

# SAIP2025 Timetable

Tuesday 08 July 2025

08:30 – 09:15 (Venue: SHB5)	<b>PLENARY - [568] Halide perovskites and related materials: A new playground of material discovery</b> <b>Professor SARMA, DIPANKAR DAS</b> <b>(Indian Institute of Science, Bengaluru, India)</b>							
09:15 – 09:20	Breather							
TRACK	<b>PHYSICS OF CONDENSED MATTER AND MATERIALS</b>  <b>(Venue: SHB5)</b>	<b>NUCLEAR, PARTICLE AND RADIATION PHYSICS 1</b>  <b>(Venue: SHB1)</b>	<b>NUCLEAR, PARTICLE AND RADIATION PHYSICS 2</b>  <b>(Venue: P114)</b>	<b>PHOTONICS</b>  <b>(Venue: SHB3)</b>	<b>ASTROPHYSICS &amp; SPACE SCIENCE</b>  <b>(Venue: SHB4)</b>	<b>PHYSICS FOR DEVELOPMENT, EDUCATION AND OUTREACH</b>  <b>(Venue: SH6)</b>	<b>APPLIED PHYSICS</b>  <b>(Venue: SHB2)</b>	<b>THEORETICAL AND COMPUTATIONAL PHYSICS</b>  <b>(Venue: RS38)</b>
Conveners	Prof TERBLANS, J.J (University of the Free State)	Prof NTSHANGASE, Sifiso (University of Zululand)	Dr GOLOLO, Mpho (University of Johannesburg)	Dr DUDLEY, Angela (University of the Witwatersrand)	Dr STEYN, Ruhann (North-West University)	Dr. MOLEFE, Paul (University of Johannesburg)	Prof MATTHEWS, Alan (University of KwaZulu-Natal)	Prof HOROWITZ, William (University of Cape Town)
09:20 – 09:40	<b>[39]</b> Influence of pressure and defects on CNT interlinking  <b>Dr VAN NIEKERK, Chani</b> <b>(University of the Witwatersrand)</b>	<b>[93]</b> Linear polarization measurement on gamma rays from non-oriented nuclear states  <b>Ms SIMILINDI, Beatrice</b> <b>(iThemba LABS)</b>	<b>[456]</b> Highlights of ALICE results from heavy-flavour measurements at LHC energies  <b>Prof BUTHELEZI, Edith Zinhle</b> <b>(iThemba LABS)</b>	<b>[15]</b> Comparative Theoretical Analysis of Entangled Quantum States for Enhanced Sensing Application  <b>Dr MPOFU, Kelvin</b> <b>(CSIR)</b>	<b>[23]</b> Update on the air quality dashboard development  <b>Dr SHIKWAMBANA, Lerato</b> <b>(South African National Space Agency)</b>	<b>[485]</b> An Introduction to Quantum Computing - Teaching the Basics  <b>Dr SURTEE, Taariq</b> <b>(University of the Witwatersrand)</b>	<b>[251]</b> Synopsis of the prototype parabolic trough  <b>Prof FERRER, Philippe</b> <b>(University of the Witwatersrand)</b>	<b>[238]</b> Shock Wave Propagation in Core-Collapse Supernovae: A One-Dimensional Study with Magnetic Fields  <b>Prof MURONGA, Azwinndini</b> <b>(Nelson Mandela University)</b>
09:40 – 10:00	<b>[69]</b> Investigation of Titanium, Zirconium, Vanadium, and Palladium Multilayer Systems for Advanced Hydrogen Storage Applications  <b>Dr MTSHALI, Christopher</b> <b>(iThemba LABS)</b>	<b>[52]</b> Systematics study of octupole bands in rotating even-even nuclei to reveal rigid or soft octupole shape <b>[For Award: MSc]</b>  <b>Mr MUZOMUHLE, Muzomuhle</b> <b>(University of Zululand)</b>	<b>[229]</b> Parton Production Spectra and Energy Loss in High-Energy 00 Collisions  <b>Mr ALAM, Mohammad</b> <b>(University of Cape Town)</b>	<b>[81]</b> Rate equations for the control of Yb-171 ions <b>[For Award: MSc]</b>  <b>Ms IYER, Abigail</b> <b>(Stellenbosch University)</b>	<b>[49]</b> Simultaneous multiple conjugate nighttime MSTIDs observations: 4 October 2018  <b>Dr KATAMZI-JOSEPH, Zama</b> <b>(South African National Space Agency)</b>	<b>[21]</b> Investigating the effect of material properties on thermal conductivity: An enquiry-based approach  <b>Dr MNGOMEZULU, Halalisani</b> <b>(University of Johannesburg)</b>	<b>[499]</b> Characterization of a Talbot-Lau X-ray phase contrast system at the Wits Micro-CT Facility <b>[For Award: PhD]</b>  <b>Mr CHINAMATIRA, Gideon</b> <b>(University of the Witwatersrand)</b>	<b>[417]</b> Piston-Driven Shock Wave Test Problem for Validating Magnetohydrodynamic Models in Astrophysics <b>[For Award: PhD]</b>  <b>Ms SEABI, Magdeline</b> <b>(Nelson Mandela University)</b>
10:00 – 10:20		<b>[107]</b> Electromagnetic and thermodynamic properties in the quasi-continuum of mid-mass nuclei through inverse and direct kinematics <b>[For Award: PhD]</b>  <b>Mr NKALANGA, Mhlangano</b> <b>(University of Johannesburg)</b>	<b>[344]</b> Real-Time Anomaly Detection in High Energy Physics  <b>Mr ATKIN, Ryan</b> <b>(University of Cape Town)</b>	<b>[221]</b> Decay of stationary entanglement mediated by one-dimensional plasmonic nanoarrays  <b>Dr UGWUOKE, Luke</b> <b>(Stellenbosch University)</b>	<b>[176]</b> Investigating the influence of Boundary Layer Dynamics on Aerosol Optical Properties Using Ceilometer and Cimel Sun Photometer  <b>Mrs FANISO-MNYAKA, Zimbini</b> <b>(Council for Scientific and Industrial Research)</b>	<b>[198]</b> Transforming Physical Sciences Teaching through Targeted Professional Development  <b>Dr HERBERT, Mark</b> <b>(University of the Western Cape)</b>	<b>[172]</b> Transforming Coherent Telecom Receivers into Current Sensors <b>[For Award: PhD]</b>  <b>Ms DROZDOV, Alice</b> <b>(University of the Witwatersrand)</b>	<b>[257]</b> Energy Loss as a Probe of Quark-Gluon Plasma Formation Across Collision System Size <b>[For Award: PhD]</b>  <b>Mr FARADAY, Coleridge</b> <b>(University of Cape Town)</b>
10:20 – 10:50	Morning Tea / Coffee Break (Solomon Mahlangu House Basement Level West Wing Drawing Hall - SHWWDH)							

