

General Timetable



	1 JULY 2022					4 JULY 2022	5 JULY 2022	6 JULY 2022	7 JULY 2022	8 JULY 2022
09:00 - 09:15										
09:30 - 10:15						Opening function				
10:30 - 11:15			SAIP council meeting	Winter school on "Sustainable Research: Bridging the Gap between Academia and Industry"	Winter school on "Biophysics in Confronting Health Challenges"	Plenary 1: Prof. VAN NIEKERK, Wikus Chair: Ferrer, Phil	Plenary 2: Dr KRÜGER, Tjaart Chair: Ferrer, Phil	Plenary 4: Dr MCKINNELL, Lee-Ann Chair: Katamzi-Joseph, Zama	The SAIP: Past, Present and Future (Prof GLEDHILL, Igle; Prof CHITAMBO, Makaiko) Chair: Naidoo, Deena	Plenary 6: Prof WUTTIG, Matthias Chair: Erasmus, Rudolph
11:30 - 12:00						Oral presentations				
12:00 - 12:15						Oral presentations	Oral presentations & Industry Day	Poster session	Oral presentations	Oral presentations
12:15 - 13:00								WiPiSA: Prof Shobhana Narasimhan Chair: Modiba, Rosinah		
13:00 - 14:00	LUNCH BREAK					LUNCH BREAK	LUNCH BREAK	WiPiSA LUNCH	LUNCH BREAK	LUNCH BREAK
14:00 - 14:45			SAIP council meeting	Winter school on "Sustainable Research: Bridging the Gap between Academia and Industry"	Winter school on "Biophysics in Confronting Health Challenges"	10th Anniversary of Discovery of Higgs Boson: Prof Sir Tejinder Singh Virdee Chair: Mellado, Bruce	Plenary 3: Dr SVANBERG, Sune Chair: Neethling, Pieter		Plenary 5: Dr RIDIKAS, Danas Chair: Maleka, Peana	Plenary 7: Dr NIBAMUREKE, Marie Clémentine U. Chair: Ramalla, Sam
15:00 - 16:30						Oral presentations	Oral presentations & Industry Day	Poster session (judging)	Oral presentations	Annual General Meeting (AGM)
17:00 - 18:30							Council meeting with HODs	Division meetings	Council meeting with division chairs	Closing ceremony and prizegiving

Nuclear, Particle & Radiation Physics



	4 JULY 2022	5 JULY 2022	6 JULY 2022	7 JULY 2022	8 JULY 2022
09:30 - 10:15	Opening function				
10:30 - 11:15	Plenary 1 Session Chair: Manny Mathuthu	Plenary 2 Session Chair: Edwarde Nkadimeng	Plenary 4	SAIP Day Session Chair: Mukesh Kumar	Plenary 6
11:30 - 11:45	7 In-situ Determination of Radioactivity Levels and Radiological Hazards in and around the Gold Mine Tailings of the West Rand Area, South Africa. MOSHUPAYA, Paballa (National Nuclear Regulator)	6 3 Time stability of the response of gap/crack scintillators of the Tile Calorimeter of the ATLAS detector to isolated muons. RAPHEEHA, Phuti Ntsoko (University of the Witwatersrand)	Poster Session	5 2 Studying the Production of a Singlet Scalar at Future e+ e- Colliders with Deep Neural Networks. MULAUDZI, Anza-Tshilidzi (University of the Witwatersrand)	
11:45 - 12:00	3 3 6 Assessment of the radiological and heavy metal water quality of Vaal River, South Africa. BOITSHEKWANE, Kgantsi (University of North West)	1 2 6 Search for resonant production of strongly-coupled dark matter in proton-proton collisions VAN DER SCHYF, Hannah (University of Witwatersrand)		8 9 Compatibility of the CMS dilepton spectra with the Neutral Scalar with Mass around 151 GeV. BHATTACHARYA, Srimoy (University of the Witwatersrand)	
12:00 - 12:15	2 4 7 Characterization of UF4 waste using gamma spectroscopy. DESIREE, Tsholofelo Mokgele (North-West University)	6 6 Application of semi-supervision learning for the search of new resonances decaying to Zγ with topological features. CHOMA, Nalamotse Joshua (University of the Witwatersrand)		6 8 Explaining new type of multi-lepton excesses at the LHC with singletscalar extended 2 HDM model. SWAIN, Abhaya Kumar (University of the Witwatersrand)	
12:15 - 12:30	2 7 9 Nuclear forensic analysis of natural uranium mined from northern Nigeria. USMAN, Lyabo (University of the Witwatersrand)	5 9 Evaluation and Optimisation of a Generative-Classification Hybrid Variational Autoencoder in the Search for Resonances at the LHC. STEVENSON, Finn (University of the Witwatersrand)		7 1 Comparing 2HDM + S and 2HDM + S + N models to explain multi-lepton excesses at the LHC. BHATTACHARYA, Srimoy (University of the Witwatersrand)	
12:30 - 12:45	3 2 2 Simulation of neutron and electron material damage in CuO, MgO, and Al2O3. MAHAFA, Tshupo (University of Witwatersrand)	1 9 9 Search for new spin-1 or spin-0 boson using ATLAS detector data. MAPEKULA, Xola (University of Johannesburg)		2 2 3 A frequentist study of the false signals generated in the training of semi-supervised neural network classifiers using a WGAN as a data generator. LIEBERMAN, Benjamin (University of Witwatersrand)	
12:45 - 13:00	6 9 Role of nucleon-nucleon and three-body interactions on the structure of 22C halo system. VILAKAZI, Happy (University of South Africa)	5 3 Growing evidence of new bosons at the LHC. MELLADO, Bruce (University of the Witwatersrand)			
13:00 - 14:00	LUNCH BREAK	LUNCH BREAK	LUNCH BREAK	LUNCH BREAK	LUNCH BREAK

