



# Physics Comment

DECEMBER 2021

The gender gap by  
Prof. Igle Gledhill

*What has  
SAIP been up  
to?*

Physics in my  
village winners

Find out  
about our  
latest  
projects and  
events

SAPhO top  
achievers

**YEAR END EDITION**

SOUTH AFRICAN INSTITUTE OF PHYSICS QUARTERLY  
MAGAZINE.



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# MESSAGE FROM THE PRESIDENT

Reflecting on 2021 from this December vantage point, it has been a challenging year but with a number of achievements. Physicists were resourceful and resilient

Reflecting on 2021 from this December vantage point, it has been a challenging year but with a number of achievements. The expectations of a return to in-person and on-campus teaching, learning and research activities were quickly replaced by plans to conduct most, if not all, undergraduate teaching online, with postgraduate research projects running subject to COVID-19 Occupational Health & Safety regulations. Physicists were resourceful and resilient, continuing with research and teaching and learning as required with a variety of contributions to the COVID crisis.

The SAIP continued its programmes and activities as far as possible, adroitly adapting with changing circumstances. It focused a large fraction of its efforts on various types of Educational Outreach programmes, some of which are highlighted in this issue. The SAIP Physics Teacher Development Project continued to expand and at the beginning of 2021 the programme was accredited by the South African Council of Educators (SACE) for Continuous Professional Development (CPD) points to be awarded to teachers for participation in the programme. More than 400 teachers were trained at various Teacher Development Workshops. SAIP continues to expand the teacher development project footprint by engaging new partners. A Memorandum of Agreement was signed with the Central University of Technology (CUT) to be a project hub in the Free State Province and the Moipone Science Centre will be a key partner to train teachers in Gauteng province.

In order to bridge the content gap in Physical Science at School level, the SAIP, in partnership with the Moipone Science Centre and in consultation with Physical Science Subject advisors from Ekurhuleni, conducted an online Saturday school from 4 September to 6 November 2021 to support grade 10 and 11 learners in covering gaps in the material. More than 500 learners attended the workshop. Other key physics education intervention programmes are the Essential Skills for Matric series and the 2021 SA Physics Olympiad, both of which are featured in this magazine issue.

The Women in Physics in South Africa (WiPiSA) project continued to run various programmes focused on attracting and keeping women in physics in order to expand the number of women in science and technology. During August, an extensive schedule of events featured outreach activities with coverage through radio and TV programmes and a module for teachers on keeping girls in physics which contributed to reaching more than 5 million people with WiPiSA's message (see article on The Gender Gap by

Professor Igle Gledhill reported later in this issue).

Year 2022 marks the Centenary of the International Union of Pure and Applied Physics (IUPAP) and the International Year of Basic Sciences for Sustainable Development (IYBSSD2022). In preparation for both of these events, SAIP has commenced with two projects. Under the "Physics in my Village project", the SAIP in collaboration with Wits University and various physics stakeholders produced a documentary on "Physics in Everyday Life". A competition for high school learners consisted of submission of short videos and posters and is highlighted in this edition of the magazine.

The second project is "100 years in Physics in Africa – Past, Present and Future". This project aims to publicise the many beautiful and inspiring stories on how physics is thriving, changing lives, bringing development and impacting different parts of Africa. More details are given in the Announcements section of the magazine.

The 2021 Annual Conference of the SAIP was hosted by the Northwest University in July 2021 and was presented as a virtual conference. This was an historic conference in that it is the first such conference hosted in this mode and was very successful, using the Zoom platform for all the online oral presentations and the "gather.town" website application for the poster session. The 2022 Annual Conference of the SAIP will be hosted by Nelson Mandela University in Gqeberha in July 2022, also in a virtual mode.

The virtual SAIP webinar series has been very successful, with some presenters being requested to also deliver their presentations during the DSI's National Science Week in August 2021.

The majority of these projects depend on the time and energy of many physicists who serve as volunteers. Their contribution to the SAIP and its mission of being the "Voice of Physics" in South Africa is highly appreciated. The SAIP Office also plays a crucial and indispensable role in the success of the projects. Their hard work, often behind the scenes, is sincerely appreciated.

In closing, have an enjoyable festive season and a happy New Year. Take care and stay safe.

*Dr Rudolph Erasmus (President-Elect), Professors Makaiko Chithambo (Current President) and Deena Naidoo (Immediate Past President)*



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# SHORT ANNOUNCEMENTS

## SAIP Weekly Webinar Invitation to Speakers

You are invited to participate in the SAIP weekly webinar series. More details are available here: <https://www.saip.org.za/saip-weekly-webinars/>

## 100 Years of Physics in Africa, the Past Present and the Future

The SAIP would like to invite you to contribute to an exciting project: 100 years of Physics in Africa – ‘Past, Present and Future.’ This initiative is prompted by the Centenary Celebrations of the International Union of Pure and Applied Physics (IUPAP) in 2022.

This is a story about a story: about Physics and Physicists in Africa.