TRACK	PHYSICS OF CONDENSED MATTER AND MATERIALS 1 (Venue: SHB5)	PHYSICS OF CONDENSED MATTER AND MATERIALS 2 (Venue: P115)	NUCLEAR, PARTICLE AND RADIATION PHYSICS 1 (Venue: SHB1)	NUCLEAR, PARTICLE AND RADIATION PHYSICS 2 (Venue: P114)	PHOTONICS (Venue: SHB3)	ASTROPHYSICS & SPACE SCIENCE (Venue: SHB4)	PHYSICS FOR DEVELOPMENT, EDUCATION AND OUTREACH (Venue: SH6)	APPLIED PHYSICS (Venue: SHB2)	THEORETICAL AND COMPUTATIONAL PHYSICS (Venue: RS38)
Conveners	Prof CHAUKE, Hasani (University of Limpopo)	Dr LISEMA, Lehlohonolo (University of the Witwatersrand)	Dr MURULANE, Khuliso (University of Johannesburg)	Dr NKADIMENG, Edward (iThemba LABS)	Dr NAPE, Isaac (University of the Witwatersrand)	Prof HILTON, Matt (University of the Witwatersrand)	Mr KHWANDA, Mphiriseni (University of Johannesburg)	Ms HOLTZHAUSEN, Adiel (Akademia)	Prof MURONGA, Azwinndini (Nelson Mandela University)
10:50 – 11:10	[34] Quantum mechanical local energy density applied to many-electron Systems [For Award: PhD]  Ms ABDALLA, Saga (University of Witwatersrand)	[74] Exploring the structural, magnetic, and elastic properties of Mn50Al50-xSnx alloys: A DFT study [For Award: MSc]  Mr MOKWENA, Thabang (University of Limpopo)	[212] Detecting Anomalies in Measured Thermal Neutron Flux Profiles of SAFARI-1 Research Reactor. [For Award: MSc]  Mr KGOLOBE, Rethabile (University of Johannesburg)	[99] Analysis of Long-Term Stability Uncertainty in Luminosity Measurements Using the Tile Calorimeter of the ATLAS Detector for Run 3 Proton-Proton Collisions at sqrt (s) = 13.6 TeV in 2023  Dr RAPHEEHA, Phuti (University of the Witwatersrand)	[381] Noisy quantum channels fail to rip the fabric of entanglement [For Award: PhD]  Mr DINIS ORNELAS, PEDRO (University of the Witwatersrand)	[379] Structure growth in the thawing dark energy models  Dr AKALU, Shambel (North-West University)	[95] A review of upgrades to First-Year Physics Experiments to integrate digital control and utilization of more modern technology.  Dr VAN HEERDEN, Hendrik Jacobus (University of the Free State)	[181] Physical Principles to Translate from Phase Contrast Imaging to Absorption Contrast Imaging [For Award: PhD]  Mr MADURAY, Preveshin (University of Johannesburg)	[62] A farewell to waves  Dr BECK, Geoff (University of the Witwatersrand)
11:10 – 11:30	[82] Physiochemical, optical and magnetic properties of nickel-magnesium ferrite nanoparticles for various applications [For Award: PhD]  Mr NXUMALO, Sifiso (University of KwaZulu-Natal)	[79] A DFT novel study on acidic and neutral arsenate and enoic/enoate collectors adsorption on spodumene and feldspar mineral surfaces [For Award: MSc]  Mr MATLABJANE, Lesetja (University of Limpopo)	[343] Effect of SrO on radiation attenuation properties of boro-tellurate glass systems at a high energy region [For Award: MSc]  Mr MTHALANE, Sifiso (University of Zululand)	[219] South Africa's Contribution to the Phase-II Upgrade of the ATLAS Hadronic Tile-Calorimeter Low-Voltage Power Supply  Dr MCKENZIE, Ryan (University of the Witwatersrand)	[413] Tunable hybrid and non-local entanglement in photon pairs [For Award: PhD]  Mr KONI, Mwezi (University of the Witwatersrand)	[132] Constraints on Cosmological Parameters Using a Large Sample of Gamma-Ray Bursts with their redshift derived by Machine Learning [For Award: PhD]  Ms ALDOWMA, Tamador (University of Johannesburg)	[57] Effects of Learning Environments as Basis for Cognitive Achievements on the Understanding of Basic Physics Concepts  Prof SONDEZI, Buyisiwe (University of Johannesburg)	[449] Development and Qualification of a Fiber Optic Sensor Package for ITk Environmental Monitoring [For Award: PhD]  Mr UNWUCHOLA, Doomnull (University of the Western Cape)	[183] Quantum Complexity in Neutrino Flavour Oscillation [For Award: PhD]  Mr MAZWI, Luyanda (University of Johannesburg)
11:30 – 11:50	[87] Synthesis, Structural, and Gas Sensing Properties of Rare Earth-Substituted Zinc and Cobalt Ferrites: A Comparative Study [For Award: PhD]  Mr NDLOVU, Nkanyiso (University of KwaZulu-Natal)	[83] Structural, stability, and magnetic studies of polymer-coated magnesium-zinc ferrite nanoparticles synthesized via glycol-thermal route [For Award: MSc]  Mr MTHIMKHULU, Sakhile Sduduzo (University of KwaZulu-Natal)	[54] Radiological risks assessment of mining vicinities using RESRAD computer code  Dr OLAGBAJU, Peter Oluwadamilare (North-West University)	[336] Early Failures Detection with Machine Learning for ATLAS TileCal LVPS: The Impact of Burn-in Assessed with Test Bench Datasets  Dr MOSOMANE, Chuene (iThemba Labs)	[492] Investigating Second-Order Correlation of a Single-Photon Source NV Centre under CW Excitation [For Award: MSc]  Mr BHATTACHARYYA, Shaman (University of the Witwatersrand)	[48] An investigative numerical modelling study of galactic deuterons in the Heliosphere  Ms RAMOKGABA, Innocentia Itumeleng (North-West University)	[404] Trends in Mathematical and Physical Sciences Education in South Africa [For Award: Honours]  Ms ROFHIWA, Nthangeni (University Of Venda)	[316] Combining spheres and spirals of light for noise free communication through optical fibre [For Award: PhD]  Mr PETERS, Cade (University of the Witwatersrand)	[345] Comparative Study of Neutron and Proton Halo Breakup Cross Sections  Dr NDALA, Lucas Vusi (University of South Africa)
11:50 – 12:10	[89] The effect of molybdenum carbide additive on the magnetic and physical properties of Fe based NbC cermets [For Award: PhD]  Mr PETERS, Gerrard (University of the Witwatersrand)	[304] Defects identification in SnO2 semiconductor using positron annihilation techniques. [For Award: MSc]  Ms MOTJOPE, Dineo (University of Zululand)	[26] Alpha and Beta radiation effects on Re2MnCoO6 (Re = La, Sm, Nd) [For Award: PhD]  Mr DHLIWAYO, Tinashe (University of Johannesburg)	[367] Investigation of Radiation-Resistant Components for the TileCal-ATLAS Detector  Mr LALL, Gaurav (University of the Witwatersrand)	[340] Revealing the quantum nature of a continuous laser carrying orbital angular momentum  Dr MAHDAVIFAR, Moslem (University of the Witwatersrand)	[189] Constraining the Teleparallel Universe [For Award: MSc]  Mr RUGG, Robert (North-West University)	[558] School Learners' alternative conceptions regarding the Chemical Reaction Rate in certain Schools in the Lepelle Circuit, South Africa  Dr PHAGE, Itumeleng (Central University of Technology)	[20] Energy Balance Closure Analysis Based on Eddy Covariance Flux Tower Observations [For Award: PhD]  Mr TAKALANI, Lufuno (University of Venda)	
12:10 – 12:30	[144] Structural and Optical Investigations of Tm3+/Yb3+ Doped	[314] Electrical and structural properties in		[207] Particle Flow Algorithm (PFA) development for forward	[394] Revealing the unseen with tailored quantum light	[496] Bispectrum correlations of HI intensity mapping and			

	Yttrium Pyrogermanate for Blue and NIR Upconversion <b>[For Award: PhD]</b>  Dr BASINA, Veera Navee Kumar (University of the Free State)	Mo-Re alloys; a study on their Superconductivity <b>[For Award: MSc]</b>  Mr PAMHIDZAYI, Treatwell (University of Johannesburg)		jet reconstruction with the ATLAS ITk detector setup at the HL-LHC <b>[For Award: PhD]</b>  Mr LEPOTA, Thabo James (University of the Witwatersrand)	<b>[For Award: MSc]</b>  Ms NOTHLAWALA, Fazilah (University of the Witwatersrand)	large-scale structure surveys  Dr AICH, Moumita (University of Witwatersrand)			
12:30 – 12:35	Breather								
12:35 – 13:45	Lunch (Main Dining Hall - Matrix Student Centre)								
13:45 – 13:50	Breather								