Nuclear, Particle & Radiation Physics



	4 JULY 2022	5 JULY 2022	6 JULY 2022	7 JULY 2022	8 JULY 2022
13:00 - 14:00	LUNCH BREAK	LUNCH BREAK	LUNCH BREAK	LUNCH BREAK	LUNCH BREAK
14:00 - 14:45	Special Lecture: Higgs Boson	Plenary 3	Poster session (judging)	Plenary 5	Plenary 7
	Session Chair: Thomas Dietel/Zinhle Buthelezi	Session Chair: Armand Bahini		Session Chair: James Keaveney	
15:00 - 15:15	1 3 Production of muons from heavy-quark hadron decays in pp collisions at $\sqrt{s} = 13$ TeV with the ALICE detector. SHABA, Tebogo (iThemba LABS)			1 4 3 Measurement of the leptonic charge asymmetry in $t\bar{t}$ production using the trilepton final state in proton-proton collisions at centre-of-mass energy of 13 TeV using the ATLAS experiment. GARVEY, Cameron	
15:15 - 15:30	1 6 Correlation of heavy-flavour production and charged-particle multiplicity in pp collisions at $\sqrt{s} = 5.02$ TeV measured in ALICE. MDHLULI, Joyful (University of the Witwatersrand)	2 7 4 Dipole polarizability effect on the quadrupole moment of the first 2^+ state in ^{12}C . NGWETSHENI, Cebo (University of the Western Cape)		1 5 6 A search for tWZ production with the ATLAS detector using the three and four lepton final states in proton-proton collisions at $\sqrt{s} = 13$ TeV. VELTMAN, Alexander (University of Cape Town)	
15:30 - 15:45	1 4 Design and development of the ALICE Common Readout Unit user-logic firmware for the Muon Identifier readout chain. THYS-DINGOU, Dieuveil Orcei (Cape Peninsula University of Technology)	3 0 3 Determination of matrix elements in ^{62}Ni to test surface vibrations in nuclei. LESCH, Brenden		2 1 9 Higgs decay to dark vector bosons via an additional scalar. CONNELL, Matthew (University of Johannesburg)	
15:45 - 16:00	4 9 Burn-in testing of the ATLAS Tile-calorimeter Phase-II low-voltage power supply transformer-coupled buck converters. MCKENZIE, Ryan (University Of the Witwatersrand)			2 9 9 Optimization of Scintillation Properties of Plastic Scintillator for PET/CT Using GEANT4 Simulations. AKAKPO, Elijah Hornam (University of the Western Cape)	
16:00 - 16:15	4 8 Search for dark sector showering in ATLAS using semi-visible jets. SINHA, Sukanya (The University of Witwatersrand)	5 1 The isoscalar giant monopole resonance in the Ca isotope chain. NEVELING, Retief (iThemba LABS)			Annual General Meeting (AGM)
16:15 - 16:30	2 8 5 CFD humidity and temperature modelling in the ATLAS ITK Strip. MAFA TAKISA, Pedro (University of South Africa)	2 1 2 Investigating the impact of neutrons on Cadmium Zinc Telluride Compton Camera system. DE KLERK, Josiah (University of Cape Town)			