For more details and to participate in the project, please visit the project page:

<https://www.saip.org.za/100YearsOfPhysics/>

## News Contributions wanted !

Any physics-related news, study, and career opportunities can be sent for broadcasting to the physics community using [info@saip.org.za](mailto:info@saip.org.za), and articles for the PC magazine can be emailed to

[physicscomment@saip.org.za](mailto:physicscomment@saip.org.za)

### Q: What is SAIP ?

A: The South African Institute of Physics is a Non-profit Organization whose mission is to be the "Voice of Physics" in SA

### Q: How can I become a member?

SAIP membership includes any physicists who graduated with at least a physics related degree and working in any of: industry, commerce, government, academia, research, theoretical physics, experimental physics, and uses physics skills and thought processes in their job/career.

You can apply to become a member of SAIP by clicking the link below.

<http://www.saip.org.za/index.php/members/membership-info>

**A special thanks to the SAIP office staff and the team of volunteers who have managed all projects.**

- Mr Brian Masara (Executive Officer )
- Ms. Queen Thabete (Secretary )
- Ms Ndanganeni Mahani (Projects Officer)
- Mr Tebogo Mokhine (IT Officer)

### PC MAGAZINE STAFF

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# MEET THE NEW SAIP COUNCIL



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- Fundraising : Dr Rudzani Nemutudi (iThemba LABS)
- Audit & Risk and PC Magazine : Dr Rudolph Erasmus (WITS)
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- WiPiSA Liaison : Prof Regina Maphanga (CSIR)
- Divisions and Forums Representative : Prof Alan Cornell (UJ)
- Student Representative : Ms Anna Chrysostomou (UJ)

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President-Elect	: Dr Rudolph Erasmus (WITS)
Secretary	: Prof Regina Maphanga (CSIR)
Treasurer	: Prof Ernest van Dyk (NMU)
Past President	: Prof Deena Naidoo (WITS)





# T

The SAIP Council comprises physicists in various fields who have been elected by the South African Institute of Physics members. Several portfolios make up the council. The council's primary role is to coordinate and oversee the projects of the SAIP and fulfill the vision of our organization.

We welcome the new council members and wish them all the best. They will serve on the council from 2021 till 2023. Nominations were closed on 26 March 2021, and voting was held on 21 May 2021. The new Council members were announced during the SAIP 2021 conference.

**PICTURED ABOVE: SAIP President Prof. Makaiko Chithambo**

He is Professor of Physics and Head of the Department of Physics & Electronics and formerly Deputy Dean of Science at Rhodes University. He is an NRF B2-rated research physicist. Prof Chithambo obtained his PhD

from the University of Edinburgh and his Masters from the University of Sussex, UK. His research interests concern the study of point-defects in insulators using luminescence methods, particularly those using time-resolved optical stimulation. He is the author of "An Introduction to Time-Resolved Optically Stimulated Luminescence" published by Morgan & Claypool Publishers in 2018.

He has organised a number of national and international conferences and symposia. Prof Chithambo serves as an expert reviewer for several publishing Houses and research agencies worldwide and is a recipient of the Vice Chancellors Distinguished Research award at Rhodes University. Prof Chithambo is interested in more closely seeing to the mission of the SAIP in providing a platform to foster networking and pooling of expertise to promote physics in research, in education, and in society as well as to broaden the reach and appeal of the institute.







**Council Portfolio: Divisions and Forums Rep**

**University: University of Johannesburg**

**Field: Theoretical Particle Physics, Black Hole Physics**

**Council Portfolio: Industrial Liaison**

**University: North West University**

**Field: Nuclear Physics, Nuclear Forensics, Radiation Science**



**A**LAN CORNELL is a Professor of Physics at the Department of Physics, University of Johannesburg and the Deputy Head of Department: Research.

His research has been focused on theoretical particle physics and aspects of black hole physics, having obtained his PhD from the University of Melbourne, Australia. He has previously worked at the Korean Institute for Advanced Studies (Seoul, Korea), the Yukawa Institute for Theoretical Physics (Kyoto, Japan), the Institut de Physique Nucléaire de Lyon (France), and the University of the Witwatersrand.

He is a member of the Academy of Science South Africa (ASSAf), the SA-CERN program, the Inter-Experimental Machine Learning working group at CERN, and the chair of the Theoretical and Computational Physics Division of the SAIP.



**H**e developed the first-ever Centre for Applied Radiation Science and Technology (CARST) PhD Programme in Radiation Science at Northwest University. It was approved by Senate and ICAS (SICAS) and now has eight candidates. It was available for the first registration of PhD candidates in January 2018.

In 2018, he was awarded a C3 Rating (for an Established Researcher) by the National Research Foundation of South Africa. In the same year, he was awarded the Prestigious IAEA Fellowship for Training in Nuclear Forensics at the Tennessee University in the USA. This has resulted in the development of a Nuclear Forensics Lab at CARST.

One of his latest joys was negotiating a signed MOU with Debre Markos University in Ethiopia in May 2019 and the iThemba LABS (signed in August 2019). He is a Full Professor of Radiation Science with a specialty in Nuclear Forensics Research.