13:50 – 14:35 (Venue: SHB5)	PLENARY - [564] Generation and detection of light at the single photon level Professor ZWILLER, VAL (KTH Royal Institute of Technology, Stockholm, Sweden)								
14:35 – 14:40	Breather								
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Conveners	Prof JILI, Thulani (University of Zululand)	Dr MAPASHA, Edwin (University of Pretoria)	Dr JONES, Pete (iThemba LABS)	Prof BUTHELEZI, Edith Zinhle (iThemba LABS)	Dr BOSMAN, Gurthwin (Stellenbosch University)	Dr AICH, Moumita (University of the Witwatersrand)	Prof KEARTLAND, Jonathan (University of the Witwatersrand)	Prof VAN DYK, Ernest (Nelson Mandela University)	Dr TSHIPI, Tshegofatso (Sol Plaatje University)
14:40 – 15:00	<b>[158]</b> Investigation of Biomimetic Coatings on Glassy Carbon and Ti-6Al-4V Substrates: Impact of Varying Surface Preparation Methods <b>[For Award: PhD]</b>  Ms DOCKRAT, Unaisa (University of Pretoria)	<b>[382]</b> Comparative Analysis of Co-precipitation and Sol-Gel derived Sm <sub>2</sub> Ni <sub>2</sub> O <sub>5</sub> nanoparticles: Structural, Chemical, Thermodynamic, and Magnetic Properties <b>[For Award: MSc]</b>  Ms CELE, Khethiwe (University of Johannesburg)	<b>[502]</b> Radiation contamination in gold mine tailings soil samples using HPGe spectrometry  Mr MVELASE, M.J. (University of Johannesburg)	<b>[237]</b> Overview of the current status of the High Granularity Timing Detector for the ATLAS phase 2 upgrade  Dr MAZINI, Rachid (University of the Witwatersrand)	<b>[119]</b> Crafting Optical Neural Networks Using Multimode Fibre <b>[For Award: MSc]</b>  Mr RAWLINGS, Christopher (University of the Witwatersrand)	<b>[112]</b> Response of Ionospheric Topside Electron Density during Solar Flares <b>[For Award: MSc]</b>  Mr MONONTSI, Kenny (North-West University)	<b>[199]</b> Attitudes and Approaches to Problem Solving as Predictors of Physics Achievement Among First-Year Students  Dr HERBERT, Mark (University of the Western Cape)	<b>[511]</b> Design of an INVELOX based wind delivery system for low wind speed application. <b>[For Award: PhD]</b>  Mr CHITURA, Anesu (University of Fort Hare)	<b>[247]</b> Classical and Quantum Mechanics of Non-holonomic Constraints  Prof HOROWITZ, William (University of Cape Town)
15:00 – 15:20	<b>[165]</b> Effect of metal ions of different oxidation states M <sub>x</sub> <sup>+</sup> (x = 1 to 4) on the photoluminescence properties of Zn <sub>4</sub> B <sub>6</sub> O <sub>13</sub> :Eu <sup>3+</sup> phosphor material <b>[For Award: PhD]</b>  Mr MALEHO, Edwin T. (University of Johannesburg)	<b>[399]</b> Influence of SrO Concentration on Radiation Shielding Efficiency of Boro-Tellurate Glasses at High Photon Energies <b>[For Award: MSc]</b>  Mr MTHALANE, Sifiso (iThemba LABS)	<b>[129]</b> The low-lying electric dipole strength in nuclei: the role of deformation  Dr PELLEGRINI, Luna (University of the Witwatersrand)	<b>[204]</b> Ongoing validation of the High Granularity Timing Detector (HGTD) demonstrator for the ATLAS phase II upgrades <b>[For Award: PhD]</b>  Mr LEPOTA, Thabo James (University of the Witwatersrand)	<b>[120]</b> Manipulating Modes in Multimode Fibres with Magnets <b>[For Award: MSc]</b>  Mr SHARIF, Mohammed Raiyan (University of the Witwatersrand)	<b>[214]</b> Exploring Long-term trends in total electron content over South Africa <b>[For Award: MSc]</b>  Mr MOKAILA, Modiri (North-West University)	<b>[332]</b> Pre-service students' misconceptions about simple electric circuits  Mr KHWANDA, Mphiriseni (University of Johannesburg)	<b>[406]</b> Quantum state reconstruction on a quantum computer <b>[For Award: PhD]</b>  Mr KONI, Mwezi (University of the Witwatersrand)	<b>[296]</b> Solving the one-dimensional Schrodinger equation using a set of Daubechies wavelet scaling functions <b>[For Award: PhD]</b>  Mrs EZENWACHUKWU, Obiageli (University of South Africa)
15:20 – 15:40	<b>[205]</b> Investigation of the transport properties of Co <sub>2</sub> Ti(1-x)Cr(x)Al (x = 0, 0.25, 0.5, 0.75, 1) Heusler compounds <b>[For Award: PhD]</b>	<b>[491]</b> Ultra-low temperature transport property measurement of nanocrystalline diamond films <b>[For Award: MSc]</b>	<b>[91]</b> Nuclear structure investigations via the (p,d) neutron removal reaction	<b>[27]</b> pQCD energy loss calculation for small systems <b>[For Award: MSc]</b>	<b>[195]</b> Deep Learning the Digital Twin of Bent Optical Fibre <b>[For Award: MSc]</b>	<b>[222]</b> Investigation of Altitude and Solar Cycle Variation of DDM Occurrence Using Ionosonde Observations <b>[For Award: MSc]</b>	<b>[210]</b> Reimagining Curriculum Renewal: A case study of Physics and Astronomy	<b>[480]</b> Benchmarking Quantum Phase Recognition with a Novel Quantum Convolutional Neural Network <b>[For Award: PhD]</b>	<b>[196]</b> Analytical Regularization <b>[For Award: MSc]</b>

	Mr MULIBANA, Murei (University of Johannesburg)	Mr BHATTACHARYYA, Shaman (University of the Witwatersrand)	Dr NEVELING, Retief (iThemba LABS)	Mr VAN DEN BERG, Dario (University of the Witwatersrand)	Mr JANDRELL, Joshua (University of the Witwatersrand)	Mr KHOZA, Fanelesibonge (University of KwaZulu Natal)	Ms AUDU, Bako Nyikun (University of the Western Cape)	Mr DAKA, Chisomo (University of the Witwatersrand)	Mr BATH, Jarryd (University of Pretoria)
15:40 – 16:10	Afternoon Tea / Coffee Break (Solomon Mahlangu House Basement Level West Wing Drawing Hall - SHWWDH)								

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Conveners	Prof MAENETJA, Khomotso (University of Limpopo)	Dr MASENDA, Hilary (University of the Witwatersrand)	Dr JONES, Pete (iThemba LABS)	Prof NEETHLING, Pieter (Stellenbosch University)	Dr BECK, Geoff (University of the Witwatersrand)	Dr HERBERT, Mark (University of the Western Cape)	Prof DERRY, Trevor (University of the Witwatersrand)	Dr VAN LEUVEN, Sam (University of the Witwatersrand)
16:10 – 16:30	[256] Computational study of TiNbVZrX (X= Hf, Cr) refractory high entropy Alloys [For Award: PhD]  Ms MOTSOMONE, Lebogang (University of Limpopo)	[514] DFT-based evaluation of Li2MnO3 as a promising cathode coating material for lithium-ion batteries [For Award: MSc]  Ms KGASAGO, MOGAU (University of Limpopo)	[19] Radiological health risk assessment of powdered and liquid milk in South Africa: A study on activity concentration levels of 226Ra, 238U, 232Th, 40K and 137Cs  Dr JOHN, Samuel Odumu Ogana (North-West University)	[305] Getting to know the elegance of Laguerre-Gauss beams [For Award: MSc]  Mr COCOTOS, Vasili (University of the Witwatersrand)	[445] Tracing the origin of radio emission in galaxies with MIGHTEE  Dr KOLWA, Sthabile (University of South Africa)	[330] Assessing First Year Students’ Epistemological Beliefs about Learning Physical Science  Dr MOLEFE, Paul (University of Johannesburg)	[243] Deep Learning for High Throughput Decision Making on Diamond Content of PET Activated Kimberlite Rocks [For Award: PhD]  Mr BROOK, Tim (University of Johannesburg)	[266] From Matrices to Spacetime: Probing Symmetry Breaking in the Type IIB Matrix Model  Dr JOSEPH, Anosh (University of the Witwatersrand)
16:30 – 16:50	[264] Silver (Ag) co-implanted with helium (He) into polycrystalline SiC at 350 °C: Structural evolution of SiC and migration behaviour of Ag after annealing [For Award: PhD]  Mr MTSI, Sive (University of Pretoria)	[526] Magnetic Properties of Carbon Nanospheres Synthesized by the Chemical Vapour Deposition Technique  Dr MOUANE, Othmane (University of the Witwatersrand)		[333] Nonlinear modal decomposition of structured light [For Award: PhD]  Mr SINGH, Sachleen (University of the Witwatersrand)	[153] Searching for persistent radio emission towards selected Fast Radio Burst positions [For Award: MSc]  Mr LETSELE, Thulo (North-West University)	[339] An optical approach to quantum education [For Award: MSc]  Mr MAAKO, Cathy (University of the Witwatersrand)	[252] Density Functional Theory Study of Azo Dye Molecules Adsorbed onto Anatase TiO2 (112) Surface for Application in Dye-Sensitized Solar Cells [For Award: PhD]  Ms RANDELA, Ronel Ronella (University Of Venda)	[380] The rich topological tapestry embedded in entangled states [For Award: PhD]  Mr DINIS ORNELAS, PEDRO (University of the Witwatersrand)
16:50 – 17:10	[292] The electrical and magnetotransport behaviour of layered tetragonal SrMn2Ge2 [For Award: MSc]  Mr VAN DER SPUY, Arthur (University of the Witwatersrand)	[528] Assessing the Freysoldt, Neugebauer & van de Walle (FNV) and Kumagai–Oba (KO) finite-size corrections for Ce-vacancy complexes in Diamond  Dr DEDNAM, Wynand (University of South Africa)		[318] Compensating and keeping up with atmospheric chaos by tailoring beams of light [For Award: PhD]  Mr PETERS, Cade (University of the Witwatersrand)	[185] A Search for Transient and Variable Radio Sources in the NGC 5068 field Using MeerKAT MHONGOOSE data. [For Award: MSc]  Ms TSHILENGO, Vhuthu (University Of Venda)	[512] The role of laboratory demonstrators in the learning and understanding of physics and chemistry concepts  Prof SONDEZI, Buyisiwe (University of Johannesburg)	[225] DFT Study of the (210) TiO2 Brookite Surface Doped with V and Zr for Application in DSSCs [For Award: PhD]  Mr RANWAHA, Tshifhiwa (University Of Venda)	[297] Machine Learning Modular Forms in String Theory [For Award: PhD]  Mr SWAIN, Abinash (University of the Witwatersrand)
17:10 – 17:30	[317] Microstructure and Phase Composition of CrNiX (X = Co, Al, Mn) Low-Entropy Alloys [For Award: PhD]  Mrs BOTSHO, Nozipho Prudence (University of Johannesburg)			[324] Invariance to Randomness Using the Topology of Light [For Award: MSc]  Ms KLEINE, Tatjana (University of the Witwatersrand)	[438] MeerKAT view of serendipitously discovered MGCLS GRGs  Dr MHLAHLO, Nceba (University of the Witwatersrand)		[303] Volitalization of flame retarding compounds from firefighter bunker gear used in South Africa due to thermal exposure [For Award: PhD]  Mr MOKOANA, Vincent (Tshwane University of Technology)	[494] Testing f(Q) gravity as a solution for the H0 and S8 Tensions [For Award: PhD]  Mr MITHI, Dumiso (North-West University)
17:30 – 18:00	Breather							
18:00 – 19:00	Free Show at the Wits Anglo American Digital Dome (WAADD)							