	4 JULY 2022	5 JULY 2022	6 JULY 2022	7 JULY 2022	8 JULY 2022
09:30 - 10:15	Opening function				
10:30 - 11:15	Plenary 1 Chair: Pieter Neethling	Plenary 2 Chair: Andrew Forbes	Plenary 4	SAIP Day Chair: Mitchell Cox	Plenary 6
11:30 - 11:45	2 1 Synergistic Cytotoxic Effects of Photodynamic Therapy and Cannabidiol Treatment on Cervical Cancer Cells. RAZLOG, Radmila (University of Johannesburg)	3 3 0 Realizing topological relativistic dynamics with slow-light polaritons. JORDAAN, Bertus (NMISA)	Poster Session	8 1 Orbital and spin angular momentum interaction in second harmonic generation. WAGNER, Tavares Buono , (University of the Witwatersrand)	
11:45 - 12:00	6 1 Recombinant Antibody-Conjugated Silver Nanoparticles for Improved Drug Delivery in Photodynamic Therapy for Metastatic Melanoma. MALINDI, Zaria (University of Johannesburg)	1 0 0 Links and Twists within the Stokes Field. ORNELAS, Pedro (University of the Witwatersrand)		2 3 5 Simulating a deformable mirror with a spatial light modulator. MOHAPI, Lehloa (University of the Witwatersrand)	
12:00 - 12:15	5 8 Antiproliferative and Cytotoxicity Effects of Aluminium (III) Phthalocyanine Chloride Tetra Sulphonic Acid Mediated Photodynamic Therapy on Oesophageal Cancer. DIDAMSON, Onyisi Christiana (University of Johannesburg)	1 0 1 Teleporting into high dimensions. SEPHTON, Bereneice . (University of the Witwatersrand)		1 5 0 A New Angle on the Tilted Lens. PETERS, Cade Ribeiro (University of the Witwatersrand)	
12:15 - 12:30	4 4 PBM at 660 nm reduces stress induced apoptosis in diabetic wounded fibroblast cells in vitro. JERE, Sandy (University of Johannesburg)	4 3 Effect of nanoparticle geometry on photon statistics. UGWUOKE, Luke (Stellenbosch University)		1 4 5 Flattop beam shaping for use in optical fiber. PHALA, Ashley (University of Witwatersrand)	
12:30 - 12:45	9 6 Photobiomodulation at 830 nm modulates proliferation and migration of wounded fibroblast cells. LEYANE, Thobekile (University of Johannesburg)	1 7 8 Quantum Photonic Entanglement. SMITH, André (Stellenbosch University)	Plenary (WiPISA)	1 4 0 Broadband Beam Shaping Using Digital Micromirror Devices. PERUMAL, Leerin Michaela (University of the Witwatersrand)	
12:45 - 13:00	1 7 9 Photobiomodulation at 830 nm influences diabetic wound healing in vitro through modulation of inflammatory cytokines. MGWENYA, Tintswalo (University of Johannesburg)		LUNCH BREAK		
13:00 - 14:00	LUNCH BREAK	LUNCH BREAK		LUNCH BREAK	LUNCH BREAK
14:00 - 14:45	Special Lecture: Higgs Boson Chair: Gurthwin Bosman	Plenary 3 Chair: Christine Steenkamp	Poster session (judging)	Plenary 5	Plenary 7
15:00 - 15:15	6 0 Comparison of modelling and measurements of resonance laser ionisation of zinc isotopes STEENKAMP, Christine (University of Stellenbosch)	8 Theoretical Modeling of Infrared Thermography. NOLTING, Volkmar (Vaal University of Technology)			
15:15 - 15:30	1 4 6 Wavelength calibration of a monochromator system. RABE, Irma (NMISA Photometry & Radiometry scientist)	2 6 Simulation of Coherent Supercontinuum Generation in Silicon Germanium waveguide. MUNSAKA, Proficiency (National University of Science and Technology)			
15:30 - 15:45	9 4 Investigating the morphology of an optically trapped particle using Mie scattering ERASMUS, Anneke (Stellenbosch University)	2 9 Interferometric orbital angular momentum mode detection in turbulence with deep learning. COX, Mitchell (University of the Witwatersrand)			
15:45 - 16:00	8 2 Fourier Ptychographic Microscopy for high-resolution, large field of view imaging FOUCHE, Eugene (Stellenbosch University)	3 9 Investigating Two-Mode Mode Diversity with Laguerre-Gaussian and Hermite-Gaussian Modes. DROZDOV, Alice			Annual General Meeting (AGM)
16:00 - 16:15	1 3 7 Resolution enhancement in quantum ghost imaging by machine intelligence MOODLEY, Chané Simone (University of the Witwatersrand)	1 2 4 Communicating through turbulence using classical-entanglement. SINGH, Keshaan (University of the Witwatersrand)			
16:15 - 16:30					