# THE GENDER GAP:

## HOW TO MEASURE IT?

## HOW TO REDUCE IT?

BY PROF. IGLE GLEDHILL

### The Aha!

Physics brings an intense experience of the Aha! Phenomenon for each of us, when we suddenly understand a concept that was previously incomprehensible to us. When I started to serve on the IUPAP Working Group on Women in Physics, for the first time I met women who had come to a conference because it was specifically a conference of women in physics – and their husbands had allowed them to come. I've talked with people who left their country to do a PhD because there was no supervisor available who would not harass them. I've seen conference organisers making it easy for physicists to bring young families to conferences, and I've met phenomenal men and women who work with determination and profound good will to change the policies of their organisations.

So now I know a tiny bit more – but we learn all the time. How do we respond as scientists to inequalities in our community of practice? Partly, as physicists, we want evidence to support decisions.

We want error bars and we are trained to shake the foundations of any statement, all the time. We want fairness and an environment that is safe, in which we can do physics together. We want to be ourselves, with eccentricity if necessary, but without mockery or marginalisation.

### A Global Project: the collaboration

This was a remarkable collaboration of eight Scientific Unions (Maths – leader, Chemistry – co-leader, Physics, Astronomy, Biology, Industrial and Applied Mathematics, Computing, and History and Philosophy of Science) and three global organisations (UNESCO, GenderInSITE and OWSD). The final report of the work has just been published [1].

### The Joint Global Survey of Mathematical, Computing and Natural Scientists

First, we surveyed scientists and science students across the globe, in seven languages. There were 32 346 respondents from 159 countries, about half men and half women. The survey was carried out using the snowball sampling method, in which the participants forwarded the questionnaire to their own contacts. Therefore, the survey does not provide data on the numbers of women and men in the sciences in general, but only numbers of respondents. The analysis was carried out by the sociologists and statisticians at the American Institute of Physics Statistical Research Center. Respondents giving Physics as their primary field of study numbered 7 570 globally. Of these, 37% were women. Direct quotes from the report are in italics. Please refer to the full report for the methodology and the context in which statements are made.

### Careers, resources and opportunities, and salary

The results of the survey unfortunately confirm that the Gender Gap in Science still exists and is very real, across all regions and across all disciplines. Both men and women start families in their study and early career phases, but women are more likely to report significant interruptions in their doctoral studies: in Physics the numbers are 13% of women, and 9% of men respondents. Globally and across disciplines, there continues to be a salary gap between women and men in the sciences. *We have included potential explanatory factors including age (as a proxy for career progress), discipline, geographic region, employment sector, and level of human development. Women reported less access to career-advancing resources and opportunities than men.*

### Harassment or respect?

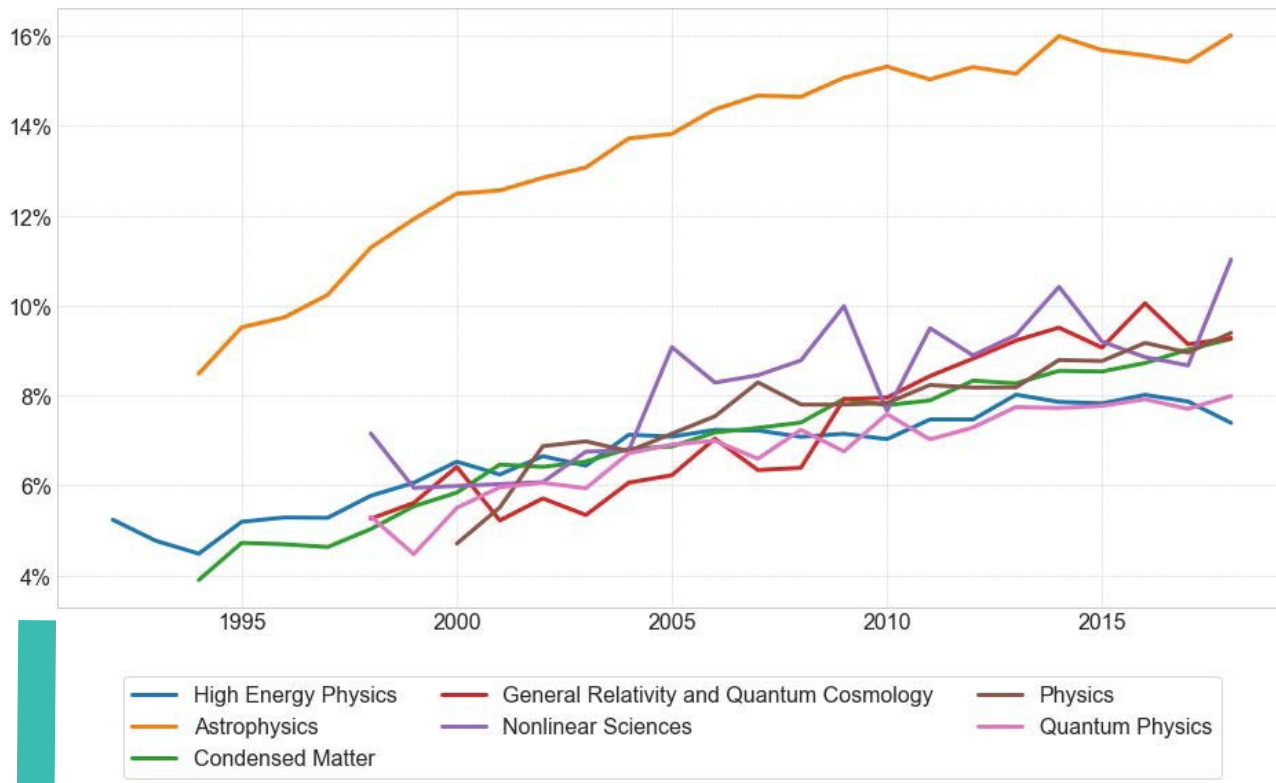
In the survey, 27% of women respondents and 2% of men respondents reported personally experiencing sexual harassment at school, university or work. For the field of physics, these numbers were 29% and 2% respectively, and in Africa, the figures were 22% and 4% respectively. In terms of the work environment, *across all regions, all disciplines, and all levels of development, women were significantly more likely than men to report discrimination based on gender.*