Wednesday 09 July 2025

08:30 – 09:15 (Venue: SHB5)	PLENARY - [565] Indications for new physics at the LHC Professor HEINEMEYER, SVEN (Universidad Autonoma de Madrid, Spain)							
09:15 – 09:20	Breather							
TRACK	PHYSICS OF CONDENSED MATTER AND MATERIALS  (Venue: SHB5)	NUCLEAR, PARTICLE AND RADIATION PHYSICS 1  (Venue: SHB1)	NUCLEAR, PARTICLE AND RADIATION PHYSICS 2  (Venue: P114)	PHOTONICS  (Venue: SHB3)	ASTROPHYSICS & SPACE SCIENCE  (Venue: SHB4)	PHYSICS FOR DEVELOPMENT, EDUCATION AND OUTREACH (Venue: SH6)	APPLIED PHYSICS  (Venue: SHB2)	THEORETICAL AND COMPUTATIONAL PHYSICS  (Venue: RS38)
Conveners	Dr LISEMA, Lehlohonolo (University of the Witwatersrand)	Dr NEVELING, Retief (iThemba LABS)	Dr MAZINI, Rachid (University of the Witwatersrand)	Dr KAH, Glory (University of Johannesburg)	Dr KOLWA, Sthabile (University of South Africa)	Dr PHAGE, Itumeleng (Central University of Technology)	Dr ERASMUS, Lucas (University of the Free State)	Prof HOROWITZ, William (University of Cape Town)
09:20 -09:40	[105] Analysis of proton irradiation effects on fluorine-doped tin oxide thin films for optoelectronic applications in the LEO environment  Dr ORYEMA, Bosco (North-West University)	[36] Systematics study of ground-state bands in rotating even-even nuclei to reveal triaxial deformation at ground state [For Award: MSc]  Mr XULU, Nkonzo (University of Zululand)	[139] Triboson Excesses in light of a Real Higgs Triplet Model  Dr BHATTACHARYA, Srimoy (University of the Witwatersrand)	[45] Photonic-biosensing towards drug-resistant Tuberculosis diagnosis [For Award: PhD]  Ms CHAUKE, Sipho (University of Cape Town)	[7] Exploring the correlations between galaxy properties and environment in the large-scale structure of the Universe  Dr SURESHKUMAR, Unnikrishnan (University of the Witwatersrand)	[30] Assessment of Undergraduate Physics Students’ Misconception about Heat and Temperature and Implications for Instruction  Prof JONATHAN, Enock (National University of Lesotho)	[529] Amplitude transformation in a qubit register  Prof MATTHEWS, Alan (University of KwaZulu Natal)	[149] Eigenvalue determination for a Toy and Woods-Saxon Potentials using unsupervised PINN  Dr TSHIPI, Tshegofatso (Sol Plaatje University)
09:40 -10:00	[407] First-Principles Study of Zn-Site Transition Metal Doping in ZnSnO3 for Enhanced Performance in Dye-Sensitized Solar Cells (DSSCs) [For Award: PhD]  Ms LETSOALO, Modjadji Rebecca (University of the Witwatersrand)	[242] Study of the K quantum number of pygmy states in 154Sm [For Award: MSc]  Ms MOLAENG, Refilwe Emil (University of the Witwatersrand)	[258] Observation of 152 GeV charged scalar at future lepton colliders  Dr MAHARATHY, Siddharth Prasad (University of the Witwatersrand)	[138] Laser-synthesized Selenium nanoparticles for SARS-CoV-2 detection using LSPR [For Award: PhD]  Ms MCOTSHANA, Zenande (University of Cape Town)	[328] Probing Gas Sloshing in the Core of Galaxy Cluster ZwCl 3146: Insights from Chandra and GMRT Observations  Dr SONKAMBLE, Satish (North-West University)	[135] Strengthening First- Year Physical Sciences Success: A Five-Year Analysis of Throughput with an Emphasis on AI-Driven Strategies  Dr KHUNOANA, Sewela (University of Johannesburg)	[437] Modulating properties of solid carbon nanospheres via ion implantation with hetero-ions  Prof DERRY, Trevor (University of the Witwatersrand)	[65] Laplacian eigenmodes in twisted periodic topologies for new physics Models [For Award: PhD]  Mr NCUBE, Anele (University of Johannesburg)
10:00 – 10:20	[498] Development of cellulose nanocrystal sheet embedded with carbon nanotubes for sensor application [For Award: PhD]  Mr DIANTANTU, AIME Diakanwa (University of the Witwatersrand)		[351] Measuring the anomalous ttZ and ttγ couplings at Future e–p Colliders  Dr KUMAR, Mukesh (University of the Witwatersrand)	[206] Dual Fabry-Perot Interferometric Fiber Sensors for Refractive Index Monitoring of Salt and Sugar Solutions Using Broadband Spectral Analysis [For Award: MSc]  Mr BANGANI, Sandisiwe (Nelson Mandela University)	[479] The ACT Data Release 6 Sunyaev-Zel'dovich Selected Cluster Catalogue  Prof HILTON, Matt (University of the Witwatersrand)	[72] Practical teaching methods for enhanced interest in teaching and learning Physics for undergraduate university students  Prof SONDEZI, Buyisiwe (University of Johannesburg)	[116] Listening with Light [For Award: MSc]  Mr BRENNER, Max (University of the Witwatersrand)	[468] Reservoir Computing for Predicting Chaotic Dynamical Systems [For Award: MSc]  Mr JOOMA ABBAJEE, Taheer (University of Johannesburg)
10:20 -10:50	Morning Tea / Coffee Break (Solomon Mahlangu House Basement Level West Wing Drawing Hall - SHWWDH)							

