facilities. The third biggest employer is industry. It is interesting to note that 6% of the physicists are self employed.

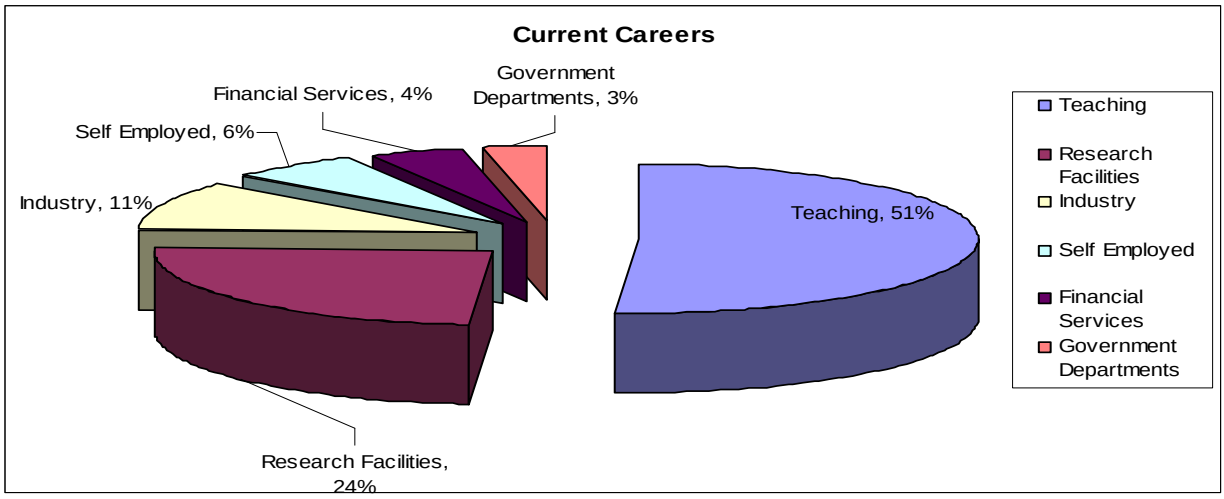


Figure 7: Physics Graduates Career Paths

Gender

Figure 8 below shows distribution of graduates by gender only 23% of registered graduates are female.

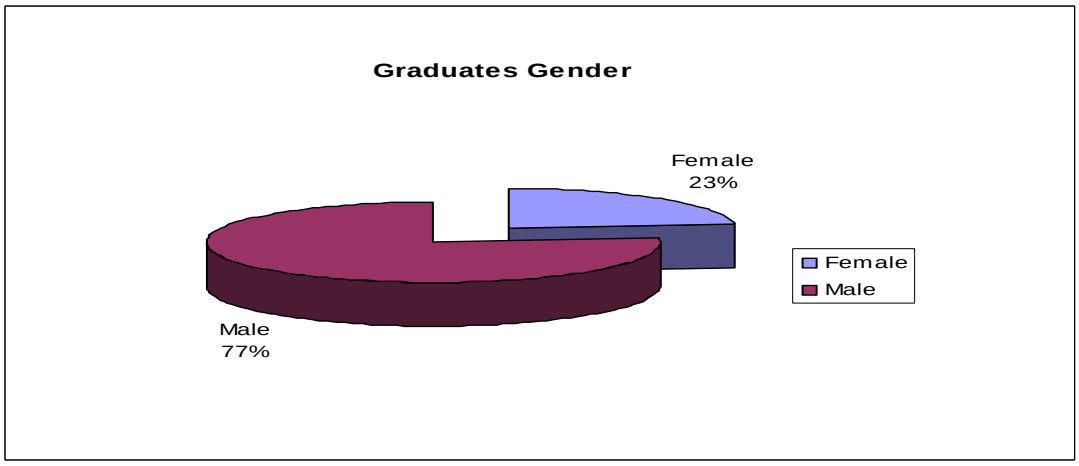


Figure 8: Graduates by gender

Graduates by Race

The distribution of graduates by race is shown below. It is important to note that not all graduates specified their race, these are statistics only for those who specified their race.