### The joint data-backed study on publication patterns

Although papers are not the only output of a career in science, they are strongly tied to success in promotion, visibility, and recognition. The authorships of just over 3 million papers in the zbMATH database, the Astronomy Data System ADS, and arXiv were analysed. Automated Gender Recognition was used to tag names as “male”, “female”, or “unknown”, using and published benchmarks and well-researched methodologies [2] to deal with the challenges that are presented by disambiguation, cultural and regional differences, and transliteration.

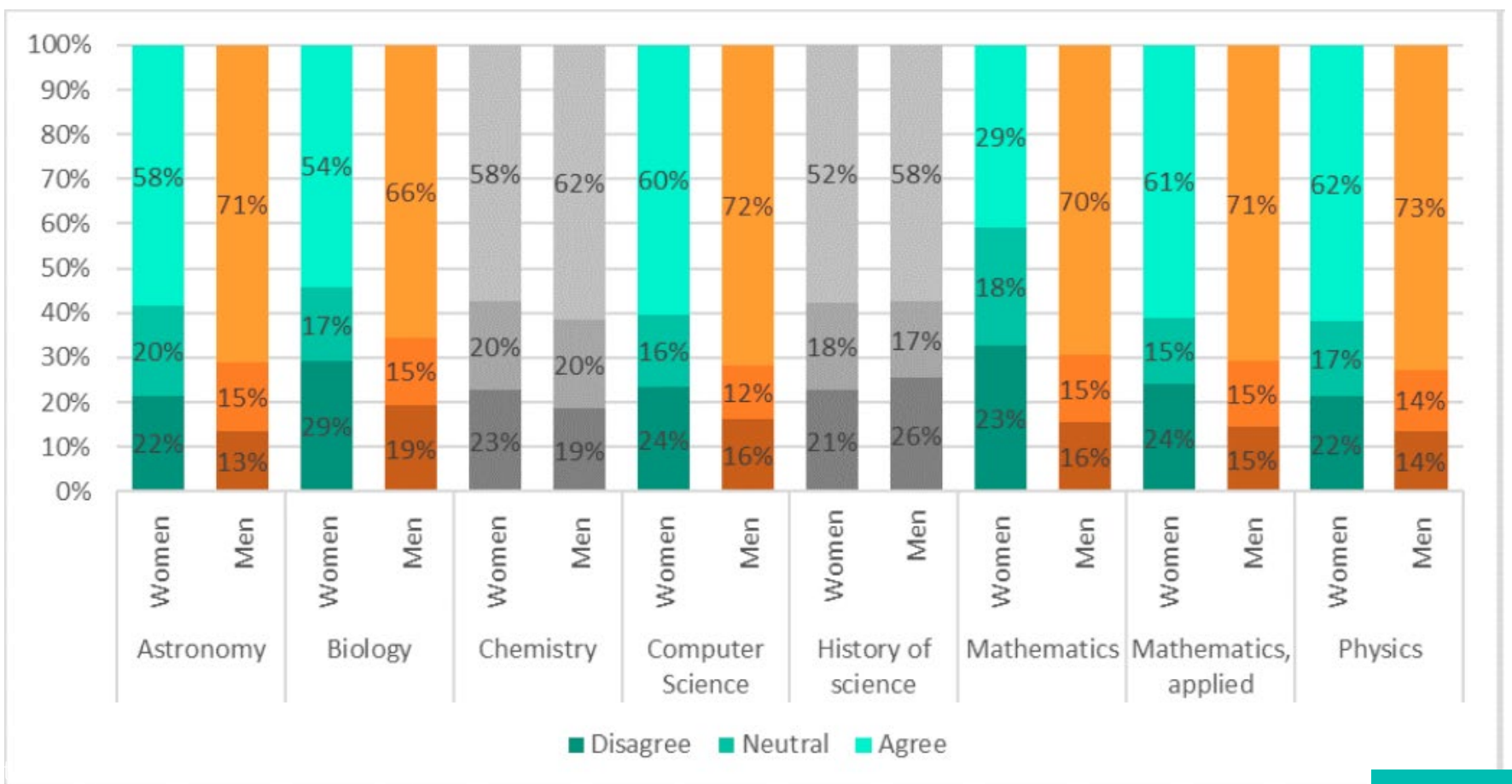


Proportion of authorships by women per subfield and year in arxiv physics



**Figure 1:** Proportion of authorships by women per physics subfields and year in publications indexed in the arXiv [1]

**Figure 2:** Percentages of respondents' agreement with the statement, "My employer treats everyone fairly" by discipline. Gray indicates the differences are not statistically significant by gender at the 0.002 level [1]