TRACK	PHYSICS OF CONDENSED MATTER AND MATERIALS (Venue: SHB5)	NUCLEAR, PARTICLE AND RADIATION PHYSICS 1 (Venue: SHB1)	NUCLEAR, PARTICLE AND RADIATION PHYSICS 2 (Venue: P114)	PHOTONICS (Venue: SHB3)	ASTROPHYSICS & SPACE SCIENCE (Venue: SHB4)	PHYSICS FOR DEVELOPMENT, EDUCATION AND OUTREACH (Venue: SH6)	APPLIED PHYSICS (Venue: SHB2)	THEORETICAL AND COMPUTATIONAL PHYSICS (Venue: RS38)
Conveners	Prof MHLONGO, Motlalepula Rebecca (Sefako Makgatho Health Sciences University)	Prof NEVELING, Retief (iThemba LABS)	Prof MELLADO, Bruce (University of the Witwatersrand)	Prof KRÜGER, Tjaart (University of Pretoria)	Dr STEYN, Ruhann (North-West University)	Prof SONDEZI, Buyi (University of Johannesburg)	Prof DERRY, Trevor (University of the Witwatersrand)	Prof MURONGA, Azwinndini (Nelson Mandela University)
10:50 – 11:10	[60] NON-SPECIALIST LECTURE: Quantum materials in 2D flatland Prof SANYAL, Biplab (Uppsala University, Sweden)	[90] X-ray production cross section measurements for the analysis of metal halide perovskite thin films using heavy ion PIXE spectroscopy [For Award: MSc]  Ms MOREMI, Lilian (Tshwane University of Technology)	[369] Searches for scalar resonances with di-photon in association with taus using the easyjet analysis framework in ATLAS detector at the LHC [For Award: MSc]  Mr MAKGETHA, Kutlwano (University of the Witwatersrand)	[131] Group delay dispersion measurements using the i2PIE pulse characterization technique [For Award: PhD]  Mr FOUCHE, Eugene (Stellenbosch University)	[68] Modelling Earth's magnetic field over the South Atlantic Anomaly region using Swarm satellite and ground-based data [For Award: MSc]  Mr KHANYILE, Sanele Lionel (SA National Space Agency and Rhodes University)	[341] Quantum computing education availability in South Africa  Ms FEATHERSTONE, Coral (Council for Scientific and Industrial Research)	[246] IoT-Based Environmental Monitoring in a Sawtooth Greenhouse: Foundations for CFD, Anomaly Detection, and Environmental Prediction [For Award: MSc]  Mr CASSIM, Abdool Sattar (University of Johannesburg)	[359] Discriminating multiprong jet substructure [For Award: PhD]  Ms VAN DER SCHYF, Hannah (University of the Witwatersrand)
11:10 – 11:30		[55] Statistical Discrimination of Uranium Ore Concentrate Using Trace Element Signatures: Developing nuclear forensic fingerprints [For Award: PhD]  Ms NTSOHI, Liteboho (University of the Witwatersrand)	[373] Monte Carlo generation involving searches for scalar resonances with diphoton in association with tau- tau-/2 b-jets in ATLAS detector at the LHC [For Award: MSc]  Mr MBUYISWA, Njokweni (University of the Witwatersrand)	[231] Voltage-Based Wavelength Tuning of a DFB Laser Using an Enhanced LM331 Frequency-to Voltage Converter for OPLL Applications [For Award: PhD]  Ms MUTIA, Lilian (Nelson Mandela University)	[122] Statistical Interpretation of the Thermospheric Density Responding to Geomagnetic Disturbances [For Award: MSc]  Ms MSOMI, Sthandiwe (University of KwaZulu Natal)	[441] Implications of Separate Marks for Physics and Chemistry in Matrix Results  Dr NEKHUBVI, VHUTSHILO (University of Venda)	[259] Simulation and Image Reconstruction for a Low-Cost PET Detector Concept [For Award: MSc]  Ms BAGG, Jemma (University of Cape Town)	[374] Probing the Dead Cone using the Lund Jet Plane [For Award: MSc]  Ms MATLHAKOLA, Ofentse (University of the Witwatersrand)
11:30 – 11:50	[326] High-resolution X-ray diffraction and Photoluminescence study of GaAsN epilayers [For Award: PhD]  Ms PUJIRANA, ANDI ISNI (Nelson Mandela University)	[452] Understanding the structure of 16C and the B(E2) problem through Large-Scale Shell-Model (LSSM) calculations  Ms NTSOHI, Liteboho (University of the Witwatersrand)	[460] Searches for a scalar resonance with Di-photon in association with leptons in the range 130 – 200 GeV in the ATLAS detector at the LHC [For Award: MSc]  Mr KAKANCU, Vuyolwethu Happyboy (University of the Witwatersrand)	[192] Ag-H2O nanofluids by pulsed laser liquid-solid interaction for heat removal in electronics devices [For Award: MSc]  Mr DLAMINI, Snenkosi (University of Zululand)	[283] Modelling and observation results for the 23-25 March 2023 geomagnetic storm  Dr KATAMZI-JOSEPH, Zama (South African National Space Agency)	[497] An Approach to Using Arduino in University Practicals [For Award: MSc]  Ms HAGEMANN, Elizabeth (Nelson Mandela University)	[262] Design considerations for a low-cost PET brain scanner [For Award: MSc]  Mr CARTHEW, Simon (University of Cape Town)	[353] HBA-XGBoost: Honey Badger Algorithm with XGBoost Model for Residual Demand Forecasting [For Award: MSc]  Mr NEMAKONDE, Pfano (University of Venda)
11:50 – 12:10	[350] Investigating the properties of Li9Al3(PO4)2(P2O7)3 solid electrolyte material for lithium-ion batteries: A computational study [For Award: PhD]  Mr MASHAOLE STUART, Mamabolo (University of Limpopo)		[401] Event Selection and Analysis Strategy for Diphoton Resonance Searches Accompanied by Leptonic Final States in 2022-2024 ATLAS Run 3 data [For Award: MSc]  Mr NTUMBE, Kgothatso (University of the Witwatersrand)	[234] Synthesis and characterization of Cerium III ion doped zinc selenide thin films prepared by chemical bath technique for luminescence application  Dr HILE, Donald Dehiin (University of Zululand)	[550] The impact of geomagnetic storms and solar proton events in May and October 2024 on South Africa's upper atmosphere, compared to the historical event of October 2003  Dr OMOJOLA, Joseph (North-West University)	[358] Exploring Curriculum Considerations to Prepare Future Radiographers for an AI-Assisted Health Care Environment: Protocol for Scoping Review [For Award: PhD]  Ms KAMMIES, Chamandra (University of Johannesburg)	[307] Gone with the Wind...or Not? Tracking Light's Twists [For Award: MSc]  Mr COCOTOS, Vasili (University of the Witwatersrand)	[197] Numeric exploration of Non-trivial emergent phenomena in Quark-Gluon Plasma [For Award: MSc]  Ms O'CALLAGHAN, Nia (University of Cape Town)
12:10 – 12:30	[352] From Composition to Crystal: Predicting Sodium-Ion Battery Material		[409] A Search for a Scalar Resonance using Di-Photons in Association with a lepton	[306] Optical Quadrature Microscopy with a polarization- sensitive camera	[546] Characteristics of Nighttime Medium-scale Traveling Ionospheric Disturbances: Longitudinal		[313] Warping light into Neural Networks [For Award: MSc]	[228] Parameterizing the Geometry of the QGP on an Event-by-Event Basis

	Symmetries Using Physics-Guided Machine Learning <b>[For Award: PhD]</b>  Ms MONARENG, Keletso (University of Limpopo)		and a b-jet with the ATLAS Detector  Mr NDHLOVU, Baballo Victor (University of the Witwatersrand)	Mr GROENEWALD, Calvin (Stellenbosch University)	Comparison of their Seasonal and Local Time Variations  Dr KATAMZI-JOSEPH, Zama (South African National Space Agency)		Mr BEZUIDENHOUT, Hadrian (University of the Witwatersrand)	Mr FARADAY, Coleridge (University of Cape Town)
12:30 – 12:35	Breather							
12:35 – 13:45	Lunch (Main Dining Hall - Matrix Student Centre)							
13:45 -13:50	Breather							

13:50 – 14:35 (Venue: SHB5)	PLENARY - [570] Practitioners’ understanding of integrating basic science into lessons in the early childhood development playroom Professor MULOVHEDZI, Shonisani Agnes (University of Venda)						
14:35 – 14:40	Breather						
TRACK	PHYSICS OF CONDENSED MATTER AND MATERIALS (Venue: SHB5)	NUCLEAR, PARTICLE AND RADIATION PHYSICS 1 (Venue: SHB1)	NUCLEAR, PARTICLE AND RADIATION PHYSICS 2 (Venue: P114)	PHOTONICS (Venue: SHB3)	ASTROPHYSICS & SPACE SCIENCE (Venue: SHB4)	PHYSICS FOR DEVELOPMENT, EDUCATION AND OUTREACH (Venue: SH6)	APPLIED PHYSICS (Venue: SHB2)
Conveners	Prof MKHONTO, Peace (University of Limpopo)	Dr MDLETSHE, Linda (University of Zululand)	Dr KUMAR, Mukesh (University of the Witwatersrand)	Dr COX, Mitchell (University of the Witwatersrand)	Prof VENTER, Christo (North-West University)	Prof MALUTA, Eric (University of the Venda)	Prof FERRER, Philippe (University of the Witwatersrand)
14:40 – 15:00	<b>[360]</b> Redox properties of VCo2O4 (001) surface in zinc air batteries [For Award: PhD]  Mr NGOBENI, Percy (University of Limpopo)	<b>[291]</b> Lead isotropic ratios as a nuclear forensic signature for age dating of uranium ores  Prof MATHUTHU, Manny (North-West University)	<b>[453]</b> Strategy for Particle Physics: Opportunities for South Africa  Prof MELLADO, Bruce (University of the Witwatersrand)	<b>[110]</b> In Vitro effects of Blue Laser Light as an Antimicrobial Agent on Microbial-Infected Fibroblast Cells [For Award: PhD]  Mr OBENG BRENYA (University of Johannesburg)	<b>[285]</b> Neutrino Emission from Bright Blazar Flares [For Award: PhD]  Mr ROBINSON, Joshua (North-West University)	<b>[560]</b> PLAY and Brain Awareness – The missing link in STEM education  Dr ERASMUS, Petro (North-West University)	<b>[482]</b> Automated photovoltaic module imaging for high throughput data capture and analysis [For Award: MSc]  Mr SIVEWRIGHT, Matthew (Nelson Mandela University)
15:00 – 15:20	<b>[389]</b> The effects of annealing temperature on physical properties of Ce2Zr2O7 materials [For Award: PhD]  Mr YISSAH, Saheed Omotosho (University of Johannesburg)	<b>[278]</b> Indirect experimental technique for constraining the 193,194Ir(n,y) cross sections [For Award: PhD]  Ms MAGAGULA, Sebenzile (University of the Witwatersrand)	<b>[475]</b> Detector Research and Development projects for future High Energy Physics experiments  Dr MAZINI, Rachid (University of the Witwatersrand)	<b>[117]</b> Optimizing Photobiomodulation Parameters for Tenogenic Differentiation [For Award: PhD]  Mr ROETS, Brendon (University of Johannesburg)	<b>[217]</b> Astrophysical origin of the highest-energy neutrino event  Prof RAZZAQUE, Soebur (University of Johannesburg)	ECD Science Skills Accelerator Programme & Collaboration Meeting	<b>[59]</b> What are the most suitable basic solar irradiance models for Southern Africa? [For Award: MSc]  Ms FIGLAN, Sindiswa (University of Johannesburg)
15:20 – 15:40	<b>[398]</b> Spectroscopic studies on InGa(1–x)N and InGa(1–x)N:Si [For Award: PhD]  Ms MPATANI, Ongeziwe (University of the Witwatersrand)	<b>[140]</b> Portable African Neutron- Gamma Laboratory for Innovative Nuclear Science  Dr JONES, Pete (iThemba LABS)		<b>[301]</b> Synergistic Effect of Photobiomodulation and Vanillin on Energy Metabolism in Diabetic Wounded Cells In Vitro  Dr ERUKAINURE, Ochuko (University of Johannesburg)	<b>[161]</b> Probing Dark Matter Signatures in IceCube Astrophysical Neutrino Data  Dr DIXIT, Khushboo (University of Johannesburg)		<b>[130]</b> Physics-based modelling and simulation of lithium-ion battery capacity fade and degradation [For Award: MSc]  Ms SANA, Patel (University of Venda)
15:40 – 16:10	Afternoon Tea / Coffee Break (Solomon Mahlangu House Basement Level West Wing Drawing Hall - SHWWDH)						
16:10 – 18:00	Poster Session 1 (Solomon Mahlangu House Basement Level West Wing Drawing Hall - SHWWDH)						
18:00 – 19:00	Free Show at the Wits Anglo American Digital Dome (WAADD)						
18:00 – 19:30	Council Meeting with Heads of Schools and Departments of Physics (First Floor Gate House GH102A)						