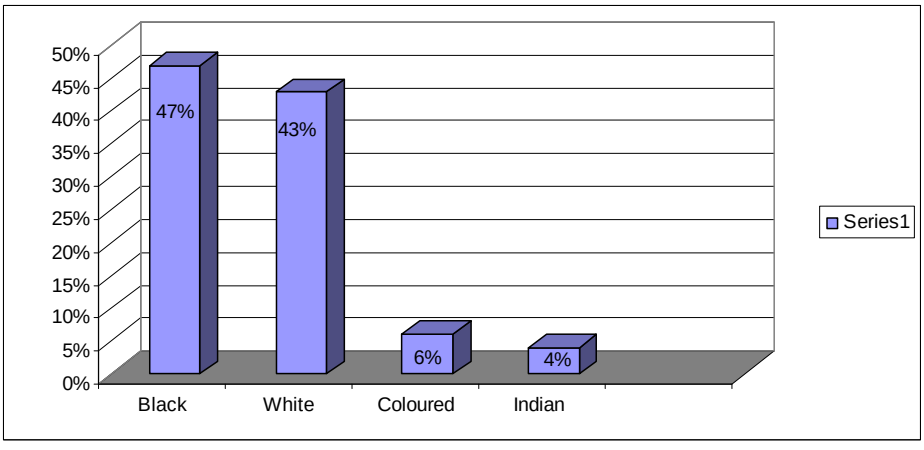


Figure 9: Graduates by race

Recommendations

1) Increasing Graduates Output

The greatest physics graduates drop out is between BSc and BSc (Hons). If strategies for graduate retention are required this is the most critical point. Its important to note that 84% of students who do a BSc(Hons) proceed to MSc, it means if BSc are encouraged to do BSc (Hons) then we will have more post graduates in the system with MSc degrees.

If one looks at the graduates available for further study one finds that the greatest number willing to study further are those with an MSc hence giving support for MSc to proceed to PhD is critical. We need more PhD funding support.

2) Field of Specialization

The greatest number of graduates specialized in applied physics this is followed by those in space related sciences covering astronomy, astrophysics and space physics. In order to improve the accuracy of the data we would like to encourage graduates to specify their fields

3) Gender and Diversity

23% of physics graduates are female. There is need to support women to study physics and pursue careers in physics.

4) Register and Request Info from the Database

The dataset will be dynamic and more graduates will be recruited to use the system.

A mailing list for graduates available for further study, mentors and those looking for employment was established. If you need students or mentors please let us know.

If you are available for employment also register on the system, communication is sent frequently to these groups on opportunities available.

In conclusion the project is progressing well and useful statistics can be drawn from the data collected. **If you have not yet registered we encourage you to do so by visiting the following link** http://graduates.saip.org.za

Email: brian.masara@saip.org.za

Opportunities

TWAS Fellowships: 2011 Call for Applications

By Thomas Konrad (UKZN, Durban)

While the deadlines for postgraduate training and postdoctoral fellowships for 2011 have closed, the call for advanced research fellowships available to scientists from developing countries is still open. The **TWAS Fellowships for Research and Advanced Training** offers scientists in Natural Sciences from developing countries funding to stay 3-12 month at a research institution in another developing country. The deadline is the 1. October 2011

(cp. http://twas.ictp.it/prog/exchange/fells/fells-overview). TWAS, the academy of sciences for

the developing world, is an independent international organization based in Trieste (Italy). It was founded in 1983 under the leadership of Nobel Laureate Abdus Salam. More information can be found on the homepage of TWAS: www.twas.org

Upcoming Conferences & Schools

CPS 8th International School of Planetary Sciences, will take place in Japan, from 26 September to 1 October 2011.