## DEFINITIONS

**Gender Gap:** Gap in any area between women and men in terms of their levels of participation, access, rights, remuneration or benefits

**Gender bias:** Prejudiced actions or thoughts based on the gender-based perception that women are not equal to men in rights and dignity

**Harassment:** Unwanted conduct related to the sex of a person occurring with the purpose or effect of violating the dignity of that person, and of creating an intimidating, hostile, degrading, humiliating or offensive environment

<https://eige.europa.eu/library/resource/dedupmrg20028>

"with evidence and intelligence, with constant learning and understanding, and with a few "Aha! Got it" moments along the way"

### The Database of Good Practices

The main aim of the third task was to collect a sample of initiatives that address the gender gap in Science and Mathematics and organise these initiatives as a searchable database. The SAGA Science, Technology, and Innovation Gender Objectives List (STI GOL), developed by UNESCO, was identified as an initial conceptual schema to capture dimensions of "good practice", and was extended by this project.

By the end of the development phase, 67 gender initiatives from 44 countries had been included, together with ten global scientific bodies. In the African group, five initiatives from South Africa, Nigeria, Kenya, Ethiopia, and Namibia are present.

### So what do we do?

A few selected recommendations are reproduced here in a short form - which certainly does not provide the full picture. For local organisations:

- Promote a respectful, collegial working atmosphere in your organization. Monitor support, well-being and mentoring of female academics.
- Define best practices to prevent, report and address sexual harassment and discrimination in professional spaces.
- Ensure transparency of statistics on salaries, course loadings, bonuses, hiring and promotion, observing progress or difficulties experienced by female academics.

The remaining points cover reducing the disproportionate impact of parenthood on the careers of women; welcoming environments; and outreach programmes.

### For scientific unions:

- Work collectively to change culture and norms to reduce the various aspects of the gender gap. Share policy, toolkits and learnings to enable member organizations and members.
- Define and advertise best practices to prevent, report and address sexual harassment and discrimination in professional spaces.

So a partial answer to my question "How do we respond as scientists to inequalities in our environment?" is: with evidence and intelligence, with constant learning and understanding, and with a few "Aha! Got it" moments along the way.



### Author biography:

Irvy (Igle) Gledhill holds a PhD in plasma physics from the University of Natal, and did her post-doc work at the University of California, Los Angeles, on thermonuclear fusion, and at Stanford on Space Shuttle physics. For 30 years, she specialised in transonic computational fluid dynamics in aeronautics at the CSIR. She also contributed as a computational physicist within groups in mining, the biosciences, and other fields. At present she is Visiting Adjunct Professor of Flow Physics at Wits. She is a Past President of SAIP.