# Thursday 10 July 2025

08:30 – 09:15 (Venue: SHB5)	PLENARY - [566] Wearable adaptive optics for the eye Professor ARTAL, PABLO (University of Murcia, Murcia, Spain)							
09:15 – 09:20	Breather							
TRACK	PHYSICS OF CONDENSED MATTER AND MATERIALS (Venue: SHB5)	NUCLEAR, PARTICLE AND RADIATION PHYSICS 1 (Venue: SHB1)	NUCLEAR, PARTICLE AND RADIATION PHYSICS 2 (Venue: P114)	PHOTONICS (Venue: SHB3)	ASTROPHYSICS & SPACE SCIENCE (Venue: SHB4)	PHYSICS FOR DEVELOPMENT, EDUCATION AND OUTREACH (Venue: SH6)	APPLIED PHYSICS (Venue: SHB2)	THEORETICAL AND COMPUTATIONAL PHYSICS (Venue: RS38)
Conveners	Dr YAGOUB, Mubarak (University of Johannesburg)	Dr MAJOLA, Siyabonga (University of Johannesburg)	Dr KUMAR, Mukesh (University of the Witwatersrand)	Dr OMBINDA-LEMBUUMBA, Saturnin (Council for Scientific and Industrial Research)	Dr KATAMZI-JOSEPH, Zama (South African National Space Agency)	Prof ERASMUS, Rudolph (University of the Witwatersrand)	Dr THANTSHA, Nicolas (Tshwane University of Technology)	Dr VAN LEUVEN, Sam (University of the Witwatersrand)
09:20 – 09:40	[459] Tuning interlayer exciton emission in binary-ternary heterobilayers based on Mo(0.5)W(0.5)Se2  Dr MASENDA, Hilary (University of the Witwatersrand)	[432] Study of low-medium spin states in 156Er [For Award: MSc]  Ms KHANYEZA, N.N (University of Pretoria)	[368] Measurement of the top quark Yukawa coupling from tt kinematic distributions in the dilepton final state [For Award: PhD]  Mr GARVEY, Cameron (University of Cape Town)	[493] Light-harvesting protein aggregation studied by real-time feedback-driven single-particle tracking spectroscopy  Dr VAN HEERDEN, Bertus (University of Pretoria)	[436] Investigating the latitudinal-dependent solar differential rotation rate using SDO/HMI Dopplergrams [For Award: Honours]  Mr ZULU, Thembaletu (North-West University)	PHYSICS IN INDUSTRY DAY	[31] Design and Experimental Evaluation of an Archimedes Screw Hydro Turbine (ASHT) for Rural Sustainable Energy Application  Prof JONATHAN, Enock National University of Lesotho)	[51] Adiabatic elimination approach to the completely positive master equation for open quantum Brownian motion  Mr ZUNGU, Ayanda (North-West University)
09:40 -10:00	[505] Effect of substrate geometry on microstructure and biological response of air plasma-sprayed hydroxyapatite coatings  Dr NTSOANE, Tshepo (The South African Nuclear Energy Corporation)	[516] Exciting the Hoyle state in 12C selectively populated using the 10B(6Li,4He)12C reaction  Prof CARTER, John (University of the Witwatersrand)	[342] A search for tWZ production in the ATLAS experiment Run 2 dataset [For Award: MSc]  Mr SANGWENI, Thobani (University of Cape Town)	[501] Temperature-dependent single-molecule spectroscopy of plant protein aggregates  Prof KRÜGER, Tjaart (University of Pretoria)	[103] Modelling the antiproton modulation related to AMS-02 observations between 2011 and 2021 [For Award: PhD]  Mr MAHLATJI, THABO (North-West University)		[33] Proactive Equipment Monitoring Using Vanilla LSTM for Predictive Maintenance at iThemba LABS  Dr NKADIMENG, Edward (iThemba LABS)	[193] Advancing Thermal Field Theory: NLO Calculations for Finite Size Systems [For Award: MSc]  Mr ROOSENSTEIN, Rens (University of Cape Town)
10:00 – 10:20		[385] The photon strength functions from (p, γ) capture reactions. [For Award: PhD]  Mr NETSHIYA, Adivhaho (University of the Witwatersrand)	[284] Exploring toponium formation at the LHC [For Award: MSc]  Mr HOSSAIN, Aminul (University of Cape Town)	[168] Increased exciton annihilation in incrementally aggregated photosynthetic antenna complexes from plants [For Award: PhD]  Mr CONRADIE, Francois (University of Pretoria)	[114] Simulating cosmic ray diffusion coefficients in synthetic compressive magnetic turbulence [For Award: PhD]  Mr TROSKIE, Jonathan Stephanus (North-West University)		[76] Power Law model (PLM) approaches to predict the performance of a small-scale PV system  Dr KAPIM KENFACK, Abraham Dimitri (Tshwane University of Technology)	[370] Superconformal indices in closed form [For Award: MSc]  Ms MATHIESON, Kayleigh (University of the Witwatersrand)
10:20 -10:50	Morning Tea / Coffee Break (Solomon Mahlangu House Basement Level West Wing Drawing Hall - SHWWDH)							