First Circular

https://www.cps-jp.org/~pschool/pub/2011-09-26/index.html

Communicating Astronomy with the Public 2011 (CAP 2011)

Registrations are now open for the Communicating Astronomy with the Public 2011 Conference (CAP 2011), which this year takes place between 10 and 14 October at the Xiyuan Hotel in Beijing, China.

The 2011 Communicating Astronomy with the Public conference will focus on how to bring science to the people of today and tomorrow. With online platforms boosting with popularity and traffic, there is a whole world building up in the social media and the overall online territory, a world where individuals become opinion leaders by owning and sharing information. We need to embrace this revolution in communication.

At the same time, the IAU has started the implementation of the decadal plan entitled "Astronomy for the Developing World". This plan, built on the legacy of IYA2009, brings new opportunities and challenges for communicating astronomy across the globe, with emphasis on the developing world.

For more details please visit: http://www.communicatingastronomy.org/cap2011/index.html

26 - 28 October 2011: Workshop on Foundations of Quantum Theory: measurement, the quantum to classical transition, and the flow of time

An International Workshop on the foundations of quantum physics will take place from Wednesday 26th to Friday 28th October 2011 at the Stellenbosch Institute for Advanced Study (STIAS)

Hosted by:

The National Institute for Theoretical Physics (NITheP), South Africa

Scope:

The workshop will focus on the relation between quantum measurement, the flow of time, and the quantum to classical transition. These issues have implications for our view on what kinds of existence are represented by classical and quantum states, and what are the relations between them.

This will be an opportunity for local workers to interact with high-level speakers from overseas on these foundational issues, and hence will develop the topic in general but also promote its discussion and development in the African context in particular.

Apart from the usual themes related to foundations of quantum theory, there are four specific issues at stake that are not so often examined. Firstly, should we consider classical or quantum objects as primary? Both views have been held. Secondly, is the wave function a physical or mental construct? The nature of the collapse problem is quite different in these two cases. Thirdly, however one construes that process, how does quantum measurement relate to irreversibility and the flow of time? Fourthly, does it somehow enable one to influence events that seem to be in the past? This is possible on some views.

Conference secretary:

Conference Secretary: Di Loureiro, email: diana.lapidoloureiro@uct.ac.za website: http://nithep.ac.za/3ja.htm

7 - 11 November 2011 International Workshop on Ultracold Molecules

An International Workshop on Ultracold Molecules will take place from 7 - 11 November 2011 at the Stellenbosch Institute for Advanced Study (STIAS).

Hosted by:

The National Institute for Theoretical Physics (NITheP), South Africa.

Scope:

This workshop will cover many areas of contemporary interest in this rapidly growing field, including applications to chemistry, many–body physics, and precision spectroscopy, with an emphasis on the prominent role of dipolar physics in ultracold atomic and molecular samples.

Format:

A 5 day workshop. Since a lot of different subjects will be discussed, the speakers will try to explain in broad, understandable terms what the main challenge is that they are confronting and what are the general tools they are using. Talks are 45 min duration, followed by 15 min discussion.

Registration Information:

Due to space limitations, the number of participants will be strictly limited. To register for this workshop, please complete the on-line registration form on this page. For any additional contact Alexander Avdeenkov at avdeenkov@sun.ac.za

The closing date for registration is 30 September.

WIPO-South Africa Summer School on Intellectual Property

Cape Town, South Africa, November 28 to December 9, 2011

The World Intellectual Property Organization (WIPO) based in Geneva, Switzerland, will offer jointly with the Department of Science and Technology of the Republic of South Africa, a two-week Summer School on Intellectual Property (Summer School), from November 28 to December 9, 2011. The Summer School offers an invaluable education program in the whole area of intellectual property (IP).

Fifty places will be made available. Selected applicants will be notified one week after the registration deadline, for details please check

http://www.wipo.int/academy/en/courses/summer_school_southafrica/index.html

ISYA 2012 in South Africa 6 – 26 Feb 2012

The 34th International School for Young Astronomers will take place during 6 - 26 February 2012 in Cape Town, South Africa. The school is organized jointly by the International Astronomical Union (IAU), the South African Astronomical Observatory (SAAO) and the University of Cape Town (UCT).