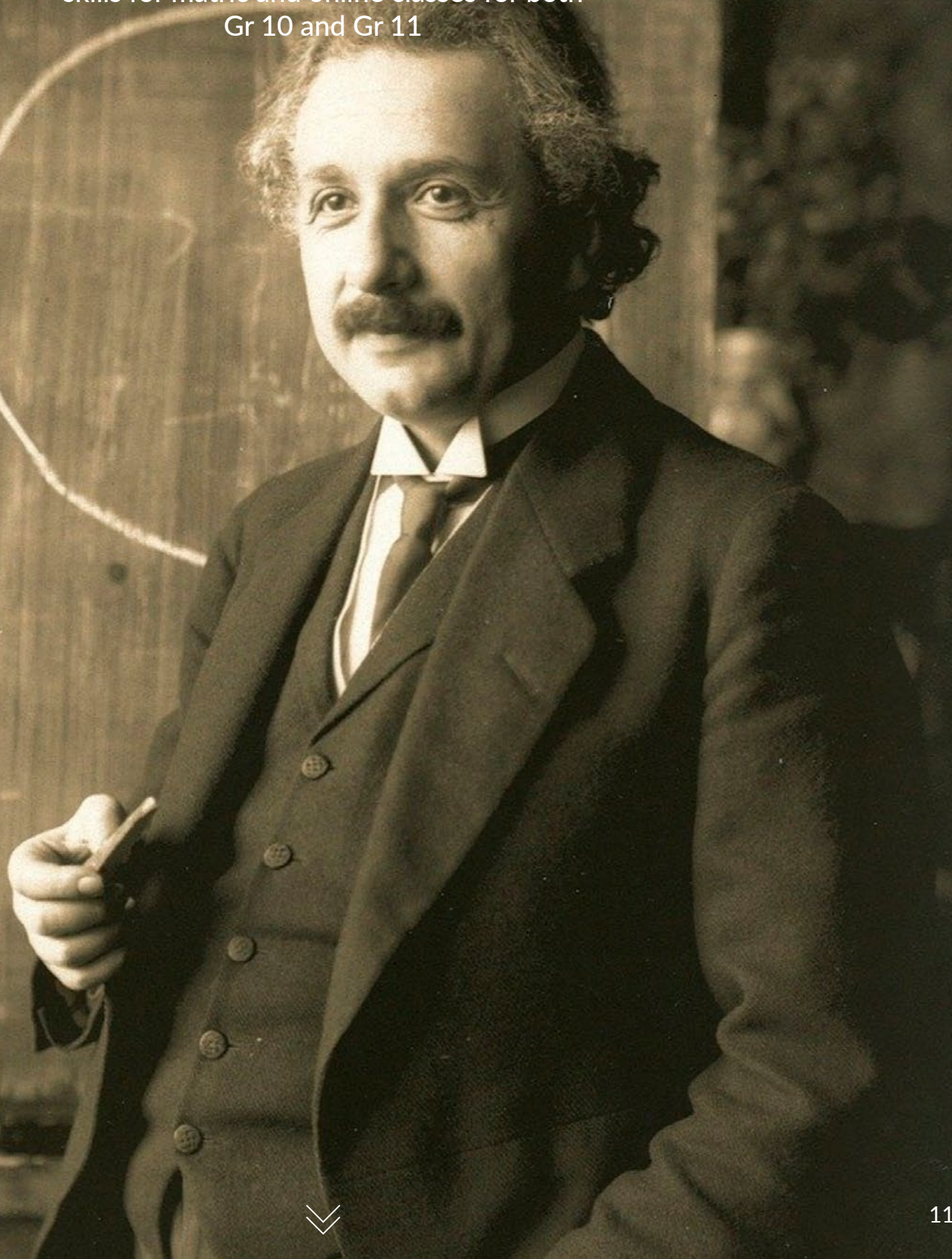
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2. Mihaljević, Helena; Tullney, Marco; Santamaria, Lucia and Steinfeldt, Christian, Reflections on Gender Analyses of Bibliographic Corpora, Frontiers in Big Data 2 29, 2019 <https://www.frontiersin.org/article/10.3389/fdata.2019.00029>



# EDUCATIONAL OUTREACH

The SAIP engaged in three major projects with regards to educational outreach: Teacher development, essential skills for matric and online classes for both Gr 10 and Gr 11





The SAIP Teacher Development Workshops and related physics development activities are traditionally conducted as face-to-face events. From March 2020 to date, the SAIP activities have been severely affected by the COVID19 restrictions. The SAIP ceased events that require face-to-face interactions and domestic and international travel in March 2020. SAIP geared itself to support developmental physics activities through remote means such as social media, radio, and video conferencing (Microsoft Teams, Skype, or Zoom). However, there were some cases where we did events on national platforms which were either canceled altogether or moved to virtual venues, such as National Science Week 2020 and Annual Science Festival - Scifest Africa. Activities that were compliant to COVID-19 restrictions were introduced for teacher development project, and these were widely publicized through social media and radio, reaching over 2 million people.

In 2020 the SAIP Physics Teacher Development programme was accredited by the South African Council of Educators (SACE), the statutory professional body for educators in South Africa. Hence teachers will now accrue Continuous Professional Development Points (CPD) whenever they attend the SAIP Teacher Development workshops.



*The workshop held in Bloemfontein and Welkom, Free State.*





easing of lockdown restrictions, face to face and online teacher workshops were hosted in October 2021. The SAIP in collaboration with the Central University of Technology, Free State (CUT), ran a series of Physical Science teacher development workshops for the Free State province in October 2021; with support from the Philanthropy Initiative with employees of Allan Gray.

It was followed by a successful 2-day Ekurhuleni online teacher workshop in collaboration with Moipone Academy and the Ekurhuleni District in Gauteng. Over 121 teachers were registered for the workshops.

The mission of the workshop was to facilitate and equip Natural and Physical Sciences Teachers in the delivery of the physics content from a disciplinary perspective fostering a community of practice by teachers for teachers. This will, in turn, raise learner interest and retention in the sciences with an increase in the mass of learners that are needed in the Sciences, Technology, Engineering and Mathematics (STEM) sector.

There have been some challenges in adapting to virtual platforms, such as connectivity issues, data costs, and keeping track of attendees who use a single shared device. Hence, the SAIP is looking at ways to address these new challenges which come with the new norm of online events.

### Online, face to face and hybrid teacher development workshops.

The SAIP introduced the online teacher development workshops to support the physical science teachers from Gauteng, North-West and Free State. With the

**5000** booklets

and 1000 USBs were distributed via the essential skills campaign

**78**

Teachers attended the CUT workshop.

**192**

Matric (Grade 12) learners attended our series of exam preparation

ESSENTIAL SKILLS FOR MATRIC,  
BOOKLET DISTRIBUTION





## Introduced the Essential Skills for Matric Materials

Booklets and pre-recorded videos loaded on USBs bridged the digital divide and helped those schools, teachers and learners who wanted to prepare for Physics Matric Exams but did not have access to the internet and online materials. 25000 booklets and 1500 USBs were distributed to teachers and learners from Limpopo, Gauteng, Mpumalanga, Eastern Cape, Kwa-Zulu Natal, reaching over 320 schools and an additional 2952 individuals accessed the materials online.