TRACK	PHYSICS OF CONDENSED MATTER AND MATERIALS (Venue: SHB5)	NUCLEAR, PARTICLE AND RADIATION PHYSICS 1 (Venue: SHB1)	NUCLEAR, PARTICLE AND RADIATION PHYSICS 2 (Venue: P114)	PHOTONICS (Venue: SHB3)	ASTROPHYSICS & SPACE SCIENCE (Venue: SHB4)	PHYSICS FOR DEVELOPMENT, EDUCATION AND OUTREACH (Venue: SH6)	APPLIED PHYSICS (Venue: SHB2)	THEORETICAL AND COMPUTATIONAL PHYSICS (Venue: RS38)
Conveners	Prof WAMWANGI, Daniel (University of the Witwatersrand)	Prof MATHUTHU, Manny (North-West University)	Dr GOLOLO, Mpho (University of Johannesburg)	Prof FORBES, Andrew (University of the Witwatersrand)	Prof CHEN, Andrew (University of the Witwatersrand)	Prof ERASMUS, Rudolph (University of the Witwatersrand)	Dr MARIOLA, Marco (University of Kwazulu-Natal)	Prof HOROWITZ, William (University of Cape Town)
10:50 – 11:10	[150] Cage motion of Iron (Fe) in Silicon (Si)  Dr LISEMA, Lehlohonolo (University of the Witwatersrand)	[126] Investigating the photon strength function for 61Cu using 60Ni (p, γ) at iThemba LABS [For Award: PhD]  Mr MODISE, Tshegofatso Goitseone (iThemba LABS)	[236] Dark photons search with the ATLAS detector at the LHC  Dr MAZINI, Rachid (University of the Witwatersrand)	[80] Evaluation of the Phototoxic effect of Chemically Synthesized Silver Nanoparticles on Breast Cancer Cells [For Award: MSc]  Mr BAIDOO, Isaac (University of Johannesburg)	[63] Probing the pi-axiverse with astrophysics  Dr BECK, Geoff (University of the Witwatersrand)	PHYSICS IN INDUSTRY DAY	[354] Measurement of fundamental ion-atom interaction parameters for heavy ion beam materials analysis  Prof MSIMANGA, Mandla (Tshwane University of Technology)	[434] Advancing Dark-QCD searches: Model Development, Constraints, and Novel Anomaly Detection Technique  Prof KAR, Deepak (University of Witwatersrand)
11:10 – 11:30	[124] Seebeck and SBS studies on buried amorphous carbon channels in Diamond  Prof NAIDOO, Shunmugam Ramsamy (University of the Witwatersrand)	[159] The PANDORA Project: Investigating Photonuclear Reactions in Light Nuclei  Dr BEKKER, Jacob (University of the Witwatersrand)	[347] Search for a new spin-0 scalar and a spin-1 boson using Run2 ATLAS detector data [For Award: PhD]  Mr MAPEKULA, Xola (University of Johannesburg)	[142] The Photo-Thermal Effect of Green-Synthesized Gold Nanoparticles on Human Breast Cancer Cells [For Award: MSc]  Ms MOHLONGO, Mpho (University of Johannesburg)	[277] In Search of Dark Matter with MeerKAT Radio Telescope in Dwarf Spheroidal Galaxies  Ms SEMANE, Shibre (University of the Witwatersrand)		PHYSICS IN INDUSTRY DAY	[218] Nanocrystal Enhancement of Low-Cost Scintillators for PET Imaging Application  Mr MAHONY, Declan (University of Cape Town)
11:30 – 11:50	[143] Effect of annealing conditions on the photocatalytic activity of anodic TiO2  Dr TALLA, Assane (Nelson Mandela University)	[488] Simulation of the X-ray and gamma-radiation shielding parameters of the Li2O+Sb2O3+PbO+GeO2 glass materials in the 20 - 300 keV energy range using Phy-X/PSD, XCOM, and Geant4 software programs  Dr MDLETSHE, Linda (University of Zululand)	[102] The W boson as a probe for the initial state of hadron collisions at the LHC [For Award: MSc]  Mr POTGIETER, Stephan (University of Cape Town)	[16] Nanoformulation of Pheophorbide-a for Photodynamic Therapy in a Human Lung Cancer Spheroid Model [For Award: PhD]  Mr MOLOUDI, Kave (University of Johannesburg)	[152] Exploring the properties of pulsars and their nebulae through observations and modelling [For Award: MSc]  Mr NYAMBE, Trevor (North-West University)	[364] Preliminary Investigation of the Mechanical Properties of Tissue Biopsies  Dr DADA, Kayode (University of Johannesburg)		[302] Computing the SU(N) Shur index for N=4 super Yang-Mills [For Award: MSc]  Mr BATH, Jarryd (University of Pretoria)
11:50 – 12:10		[187] Coupling the MAGNEX focal-plane detector to the K600 high-resolution magnetic spectrometer for the NUMEN project  Dr KHUMALO, Thuthukile (iThemba LABS)		[164] The efficacy of PAM fluorometry as a tool to quantify heat stress in Wheat [For Award: MSc]  Ms BURNETT, Sarah (University of Pretoria)	[98] Characterisation and Calibration of the Kepler KL4040 sCMOS camera for Optical Observations at the UFS/Boyden Observatory  Dr VAN HEERDEN, Hendrik Jacobus (University of the Free State)	[426] Advancing solar energy research with perovskite materials  Prof DIALE, Mmantsae (University of Pretoria)		
12:10 -12:30		[216] Investigating the photon shielding factors of the silicate glass system from 1 MeV up to 15 MeV, Using the X-COM and GEANT4 simulating software  Mr ZUMA, Mfundo (University of Zululand)		[349] Using a synthesised wavelength to non-locally probe the depth of Objects [For Award: PhD]  Mr GOUNDEN, Neelan (University of the Witwatersrand)	[458] Wits Astronomical Plate Archive – preservation of a century of Southern Hemisphere astronomy at the Johannesburg Observatory  Prof CARTER, John (University of the Witwatersrand)	[113] An empirical method to negate Bragg-peak shifts due to partial gauge volume illumination in neutron powder diffraction studies  Dr MARAIS, Deon (The South African Nuclear Energy Corporation)		
12:30 – 12:35	Conference Group Photograph, Front of Great Hall							
12:35 – 13:45	Lunch (Main Dining Hall - Matrix Student Centre)							
13:45 – 13:50	Breather							

TRACK	PHYSICS OF CONDENSED MATTER AND MATERIALS (Venue: SHB5)	NUCLEAR, PARTICLE AND RADIATION PHYSICS (Venue: SHB1)	PHOTONICS (Venue: SHB3)	ASTROPHYSICS & SPACE SCIENCE (Venue: SHB4)	PHYSICS FOR DEVELOPMENT, EDUCATION AND OUTREACH (Venue: SH6)	APPLIED PHYSICS (Venue: SHB2)	THEORETICAL AND COMPUTATIONAL PHYSICS (Venue: RS38)
Conveners	Prof TERBLANS, J.J (University of the Free State)	Prof NTSHANGASE, Sifiso (University of Zululand) & Dr KUMAR, Mukesh (University of the Witwatersrand)	Dr DUDLEY, Angela (University of the Witwatersrand)	Dr BECK, Geoff (University of the Witwatersrand)	Prof JONATHAN, Enock (National University of Lesotho)	Prof MATTHEWS, Alan (University of Kwazulu-Natal)	Prof HOROWITZ, William (University of Cape Town)
13:50 – 14:10	PHYSICS OF CONDENSED MATTER AND MATERIALS: Division Meeting	NUCLEAR, PARTICLE AND RADIATION PHYSICS: Division Meeting	[22] Photothermal Therapy Using Green-Synthesized gold Nanoparticles Derived from Senna didymobotrya: A Novel Strategy for Targeted Treatment of Melanoma Cells [For Award: PhD]  Ms ZAHRA, Mehak (Laser Research Centre)	[156] Solar wind temperature anisotropy during the Ulysses Spacecraft first polar pass  Dr DESTA, Ephrem Tesfaye (North-West University)	[425] African collaborations and related benefits  Prof MOCHE DIALE, Mmantsae (University of Pretoria)	[532] NON-SPECIALIST LECTURE: Characterising Photovoltaic Modules for Performance, Reliability, and Sustainability  Prof VAN DYK, Ernest (Nelson Mandela University)	THEORETICAL AND COMPUTATIONAL PHYSICS: Division Meeting
14:10 – 14:30			[166] Riboflavin-mediated Photodynamic Therapy Induces Cytotoxic Effects in A549 Lung Cancer Cells [For Award: PhD]  Mrs SEELETSE, Malefo Tshepiso (University of Johannesburg)	[269] Cosmic-Ray Neutron Detectors for Soil Moisture Monitoring  Ms DUMONT, Aimee (North-West University)	[563] The role of physics in climate science and sustainability science with special emphasis on Southern Africa  Prof GLEDHILL, Irvy (Igle) (University of the Witwatersrand)		
14:30 – 14:50			[261] Turmeric silver nanoparticles in melanoma photodynamic therapy [For Award: PhD]  Mrs KAH, Glory (University of Johannesburg)	[503] Investigating the photospheric and chromospheric response of a C-class solar flare on 1 July 2012 using Swedish Solar Telescope and SDO observations  Dr STEYN, Ruhann (North-West University)	[464] Electrical Transport Measurements from First Principles: a Senior Undergraduate Experiment  Prof KEARTLAND, Jonathan (University of the Witwatersrand)	APPLIED PHYSICS: Division Meeting	
14:50 – 15:10		ASTROPHYSICS & SPACE SCIENCE: Division Meeting	PHYSICS FOR DEVELOPMENT, EDUCATION AND OUTREACH: Division Meeting				
15:10 – 15:30				[61] Enhancing the Efficacy of Photodynamic Therapy: The Role of Hypocrellin B, Quercetin, and their combinations in Human Breast Cancer Cell Line  Dr RAJAN, Sheeja S (University of Johannesburg)	[387] Evaluation of Ce6 Photosensitisers-Induced Dark Toxicity and Phototoxicity (660 nm) on Melanoma Cells [For Award: MSc]  Ms OBALOLA, Aishat (University of Johannesburg)		
15:30 – 16:10	Afternoon Tea / Coffee Break (Solomon Mahlangu House Basement Level West Wing Drawing Hall - SHWWDH)						
16:10 – 18:00	Poster Session 2 (Solomon Mahlangu House Basement Level West Wing Drawing Hall - SHWWDH)						
18:00 – 19:00	Council Meeting with Division Chairs (First Floor Gate House GH102A)						
18:00 – 19:00	Free Show at the Wits Anglo American Digital Dome (WAADD) / Physics Quiz Cup (Venue: SHB5)						