Applications:

Students studying for an MSc or PhD degree in Astronomy or Physical sciences are encouraged to apply for the 34th ISYA. The theme of the school is "Observational astronomy in the optical and infrared".

Applications from all over Africa are especially encouraged. Application deadline is 31 October 2011.

Location:

The South African Astronomical Observatory (SAAO), home of the 11-m Southern African Large Telescope (SALT), is the premier optical and infrared astronomy facility in Africa and plays a leading role in the promotion of astronomy in the continent.

The school will be hosted at the prestigious University of Cape Town, and at SAAO, and part of it will be conducted at the SAAO/SALT observatory site at Sutherland, 400km from Cape Town, in

the Karoo semi-desert. A number of well-known scientists are invited to lecture during the school on a range of topics in active astronomical fields.

For more information visit http://isya2012.saao.ac.za/

4th NUR International Scientific Research Conference (ISRC)

NATIONAL UNIVERSITY OF RWANDA, THEME ENERGY: Towards sustainable, green and affordable Energy. 16th – 18th November 2011Butare Main Campus, NUR

For More information about this conference contact

Prof. Dr. Verdiana Grace Masanja,
Director of Research,
National University of Rwanda
Tel: +250-55107876
mobile: +250788494984
Fax +250-252 530210
Email: research@nur.ac.rw; vmasanja@nur.ac.rw , **Website**: www.conference.nur.ac.rw

Deadline for submissions for the December 2011 issue of Physics Comment is 30 November 2011.

Physics Comment Editorial Policy

Physics Comment is an electronic magazine for the Physics community of South Africa, providing objective coverage of the activities of people and associations active in the physics arena. It also covers physics-related ideas, issues, developments and controversies, serving as a forum for discussion. It is not a peer review journal.

Physics Comment publishes innovative reports, features, news, reviews, and other material, which explore and promote the many facets of physics. Physics Comment endeavours to:

- support and inform the physics community
- promote membership of the South African Institute of Physics
- promote the understanding of physics to interested parties and the general public
- represent the readers' point of view
- focus on issues and topics of importance and of interest to the physics community

We accept submissions on any physics-related subject, which endeavours to inform readers and to encourage writers in their own researches. We aim to be politically, socially and geographically inclusive in the articles, which we commission and receive. Therefore we shall not discriminate according to political or religious views. Physics Comment does not support or endorse any individual politician or political party. However, contributions, which are being published, may contain personal opinions of the authors.

It is our desire to present unfettered the opinions and research of our readers and contributors. All articles submitted for publication are subject to editorial revision. Such revisions, if necessary, will be made in cooperation with the author.

The views expressed in published articles are those of the authors and are not attributed to the Editorial

The Editor will make the final determination of the suitability of the articles for publication.

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Physics Comment is published four times a year.

Issue	Closing Date	Publication Date
Issue 1	28 February	15 March
Issue 2	31 May	15 June
Issue 3	31 August	15 September
Issue 4	30 November	15 December

Specification and Submission of Content

Editorial Tone. As the voice of the physics community, the magazine will create a provocative, stimulating, and thoughtful dialogue with the readers; and provide a variety of perspectives that reflects the dynamism of the physics community.

Article types. The magazine is devoted to articles, reports, interesting facts, announcements and recent developments in several areas related to physics:

Manuscripts. Solicited manuscripts will be judged first for reader interest, accuracy and writing quality. The editor reserves the right to request rewrite, reject, and/or edit for length, organization, sense, grammar, and punctuation.

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Submission and Format. Manuscripts must be submitted to the editor on or before the designated due date Manuscripts must be submitted electronically, on the prescribed Microsoft Word template available for download from http://www.saip.org.za/PhysicsComment/. Manuscripts are to be submitted directly to the editor: PhysicsComment@saip.org.za.

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