## Piloted Outreach to schools using online mentoring

In partnership with Moipone Science Centre a successful pilot project was undertaken to support Matric classes using the online platform. The learners either went to their schools, or the Science Centre where the lectures were streamed live and projected in an auditorium with social distancing or they joined from their homes. 403 matriculants from Ekurhuleni and surrounding areas are benefiting from this pilot outreach project.

In addition, we expanded it to Online Saturday School for Grade 10 & 11. This emanated from one of the teacher development planning meetings; to run a program to bridge the GAP caused by the COVID19 pandemic and streamline the school curriculum. We have negotiated with the Ekurhuleni district, and we piloted the program for grades 10 and 11. Learners in foundational and content progression covered physical science topics they have missed. The program runs online and is open to any school or learner who wants to participate, including those outside Ekurhuleni.

## GOALS

### Essential skills:

Bridge the digital divide during COVID

online learning regime by giving teachers and learners access to our resources.

### Online classes:

To bridge the GAP caused by the COVID19 pandemic and streamlining of the school curriculum

### Ekurhuleni Teacher development workshop (Gr. 10 &11):

The goal is to provide teachers with the skills they need to prepare and equip learners with a solid foundation in physical sciences in preparation for Matric.

### Online teacher development workshop:

The workshop's mission was to facilitate and equip Natural and Physical Sciences Teachers in the delivery of the physics content from a disciplinary perspective fostering a community of practice by teachers for teachers. This will, in turn, raise learner interest and retention in the sciences with an increase in the mass of learners that are needed in the Sciences, Technology, Engineering, and Mathematics (STEM) sector.



TEACHER DEVELOPMENT WORKSHOP

ABOVE: ONLINE GR 11 CLASSES



Contributed by: Mphamela Baloyi and Ndanganeni Mahani



# PHYSICS IN MY VILLAGE COMPETITION.



National Science week 2021

# COMPETITION



Physics is all around us, at home, school, work and even hospitals. So we want you to tell us what physics has done for your community.

Submissions can be in the form of a Poster, Illustrative cartoons, 1-minute video clip as individual or a team

Submissions can be made online or through sending WhatsApp video clips to 066 182 0629

"Physics in my village"

Closing date:  
25 June 2021

**AMAZING PRIZES !!**  
1<sup>ST</sup>: R 3000.00  
2<sup>ND</sup>: R 2000.00  
3<sup>RD</sup>: R 1000.00

For more information go  
<http://www.saip.org.za/Physicsinmyvillage>  
or contact us : 012 841 2655, email: [info@saip.org.za](mailto:info@saip.org.za)

SAIP hosted a Physics in my Village competition as part of the National Science Week program.

The Physics in my Village competition focuses on how physics has improved the quality of our lives and highlights the relevance of physics in our everyday lives

Participants were tasked with either creating a poster or 1 minute video explaining how physics has improved the lives of their community.



## FIRST PRIZE WINNERS



Sibongakonke Malinga  
Video Category



Christopher Jacobs  
Video Category



Moetjie Charlene  
Poster Category



**We congratulate all the winners of the  
Physics in my Village competition and  
thank all the participants for  
their submissions.**





Christopher Jacobs is a thirteen-year-old boy in grade 7 attending school at De La Salle Holy Cross College. Fascinated by science, he loves exploring the world around him and understanding how things work. He enjoys programming and would like to become an engineer. Some of his hobbies include reading, playing tennis and spending time with friends and family.

**Summary of his submission:**

Physics plays an important role in our lives. It looks at the problems we face and finds a way to solve them. For example before the intervention of physics we had to undergo the tedious process of using maps and thick map books, which made travelling to a new destination alone virtually impossible, but by inventing Global Positioning Systems or GPS using satellites, Physics helps us get around much faster and with ease. Like this there are many remarkable examples of physics improving the quality and efficiency of our lives. The possibilities of physics are endless. It can be used to improve buildings, healthcare, telecommunication and many other areas of our life.

## VIDEO CATEGORY

Sibongakonke Malinga is a Grade 11 learner and her favourite colours are those of a rainbow. Her interests include crocheting, craft work and reading.

**Summary of her submission:**

Discussing the subtle presence of Physics in my grandmother's village, Daggakraal, my video is essentially a short Physics lesson on Convection! Being a small village in Mpumalanga, Daggakraal frequently experiences electricity power cuts. Even though the occurrence is often frustrating as it is an inconvenience, my video discusses how my grandmother's use of the Wonderbag, which is a simple but revolutionary non-electric slow cooker, is indeed possible through the power of Physics! This happens because of the various materials, such as polystyrene, that are inside the Wonderbag that therefore allow the bag to have convection abilities thus allowing for continued cooking during power cuts.