# Friday 11 July 2025

08:30 – 09:15 (Venue: SHB5)	PLENARY - [567] Gamma-ray Pulsars: Puzzles and Progress Professor VENTER, Christo (North-West University)						
09:15 – 09:20	Breather						
TRACK	PHYSICS OF CONDENSED MATTER AND MATERIALS (Venue: SHB5)	NUCLEAR, PARTICLE AND RADIATION PHYSICS (Venue: SHB1)	PHOTONICS (Venue: SHB3)	ASTROPHYSICS & SPACE SCIENCE 1 (Venue: SHB4)	ASTROPHYSICS & SPACE SCIENCE 2 (Venue: RS38)	PHYSICS FOR DEVELOPMENT, EDUCATION AND OUTREACH (Venue: SH6)	APPLIED PHYSICS (Venue: SHB2)
Conveners	Prof KROON, R.E. (University of the Free State)	Dr KHUMALO, Thuthukile (iThemba LABS)	Dr NAPE, Isaac (University of the Witwatersrand)	Dr MHLAHLO, Nceba (University of the Witwatersrand)	Dr OMOJOLA, Joseph (North-West University)	Prof MURONGA, Azwinndini (Nelson Mandela University)	Prof KRÜGER, Tjaart (University of Pretoria)
09:20 – 09:40	[220] Unconventional transport behaviour in some ultra pure systems  Dr PANDEY, Abhishek (University of the Witwatersrand)	[311] Electromagnetic Properties of the 106Cd Nucleus and Experimental Validation of the Generalized Brink-Axel Hypothesis (gBA) [For Award: PhD]  Ms TSEWU, Ayabulela (University of Johannesburg)	[64] Evaluation of Pheophorbide a Phototoxicity in Melanoma Cells Grown as Three- Dimensional Multicellular Tumour Spheroids  Dr NKUNE, Nkune (University of Johannesburg)	[519] Trends of Thermal Structure in the MLT Region Using SABER Observations Over Sutherland, South Africa [For Award: MSc]  Mr NHLOZI, Blessing Mvana (University of Zululand)	[553] Cosmic-Ray Neutron Detectors for Soil Moisture Monitoring  Ms DUMONT, Aimee (North-West University)	SAPhysNet FORUM MEETING	[428] Ptychography in Ti64 alloy at the Diamond Light Source  Dr JAKATA, Kudakwashe (Diamond Light Source)
09:40 – 10:00	[319] The Effect of Chlorine on the Morphology and Crystal Structure of Tin-doped Mixed Halide Perovskites  Dr MAGUBANE, Siphesihle (iThemba LABS)	[504] Theoretical studies of chiral systems described within particle-rotor Model  Dr SHIRINDA, Obed (Sol Plaatje University)	[96] In vitro evaluation of hypocrellin B based- photodynamic therapy on human oesophageal cancer HKESC-1 cells  Dr DIDAMSON, Onyisi Christiana (University of Johannesburg)	[276] Nuggets at the heart of nearby galaxies - -NGC2865  Dr ALABI, Adebusola (North-West University)	[552] Solar wind temperature anisotropy during the Ulysses Spacecraft first polar pass  Dr DESTA, Ephrem Tesfaye (North-West University)		[471] Weather Forecasting Using Graph Neural Networks and Physics-informed Neural Networks  Dr MAFU, Mhlambululi (Case Western Reserve University)
10:00 – 10:20	[329] Effect of Cr doping on the electronic, thermal and magnetic properties of SrCo2As2  Dr MONDAL, Sampad (University of the Witwatersrand)	[473] Systematics review of low- lying positive parity structures in the 160 mass region.  Dr MAJOLA, Siyabonga (University of Johannesburg)		[190] Stochastic particle acceleration by multifractal MHD turbulence in strong magnetic fields [For Award: MSc]  Mr VAN DER MERWE, Frans (North-West University)	[551] An investigative numerical modelling study of galactic deuterons in the heliosphere  Ms RAMOKGABA, Innocentia Itumeleng (North-West University)		[495] Reconfigurable Payload Power Management System for Rockets  Dr MARIOLA, Marco (University of KwaZulu-Natal)
10:20 – 10:50	Morning Tea / Coffee Break (Solomon Mahlangu House Basement Level West Wing Drawing Hall - SHWWDH)						

TRACK	PHYSICS OF CONDENSED MATTER AND MATERIALS (Venue: SHB5)	NUCLEAR, PARTICLE AND RADIATION PHYSICS (Venue: SHB1)	PHOTONICS (Venue: SHB3)	ASTROPHYSICS & SPACE SCIENCE 1 (Venue: SHB4)	ASTROPHYSICS & SPACE SCIENCE 2 (Venue: RS38)	PHYSICS FOR DEVELOPMENT, EDUCATION AND OUTREACH (Venue: SH6)	APPLIED PHYSICS (Venue: SHB2)
Conveners	Dr VAN NIEKERK, Chani (University of the Witwatersrand)	Dr KHUMALO, Thuthukile (iThemba LABS)	Dr NAPE, Isaac (University of the Witwatersrand)	Dr BECK, Geoff (University of the Witwatersrand)	Dr OMOJOLA, Joseph (North-West University)	Prof MURONGA, Azwinndini (Nelson Mandela University)	Prof MATTHEWS, Alan (University of Kwazulu-Natal)
10:50 – 11:10	[348] Optical spectroscopic investigations of antiferromagnetic semiconducting BaMn2P2  Dr JACOBS, Susan (University of Johannesburg)	[462] Probing Charged Current B- anomalies via a U (1) $\mu$ - $\tau$ Extension of the Standard Model [For Award: MSc]  Mr KAKANCU, Vuyolwethu Happyboy (University of the Witwatersrand)	[555] NON-SPECIALIST LECTURE: Two-photon Infrared Vision  Prof ARTAL, Pablo (University of Murcia)	[157] A Temporal-spectral study of short gamma-ray transients: Identifying distinct signatures of gamma-ray bursts and magnetar giant flares [For Award: PhD]  Mr MAHESO, Dimakatso (North-West University)	[554] Investigating the photospheric and chromospheric response of a C-class solar flare on 1 July 2012 using Swedish Solar Telescope and SDO observations  Dr STEYN, Ruhann (North-West University)	SAPhysNet FORUM MEETING	[414] Exciting applications for a turn-key structured light generator  Dr JORDAAN, Bertus (University of the Witwatersrand)

11:10 – 11:30	<p><b>[356]</b> Mechanical investigation of (Ti2NbPt)2 HTSMAs from binary phase Diagram</p> <p><b>Dr MASHAMAITE, Mordecai (University of Limpopo)</b></p>	<p><b>[377]</b> Analysing h to Zy decay at the Large Hadron Collider using SMEFT <b>[For Award: MSc]</b></p> <p><b>Mr MBUYISWA, Njokweni (University of the Witwatersrand)</b></p>	<p><b>[555] NON-SPECIALIST LECTURE:</b> Two-photon Infrared Vision</p> <p><b>Prof ARTAL, Pablo (University of Murcia)</b></p>	<p><b>[128]</b> Multi-Wavelength Observations of AGN Activity in the Fornax Cluster</p> <p><b>Dr WOLDEYES, Dejene Zewdie (North-West University)</b></p>		SAPhysNet FORUM MEETING	<p><b>[439]</b> A Comparative Analysis of Radiation-Induced Wavelength Shift in Radiation-Soft and -Hard Fibre Bragg Gratings Exposed to Proton Irradiation</p> <p><b>Dr MAQABUKA, Bongani (University of Johannesburg)</b></p>
11:30 – 11:50	<p><b>[415]</b> First-principles and experimental insights into the structural stability and thermoelectric properties of SnSb</p> <p><b>Ms BALOI, Mmapula (University of the Witwatersrand)</b></p>	<p><b>[372]</b> The use of Machine Learning techniques to analyse the h-&gt; Zy process within the SMEFT framework at the Large Hadron Collider (LHC) <b>[For Award: MSc]</b></p> <p><b>Mr MAKGETHA, Kutlwano (University of the Witwatersrand)</b></p>	PHOTONICS: Division Meeting	<p><b>[273]</b> Late-time spectropolarimetry of GRB 250129A: evidence of an off-axis Gaussian jet</p> <p><b>Dr GHOSH, Ankur (University of Johannesburg)</b></p>			<p><b>[474]</b> GeoQAI: A Quantum Machine Learning Paradigm with Geospatial Data</p> <p><b>Dr SENEKANE, Makhamisa (University of Johannesburg)</b></p>
11:50 – 12:10	<p><b>[418]</b> Accelerated Construction of Equations of States for Elemental and Binary Alloys via Physics-Informed Message Passing Neural Networks</p> <p><b>Mr NGCOBO, Thabani (Council for Scientific and Industrial Research)</b></p>	<p><b>[244]</b> Comparison of Full and Fast Simulation Efficiencies in the ATLAS Detector Using Tag-and-Probe and EGamma MC Comparison Frameworks <b>[For Award: MSc]</b></p> <p><b>Mr CASSIM, Abdool Sattar (University of Johannesburg)</b></p>		<p><b>[43]</b> Exploring ULXs as Short GRB Precursors</p> <p><b>Mr NYADZANI, Lutendo (University of Johannesburg)</b></p>			
12:10 – 12:30	<p><b>[429]</b> Bragg Coherent Diffraction Imaging and Ptychography at the Diamond Light Source i13-1 beamline</p> <p><b>Dr JAKATA, Kudakwashe (Diamond Light Source)</b></p>	<p><b>[448]</b> Orthogonality study for the A/Sv→vZdZdv→v2l2v/2l2j with the ATLAS detector at the LHC <b>[For Award: PhD]</b></p> <p><b>Mr UNWUCHOLA, Doornull (University of the Western Cape)</b></p>		<p><b>[75]</b> Compton-induced cascade gamma-rays in the radio galaxy NGC 1275</p> <p><b>Mr MFUPHI, Ntshatsha (University of Johannesburg)</b></p>			
12:30 – 12:35	Breather						
12:35 – 13:45	Lunch (Main Dining Hall - Matrix Student Centre)						
13:45 – 13:50	Breather						
13:50 – 14:35 (Venue: SHB5)	PLENARY - [569] Shaping the Future: A Physics Journey to Groundbreaking Research in Quantum Technologies Dr ISMAIL, YASEERA (Stellenbosch University)						
14:35 – 14:40	Breather						
14:40 – 16:40	Annual General Meeting of the South African Institute of Physics (Venue: SHB5)						
18:00 – 20:00	Conference Banquet (The Empire Conference and Events Venue, 16 Empire Rd, Parktown, Johannesburg)						