Condensed Matter & Materials



	4 JULY 2022	5 JULY 2022	6 JULY 2022	7 JULY 2022	8 JULY 2022	
09:30 - 10:15	Opening function					
10:30 - 11:15	Plenary 1 Chair: Rudolph Erasmus	Plenary 2 Chair: Daniel Wamwangi	Plenary 4	SAIP Day Chair: Bharati Bamana	Plenary 6 Chair: Thulani Jili	
11:30 - 11:45	2 8 7 Lattice expansion studies of the crystal structure transformation in intermediate valent Ce ₂ Rh ₂ Ga XHAKAZA, Sindisiwe	3 4 Characterization of defects in Ar ⁺ implanted ZnO semiconductor using positron annihilation technique. KHULU, Musawenkosi (University of Zululand)	Poster Session	1 6 8 Structural and magnetic properties of Co _x Ni _{1-x} Cr ₂ O ₄ (x = 0.75, 0.80, 0.85) nanoparticles. JACOB, Mariam (University of Johannesburg)	5 5 Non-Specialist Lecture: Neutron scattering prospects at the new Multi-Purpose Reactor KESHAW, Jeetesh (Department of Mineral Resources and Energy)	
11:45 - 12:00	3 1 1 Property and structural characterisation of Fe and Ni bonded NbC cermet for improved tribological applications. PETERS, Gerrard (University of the Witwatersrand)	1 7 7 Magnetocaloric effect in Dy based chromium oxides. SIBANDA, Eugene		1 8 3 Structural and magnetic properties of Co _(1-x) Cu _x Cr ₂ O ₄ nanoparticles. NAGARAJ, Shobana (University of Johannesburg)		
12:00 - 12:15	1 1 7 Thermal stability of diketopyrrolopyrrole-based terpolymers with tunable broad band absorption for polymer solar cells. NCHINDA, Leonato Tambua (University of Pretoria)	1 8 5 Effect of solvents on the extraction and absorption study of natural dye from Bidens pilosa for dye sensitized solar cells. RANDELA, Ronel Ronella (University of Venda)		1 9 6 Synthesis, Structural, and Magnetic Properties of CoCr ₂ O ₄ /Cu ₂ O nanocomposites. NKOSI, Thabang Johannes (University of Johannesburg)		1 8 1 Thermal conductivity of Chalcogenides Alloys: Energy and information storage applications WAMWANGI, Daniel (University of the Witwatersrand)
12:15 - 12:30	1 0 6 Synthesis and modification of Boron Nitride nanotubes using ion implantation. LISEMA, Lehlohonolo (University of Witwatersrand)	2 7 7 Synthesis of copper nanowires for application as flexible transparent conducting electrodes. HOY, Nicholas (UNISA)		4 6 Transition metal carbonate precursors as cathode materials for li-ion batteries: computational and experimental study. MORUKULADI, Mogahabo		7 9 Media Structured for Nonlinear Optics WAGNER, Tavares Buono (University of the Witwatersrand)
12:30 - 12:45	1 1 8 Highly methane responsive nanosensor layer based on mesoporous nanostructured belts-like Indium Oxide. KGOMO, Mosima (CSIR)	1 9 0 Preparation and characterization of porous ZnFe ₂ O ₄ hollow fibers with enhanced sensing response and selective detection of acetone NEMUFULWI, Murendeni (University of free state)	Plenary (WiPISA)	2 5 9 Investigating sodium incorporated Li ₂ MnO ₃ nanostructured cathodes for lithium-ion batteries. MOGASHOA, Tshidi (UL)	3 1 7 TEM Observation of room temperature stability and phase transformation of SHI induced tetragonal tracks i monoclinic zirconia. LEE, Michael (Nelson Mandela University)	
12:45 - 13:00	2 7 8 Electrochemical Synthesis and Characterization of PANI/Graphene-foam Composite Films. CHILUKUSHA, Daniel (Tshwane University of Technology)	1 6 5 Impact of rapid thermal annealing on the properties of different Ag layer thicknesses Ag/ITO bilayer films. OLLOTU, Emmanuel Rasiel (Mkwawa University College of Education)		3 0 2 Simulations synthesis of Na _{0.23} TiO ₂ nanosphere at varied temperatures: Beyond li-ion batteries. RIKHOTSO, Blessing (University of Limpopo)	3 3 7 Machine Learning Structure-Property Model for Carbon Steels. WESTRAADT, Johan (Nelson Mandela University)	
13:00 - 14:00	LUNCH BREAK	LUNCH BREAK		LUNCH BREAK	LUNCH BREAK	
14:00 - 14:45	Special lecture: Higgs Boson Chair: Clifton Masedi	Plenary 3 Chair: Ramogohlo Diale		Plenary 5 Chair: Rudolph Erasmus	Plenary 7	
15:00 - 15:15	1 2 3 Phase Stability of Li ₂ Mn _{1-x} TM _x O ₃ (TM= Ni, Co, Cr and Ru) Cathode Material Using Cluster Expansion and Monte Carlo Simulations MPHAHLELE, Mamonamane (University of Limpopo)	9 First-principles study on interaction of O ₂ with (100) surfaces of sperrylite and platarsite minerals NEMUTUDI, Bradley (University of Limpopo)	Poster session (judging)	1 3 0 Structural and optical properties of TiO ₂ photoelectrodes fabricated for photoelectrochemical water splitting. SULIALI, Nyasha (Nelson Mandela University)	Annual General Meeting (AGM)	
15:15 - 15:30	1 7 4 Development of machine learning models for predicting energies of sodium-ion battery materials. MONARENG, Keletso	3 0 6 Study of inorganic lead halide perovskites properties using density functional theory for photovoltaic and optoelectronic devices. MALEKA, Prettier Morongoa		1 9 8 Structural and Magnetic Study of NdCrTiO ₅ Nanoparticles. BAMANA, Bharati (University of Johannesburg)		
15:30 - 15:45	2 2 0 The phase stability, mechanical and electronic properties of CsCl-type intermetallic: TiTM (TM = Ni, Ru and Pd), a first-principles approach. NGOBE, Bongani (WITS and MINTEK)	2 1 3 Ground state phase stability simulation of Fe-X-Al alloys (X= Pd and Ag). MKHONTO, Chrestinah		2 0 6 First-principle studies of cubic Ti ₂ AlV and tetragonal TiAl ₂ V structural stability. MODIBA, Rosinah (CSIR)		
15:45 - 16:00	2 6 2 Effect of Mn addition on the ductility of FeCo soft magnetic alloy. LEDWABA, Tebogo (University of Limpopo)	2 7 5 Ab-initio study of hydrofluoric acid and ethylene carbonate adsorption on the Nb-doped on the LiMn ₂ O ₄ surfaces. RAMOGAYANA, Brian (University of Limpopo)		2 2 9 Magnetic Phase Transitions in Ce ³⁺ Substituted CoCr ₂ O ₄ Nanoparticles. MOHANTY, Pankaj (University of Johannesburg)		
16:00 - 16:15	1 7 1 Ab initio and Cluster Expansion study on Magnesium Spinel (MgX ₂ Z ₄ : where X=Sc, Y and In; Z=S and Se) TIBANE, Khumbulani (UL)	2 3 8 Machine Learned Buckingham Interatomic Potentials for Co-doped Li-Mn-O spinel. HLUNGWANI, Donald (University of limpopo)		2 3 1 Impact of Cr substitution on magnetic properties of cobalt-doped ZnO nanoparticles. SHANKARAPPA Lokesha Handalagere (University of Johannesburg)		
16:15 - 16:30	2 5 2 The effects carbon and boron on the T-MnAl alloy properties employing the first principle approach. SEBE, Itumeleng (Sefako Makgatho Health Science University)	2 5 0 Evaluating the small Ti ₇ cluster in α-TiCl ₃ medium. MAZIBUKO, Andile (University of Limpopo)		1 3 5 Phase stability prediction of mixed Li ₂ S _{1-x} Sex system. MASEDI, Clifton (University of Limpopo)		