**In the video category we had a tie, both videos were excellent in both quality and content. Each of them highlighting different impacts of physics in our everyday lives.**



# POSTER CATEGORY

Charlene Moetjie is a fifteen- year-old Grade 11 learner attending Dendron secondary school. She enjoys reading & writing poems and her interests include learning about computers and different languages, playing a musical instrument, and travelling the world and seeing different places. She submitted a series of posters. She wants to be a data analyst and a motivational speaker.

**PHYSICS IN MY COMMUNITY STORY**



**PHYSICS IN MY COMMUNITY**

**SURNAME: MOETJIE**  
**FULL NAMES: KAMOGELO MAMOLOKO CHARLENE**  
**GRADE 11 LEARNER**  
**@ DENDRON SECONDARY SCHOOL**

## Summary of her submission:

I've learned so much that I realised a lot of things that surround me, are a work of physics. And in learning that, I was able to recognise the application of physics in my everyday life. This made me see things differently than before. The work of physics in my community is outstanding and for some, hard to identify. Not only did this project give me a chance to win a prize but to learn about the applications which we learn in our classrooms and how they have benefitted us, our lives and the world. Physics is truly a work and application of the past, present and future







South African Institute of

**PHYSICS**

THE VOICE OF PHYSICS IN SOUTH AFRICA

# **SOUTH AFRICAN PHYSICS OLYMPIAD**

## **LEARNERS EXCEL IN PHYSICS**

**ON FRIDAY, 29 OCTOBER 2021, THE SOUTH AFRICAN INSTITUTE OF PHYSICS (SAIP) ANNOUNCED THE SOUTH AFRICAN PHYSICS OLYMPIAD (SAPHO) RESULTS TO THE MEDIA, THE SCHOOLS INVOLVED AND THE LEARNERS WHO EXCELLED IN THE SAPHO EXAMINATION.**





bout 40 learners from selected Secondary schools were invited to write the SAPHO 2021. The total number of participants was drastically lower than previous years due to the Covid-19 pandemic and was administered as a hybrid Olympiad; written partially on-line. "South Africa, like every other country in the world, has amongst its youth, a latent talent that needs to be identified, nurtured and monitored, to allow them to reach their full potential", says Case Rijdsijk, SAPHO Convener. "There are talent scouts for potential sports men and women, why not for Mathematics and Sciences? After all our future lies in education and a technologically based economy. Identifying future scientists and engineers is essential and SAPHO is one pathway to success". Considering the difficult circumstances we are experiencing, the SAPHO results were most satisfactory. Miss Leané Oosthuizen, a Grade 12 learner from Leeuwenhof Akademie in Gauteng was the top achiever in this year's Olympiad, with a score of 78%. She will receive a Gold Certificate, R2 200 and the SAPHO Medal, which will be presented to her by the South African Institute of Physics. Her teacher, Ms Gerda Swart, said "As a Physical Science teacher at Leeuwenhof Akademie, I strive to give each student the opportunity to reach their full potential. I am extremely proud of Leané. She is a hardworking, dynamic but also a noble young lady".

eané herself said "I have a very curious spirit and always need to know how "things" work and why. I started reading and walking at the same time – fascinated by the world around me and life as a whole. There is science (which to me means logic) in almost everything around us . With the internet at my fingertips, I continue to feed my curiosity; there is more to being just scientific – the huge field of science touches our daily lives in so many ways. I love making sense of it! I'm planning to study medicine next year

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*The winner of the 2021 SA Physics Olympiad, Miss Leané Oosthuizen, receiving her gold certificate from Dr Rudolph Erasmus of the SA Institute of Physics.*

- exploring the world and life even more". In second place was Mr. Bhengu Sandiswa, a Grade 12 learner from Sithokozile Secondary school, KZN, who won this year's Silver Certificate with a score of 76% and R1 600. Mr. Caleb Bessit, from St Barnabas School of Specialisation, who with 74%, scooped third place with a Bronze Certificate and R 1 200.

SAPHO will also award those who scored between 70% and 60% Merit Certificates for their achievements and those who scored between 59% and 50% will receive Honourable Mention Certificates. The remaining learners will receive Participation Certificates to acknowledge their participation in the Olympiad. The SAPHO Convener, Case Rijdsijk, has said that he is grateful to the Department of Science and Innovation, DSI, and the South African Agency for Science and Technology Advancement, SASTA, for their support and funding. In addition, he also voiced his thanks to the SAIP Executive Officer, Mr. Brian Masara, and the Project Manager, Ms Ndanganeni Mahani for all their efforts in making SAPHO a success. Finally, Mr. Tebogo Mokhine from the SAIP Office is thanked for online SAPHO software management.

## SAPHO

SAPHO is hosted by the South African Institute of Physics with the aim of identifying young South Africans with ability in Physics, in the hope that these students will continue to study Physics at tertiary institutions and Universities within South Africa.







from left Mr Zungu (Deputy Principal), Mrs Xoseka (Science Departmental Head), Sandiswa Bhengu, Mr Sosiso (Principal), Mduduzi Nkabinde (Sandiswa's cousin) and Miss Mtolo (Physical Sciences Educator)

**Silver medalist:  
Bhengu Sandiswa**

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*Season's Greetings and a  
Happy New Year*



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