PHYSICS NEWSLETTER

THE OFFICIAL NEWSLETTER

WORD FROM HOD

As I reflect on my contribution to the newsletter, I am reminded of the daily global events that so vividly highlight the human condition, acts of goodness and kindness on the one end, and hate and destruction on the other. It is this constant tension between light and darkness that so often defines our time. Wars, debates about freedom of speech, artificial intelligence and its anticipated impact on human existence, and many more, dominate our daily global headlines. Yet the most significant event of the past week was surely the tragic loss of Carlie Kirk. The incomprehensible and cruel responses it drew remind us that liberty without compassion and soul is meaningless, and will ultimately erode our shared humanity. We must become better!

On a local front, goodness, though often drowned out by the noise, is visible wherever we look. Our institution's operational success is frequently carried on the quiet strength of individuals whose steadfast commitment goes largely unnoticed, yet whose influence is profoundly felt. Over the course of forty years in the academic space, I have been fortunate to work alongside many gifted and dedicated colleagues. It, however, is a truly rare experience to encounter someone whose presence and devotion to task and people leave as profound and enduring an impression as Eugenia Hanana's. I frequently find myself watching her with quiet admiration and deep respect, wondering what it is that sets her apart from the norm - allowing her to do her job with such grace, consistency, and heart. Performing mainly cleaning duties, it can certainly not be material reward. In my view, and having worked closely with her, what drives Eugenia must transcend duty; it is likely an extraordinary sense of purpose, integrity, and goodness, qualities so painfully absent in our broken world. I thought it would be meaningful to 'interview' Eugenia to find out a little more about her. She rises at five, catches a taxi at six, and is at work by seven, metronomically punctual, reliable and self-accountable.

Without supervision or fanfare, she goes about her work with grace, dignity and pride. Born in Fort Beaufort in 1964, the second of four children, she lost her father when she was just three. After completing Standard 8, she had to leave school due to financial constraints and moved with her mother, a domestic worker, to Port Elizabeth. For sixteen years she survived on casual jobs, supporting her mother until she found formal employment in 2006 as a cleaner with Prestige, later transferring to the then-NMMU in 2007. Along the way, she raised two daughters, Nomfundo (31) and Siphesihle (25), as a single parent. Despite hardship, she found strength in purpose: to create a stable environment for her children. Her advice is both simple and profound: Have a purpose. Respect yourself, for this leads to respect for others. My life has been shaped by my Christian values she says. Eugenia in her humble quite way reminds me that true impact lies not in titles, but in the goodness with which we live and work. Eugenia, we honour your quiet strength and character. You serve as an inspiration and an example to many, and I learn from you daily. Thank you for living well and for serving the department with extraordinary dignity. The second law of thermodynamics tells us that "in any closed system, entropy always increases" a reminder that disorder is the natural course of things. And yet, the Eugenia's of this world stand as exceptions. They offer hope that while entropy may govern the universe, human goodness can still bring order and meaning to a very broken world. May her example remind us all that our daily contributions, however unseen, have the power to sustain our community, uplift one another, and inspire hope. "What you do makes a difference, and you have to decide what kind of difference you want to make."

CONGRATULATIONS GRADUATES!

Congratulations to all our students who graduated this year! We wish you all the best in your future endeavours!

Hayley Britz
James Stevenson
Matthew Sivewright (BEng Mechatronics)
Amber de Beer
Rushen Pillay
Stefan Vorster
Andries du Preez
Peter Viljoen
Gcobani Mtwazana
Murial Ndzane
Tasmin van Den Heever
Jade du Preez

ITHEMBA LABS AND NMU HOST PARTICLE PHYSICS MASTERCLASS FOR TOP SCIENCE LEARNERS

iThemba LABS and NMU Host Particle Physics Masterclass for Top Science Learners

The Department of Physics at Nelson Mandela University, in collaboration with iThemba LABS, recently hosted a Physics Particle Masterclass for high-performing Grade 10–12 science and mathematics learners from across the Eastern Cape.

This exclusive event took place on 3 April in the First-Year Physics Laboratory and was facilitated by Dr Zinle Buthelezi and Mr Siegfried Fortsch.

The masterclass provided learners with a rare opportunity to engage with real particle physics data and experience hands-on scientific inquiry in a university setting. A total of 35 learners attended the session—including a remarkably enthusiastic 8-year-old boy, whose participation added a special spark to the day.

Thank you to all involved for inspiring the next generation of scientists and helping to ignite a passion for physics in young minds across the province.