	4 JULY 2022	5 JULY 2022	6 JULY 2022	7 JULY 2022	8 JULY 2022
09:30 - 10:15	Opening function				
10:30 - 11:15	Plenary 1 Chair: Brian van Soelen	Plenary 2 Chair: Konstantinos Kolokythas	Plenary 2	SAIP Day Chair: Christo Venter	Plenary 6 Chair: Brian van Soelen
11:30 - 11:45	3 8 Probing 2HDM+S with MeerKAT Galaxy Cluster Legacy Survey. LAVIS, Natasha (University of the Witwatersrand)	9 8 Spectral and temporal analysis of 16 short Gamma-Ray Bursts detected by the Fermi Space Telescope with know redshift. MAHESO, Dimakatso Jeannett (University of Johannesburg)	Poster Session	2 6 8 African Astronomical Society (AfAS): the voice of astronomy in Africa. TAKALANA, Charles (African Astronomical Society)	3 2 Stochastic differential equations as a powerful numerical tool. STRAUSS, Du Toit (Centre for Space Research, North-West University)
11:45 - 12:00	1 4 2 MeerKAT's view on galaxy clusters: Diffuse radio emission in MeerKAT Galaxy Cluster Legacy Survey (MGCLS). KOLOKYTHAS, Konstantinos (North-West University)	1 1 6 Tracing water masers at their smallest scale with VLBI. VORSTER, Jakobus (Centre for Space Research)		7 7 Taking the Nooitgedacht telescope to the next level. HUG, Rigardt (North-West University)	3 1 6 An artificial Neural Network to quickly classify transients in the era of LSST. MARAIS, Johannes Petrus (UFS)
12:00 - 12:15	8 0 Studying gas flows in the SUNBIRD starburst galaxies and LIRGs. JANSE VAN RENSBURG, Petro (UCT/SAAO)	3 0 Seeing the inside of stars with sound. MEKONNEN Mengistie, Getachew (University of Zululand)		8 4 From setting up a new telescope to optimizing astrometric solutions. LETSOALO, Jane Mankhubu	2 2 2 Modelling compact stars: numerical solutions to the structure equations using Python. MAZWI, Luyanda (University of Johannesburg)
12:15 - 12:30	9 9 Spatially resolved stellar kinematics of the CLoGS brightest group early-type galaxies. STEVENS, Clinton (North-West University)	5 6 Parametric Spectral and Light Curve Modelling of Gamma-ray Millisecond Pulsars. HAMED, Hend (North-West University)		7 4 A Closer Look at Potential Exoplanets Targets from the Nooitgedacht Observatory. VORSTER, Henriëtte (North-West University)	
12:30 - 12:45	2 9 0 Stellar populations of green valley galaxies. MAHORO, Antoine (South African Astronomical Observatory)	1 7 0 Constraining the multipolar magnetic field of millisecond pulsar PSR J0030+0451 via X-ray light curve fitting. KUNDU, Anu (Centre for Space Research, North-West University)	Plenary (WiPISA)		
12:45 - 13:00	1 0 2 A study of the baryon cycle in groups at different stages of assembly. SANKAR, Sriram (South African Astronomical Observatory (SAAO))	4 0 Modelling the multi-wavelength Non-thermal Emission of AR Sco. VENTER, Christo (North-west University)			
13:00 - 14:00	LUNCH BREAK	LUNCH BREAK	LUNCH BREAK	LUNCH BREAK	LUNCH BREAK
14:00 - 14:45	Special lecture: Higgs Boson Chair: Geoff Beck	Plenary 3 Chair: Zama Katamzi-Joseph		Plenary 5 Chair: Vanessa McBride	Plenary 7
15:00 - 15:15		1 8 0 Neutron monitors as space weather instruments. STRAUSS, Du Toit (Centre for Space Research, North-West University)	Poster session (judging)	2 0 5 Preparing to welcome the global astronomy community to Africa in 2024. MCBRIDE, Vanessa (Office of Astronomy for Development)	Annual General Meeting (AGM)
15:15 - 15:30	1 2 7 Simulating the radio emissions of dark matter for new high-resolution observations with MeerKAT. BECK, Geoff (University of Witwatersrand)			2 1 0 Spatio-Spectral Modelling of the Pulsar Wind Nebula Kes 75. VENTER, Christo (North-west University)	
15:30 - 15:45	7 8 Primordial Black Holes and the SZ effect. TARRANT, Justine (WITS)	3 2 0 The South African Astronomical Observatory. MCBRIDE, Vanessa (Office of Astronomy for Development)		2 9 3 Particle Acceleration at Reflected Shocks in Supernovae Remnants. LE ROUX, Jacobus Frederik (North West University)	
15:45 - 16:00	1 5 3 Constraining the properties of Dark Matter using multi-messenger observations of dwarf galaxies. NOORBHAI, Raees (Wits School of Physics)			1 8 2 SALT observations of gamma-ray binaries. VAN SOELEN, Brian (University of the Free State)	
16:00 - 16:15	1 9 3 Physics of the Early Universe. NETSHIHENI, Shonisani Ednah (University of Venda)	2 6 6 The development of Radio Astronomy in South Africa. GOEDHART, Sharmila (SARAO)			
16:15 - 16:30	3 6 Cosmological perturbations of interacting dark fluid models. MBEWE, Bonang George (North West University)				



	4 JULY 2022	5 JULY 2022	6 JULY 2022	7 JULY 2022	8 JULY 2022
09:30 - 10:15	Opening function				
10:30 - 11:15	Plenary 1 Chair: Rendani Nndanganeni	Plenary 2 Chair: Du Toit Strauss	Plenary 4	SAIP Day	Plenary 6 Chair: Brian van Soelen
11:30 - 11:45	Supersolitons that propagate obliquely to the magnetic field in a plasma with adiabatic ions, Boltzmann distributed cool electrons and Cairns or Kappa-distributed hot electrons. SINGH, Shivani (UNISA)	Effects of solar storms on the radiation exposure to aircraft passengers and crew. NNDANGANENI, Rendani Rejoyce (South African National Space Agency)	Poster Session		Stochastic differential equations as a powerful numerical tool STRAUSS, Du Toit (Centre for Space Research, North-West University)
11:45 - 12:00	The effects of ion beams on slow and fast ion-acoustic solitons in plasmas with two-temperature electrons. MAXENGANA, M. (South African National Space Agency (SANSA) Space Science)	Development of the HARM model for aviation dosimetry. MOSOTHO, Moshe Godfrey (North-West University)			
12:00 - 12:15	The Vacuum Arc Ion Thruster for Space Science Applications. STANSELL, Paul (University of the Witwatersrand)	Assessment of the Cosmic-ray Soil Moisture Observing System for different agroclimatic zones. MOLOTO, Katlego (North-West University)			An artificial Neural Network to quickly classify transients in the era of LSST. MARAIS, Johannes Petrus (UFS)
12:15 - 12:30	Enhanced Vacuum Arc Thruster with Pulsed Magnetic Fields. RENCKEN, Tristan			Plenary (WiPISA)	Modelling compact stars: numerical solutions to the structure equations using Python. MAZWI, Luyanda (University of Johannesburg)
12:30 - 12:45	Constraining the Cross-field Diffusion of Jovian Electrons. VAN DEN BERG, Jabus (Centre for Space Research, North-West University)				
12:45 - 13:00	Simulating Solar Energetic Particle Transport As Observed By Solar Orbiter. STEVENS, Jaclyn (North West University)				
13:00 - 14:00	LUNCH BREAK	LUNCH BREAK	LUNCH BREAK	LUNCH BREAK	
14:00 - 14:45	Special lecture: Higgs Boson Chair: Katlego Moloto	Plenary 3 Chair: Zama Katamzi-Joseph		Plenary 5	Plenary 7
15:00 - 15:15	SuperDARN RADAR Groundscatter Statistics Over Antarctica. SOSIBO, Phakamile (University of KwaZulu-Natal)	Neutron monitors as space weather instruments. STRAUSS, Du Toit (Centre for Space Research, North-West University)	Poster session (judging)		Annual General Meeting (AGM)
15:15 - 15:30	The investigation of the skynoise parameter of the Sanae SuperDARN radar. DLAMINI, Mbali				
15:30 - 15:45	Determining the response of southern hemisphere SuperDARN convection maps to the southward turning of the Interplanetary Magnetic Field. MCHITHAKALI, Aviwe	The South African Astronomical Observatory MCBRIDE, Vanessa (Office of Astronomy for Development)			
15:45 - 16:00	A behavior of EIA during geomagnetic storms. BULALA, Avuyile (iThemba LABS)				
16:00 - 16:15		The development of Radio Astronomy in South Africa GOEDHART, Sharmila (SARAO)			
16:15 - 16:30					