ABOVE: MATTHEW SIVEWRIGHT

ABOVE: ELIZABETH HAGEMANN

ABOVE: ISNI PUJIRANA

ABOVE: ARNOLD MUTUBUKI

OUTSTANDING ACHIEVEMENTS AT THE SAIP CONFERENCE

The department had an exceptionally strong presence at this year's SAIP Conference, with several of our students earning top honours for their research presentations. We are proud to recognize the following award recipients and their supervisors for their outstanding work:

- Matthew Sivewright – Best MSc Oral Presentation, Applied Science
- Elizabeth Hagemann – Best MSc Oral Presentation, Physics Education. Elizabeth also attended SACPM and received CB van Wyk best MSc oral award
- Isni Pujirana – Frank Nabarro Award for Best PhD Oral Presentation, Condensed Matter
- Arnold Mutubuki – Best PhD Poster Presentation, Condensed Matter

Congratulations to all the awardees for these well-deserved accolades, and thank you for being exemplary ambassadors for the department. Your hard work and professionalism continue to make us proud.

ABOVE: MADELEINE BADENHORST

ABOVE: MADELEINE BADENHORST RECEIVING HER REWARD FOR BEST POSTER AT REI CONFERENCE IN SPAIN

CONGRATULATIONS TO MADELEINE BADENHORST

We are delighted to share more good news from our talented student community. Congratulations to Madeleine Badenhorst (and her supervisors) on an impressive series of achievements over the past several months. Since December, Madeleine has been recognized with multiple prestigious awards:

- Most Promising Microscopist Award at MSSA 2024 (including a fully funded trip to Manchester to attend the MMC Conference)
- Best Student Oral Presentation at MSSA 2024
- Best Student Poster at the REI21 Conference in Spain
- Best Student Flash Talk at the MMC Conference

Well done, Madeleine! We are incredibly proud of your accomplishments and of all our students who continue to perform at such a high level on national and international stages.

ACADEMICS SUPPORT HIGH SCHOOL INNOVATOR'S AWARD-WINNING VISION FOR WIRELESS COMMUNICATION

Master's student Sandi Bangani and PhD student Lillian Mutia were key players in testing Otto du Plessis High School Grade 11 pupil Christopher May's Fractal Geometry Antenna Project, which netted him a silver medal and a R40 000 bursary from WITS University in September last year.

May's project focused on designing a compact, high-performance frequency antenna capable of operating across a broad frequency range, showcasing both creativity and technical skills, said CBC senior researcher and director Dr David Waswa.

The CBC provided the young inventor with access to advanced testing equipment and the expertise of both Bangani and Mutia, who assisted with collecting and analysing the antenna's data to evaluate its performance over three days.

The theoretical results were then validated at the CBC under the supervision of Dr Waswa, who said that May was able to use state-of-the-art equipment for radiation pattern analysis, bandwidth measurement and signal quality testing.

The project underscored the CBC's commitment to nurturing the next generation of innovators and researchers,

"This hands-on experience not only enhanced his understanding of antenna design, but also provided him with practical skills that will serve him in his future studies and career," said Dr Waswa.

PICTURED ABOVE: LILIAN MUTIA, DR DAVID WASWA, CHRISTOPHER MAY, ZAINA MDAKANE & SANDI BANGANI

PVINSIGHT WINS AWARD AT SAPVIA AWARDS CEREMONY

PICTURED ABOVE: DR JACQUI CROZIER MCCLELAND ACCEPTING THE AWARD

Congratulations to PVinsight, who were named Runner-Up in the Solar PV Research and Development (R&D) Award at the 2025 SAPVIA Awards Ceremony!

Dr Jacqui Crozier McCleland accepted the award on behalf of the PVinsight team, which includes Prof Ernest van Dyk, Frederik Vorster, Mariska Swanepoel, Monphias Vumbugwa, Ndumiso Mngomezulu, Lulutho Notyena, and Bailey Muir.

This is a wonderful achievement and a testament to the quality of research and innovation coming out of your department.

It's an honour to see your work recognised alongside so many key players in the solar PV industry.

PHYSICS DEPARTMENT WINNER AT OPEN DAY 2025

The Physics Department thoroughly enjoyed taking part in Open Day again this year. Our lecturers always appreciate the opportunity to engage with learners, spark curiosity, and share their passion for the fascinating world of physics. It's inspiring to see the next generation showing such enthusiasm and interest in the field!

The department received the runner-up award for the most visually appealing stall.

STAFF STORIES

Please welcome Roelof Roodt, who has been appointed as a lecturer in our department.

Roelof began his journey with us as a student, and even then, he consistently demonstrated the qualities of a future academic—commitment, integrity, and a strong work ethic.

We are excited to have him on board and look forward to seeing him grow and reach new heights in his academic journey with us.

Please join me in congratulating Roelof and Danelle on their recent engagement to be married. We celebrate this joyful occasion with them and wish them every happiness as they begin this exciting new chapter together.

“Love does not consist in gazing at each other, but in looking outward together in the same direction.” — Antoine de Saint-Exupéry

Congratulations to Prof van Dyk, who has become a grandfather for the second time. We share in his joy and wish his growing family continued health, happiness, and precious moments together.