Physics for Development, Education & Outreach

(Tuesday - Industry Day)



	4 JULY 2022	5 JULY 2022
09:30 - 10:15	Opening function	
10:30 - 11:15	Plenary 1 Chair: Alan Cornell	Plenary 2 Chair: Deena Naidoo
11:30 - 11:45		INDUSTRY DAY
11:45 - 12:00	Leveraging design thinking and systems thinking approach in Physics education research. NSHIMWE, Ngwende Rethabile (Botswana International University of Science and Technology)	Industry Connection Roadmap. MATTHEWS, Alan
12:00 - 12:15	Challenges pre-service students have while practicing to answer questions using context-content alignment problem-solving strategy. MOLEFE, Paul (University of Johannesburg)	Optical fabrication technology; where are we? and where are we going? KARA, Ravin
12:15 - 12:30	A modal approach to teaching and understanding paraxial light propagation. MOODLEY, Chané Simone (University of the Witwatersrand)	Quantum technology for industry. NDAGANO Bienvenu
12:30 - 12:45	Students' understanding of physical components of electrical circuits. KHWANDA, Mphiriseni (University of Johannesburg)	
12:45 - 13:00	Flippin Amazing? WARD, Kebra (Massachusetts College of Liberal Arts)	Physics in action: a personal journey from the Space Shuttle to aeronautics, explosions, rational drug design and ocean waves. GLEDHILL, Irvy (Igle)
13:00 - 14:00	LUNCH BREAK	LUNCH BREAK
14:00 - 14:45	Special lecture: Higgs Boson Chair: Paul Molefe	Plenary 3 Chair: Simon Connell
15:00 - 15:15	High School learners' difficulties with kinematics graphs. PHAGE, Itumeleng	INDUSTRY DAY
15:15 - 15:30	Astronomy for development: past, present & future. MCBRIDE, Vanessa (Office of Astronomy for Development)	PVinsight: Determining photovoltaic module quality and degradation rates. CROZIER MCCLELAND, Jacqui (Nelson Mandela University/PVinsight)
15:30 - 15:45	Creating Support for Tutoring Physical Sciences and Mathematics: A Collaboration Between Metro South Education District and the Department of Physics and Astronomy. AUDU, Bako Nyikun (University of the Western Cape)	Case Studies of deploying AI-enabled and IoT-based Solutions for Industrial Applications. ADAMS, Dominique E
15:45 - 16:00	Teacher's perceptions of Modeling Instruction for the South African classroom. HERBERT, Mark (University of the Western Cape)	
16:00 - 16:15	Language in learning. How far can we teach Physics in isiZulu? FISH, Derek (University of Zululand)	Nuclear Technologies in Medicine. ZEEVAART, Jan
16:15 - 16:30		

	6 JULY 2022	7 JULY 2022	8 JULY 2022
	Plenary 4	SAIP Day Chair: Alan Cornell	Plenary 6 Chair: Deena Naidoo
	Poster Session		Teach electronics to applied physics students. Prototyping, design and research on a printed circuit board. MARIOLA, Marco (University Of Kwazulu Natal)
		Leveraging quantum machine learning in finance. TSHIDI, MOTSHIDISI (Botswana International University of Science and technology)	The effects of expert problem solving on first-year mainstream physics students' performance and results. HERBERT, Mark (University of the Western Cape)
		Correlations between matric marks and mechanics misconceptions. CORNELL, Alan (University of Johannesburg)	Using a Kibble balance to explain physics principles in education. MNDEBELE, Landile Floyd (National Metrology Institute of South Africa)
	Plenary (WiPISA)	Exploring the impact of teacher education programme on the development of pre-service science teachers' TPACK. NDUMANYA, Emmanuela (University of Johannesburg)	
		Assessment of energy supply and use in households of Mudavula village in Collins Chabane Municipality in Limpopo province. MBUYISA, Busisiwe (University of Venda)	
		The impact of simulation experiments on the understanding of the concepts of acceleration and energy. EWUOLA, Oluwatoyin (University of Johannesburg)	
	LUNCH BREAK	LUNCH BREAK	LUNCH BREAK
		Plenary 5 Chair: Itumeleng Phage	Plenary 7
		The inclusion of nature of science in grade 12 high-stakes physics assessments in South Africa. RAMNARAIN, Umesh (University of Johannesburg)	Annual General Meeting (AGM)
		Online teaching in the digital age. LETARTE, Bruno (North-West University)	
	Poster session (judging)	Water Quality Assessment Using Graph Convolutional Neural Networks. SENEKANE, Makhamisa (University of Lesotho)	
		The effects of monitored peer teaching and learning on the understanding of basic Physics concepts. SONDEZI, Buyi (University of Johannesburg)	

	4 JULY 2022	5 JULY 2022	6 JULY 2022	7 JULY 2022	8 JULY 2022
09:30 - 10:15	Opening function				
10:30 - 11:15	Plenary 1 Chair: Phil Ferrer	Plenary 2 Chair: Ernest van Dyk	Plenary 4	SAIP Day Chair: Thulani Hlatshwayo	Plenary 6
11:30 - 11:45	3 5 High order stabilized finite elements for gas dynamics. KHULU, Musawenkosi (University of Zululand)	2 3 2 Forecasting Short-term Power Consumption Using Deep Learning and Boosting Machine Learning Techniques. SENEKANE, Makhmisa (National University of Lesotho)	Poster Session	5 0 A Nonlinear Logistic Regression Model for the Measurement of Drug Potency in Photodynamic Therapy. CHIZENGA, Elvin (Laser Research Centre, University of Johannesburg)	
11:45 - 12:00	1 0 5 Unmasking phase with ghost imaging. SEPHTON, Bereneice (University of the Witwatersrand)	2 5 6 Density functional theory study of Nax (TiyZnzMnw)O2 as a cathode material. RANWAHA, Tshifhiwa Steven (University of Venda)		2 2 6 Developing an Infectiousness model for droplet transmission. RALIJAONA, Mbolahasina (University of Johannesburg)	
12:00 - 12:15	1 0 8 An Internet Of Things (IoT) pilot project as a primer for the future development of IoT technology for particle physics detector data acquisition systems. MCKENZIE, Ryan (University Of the Witwatersrand)	1 3 2 Computational Fluid Dynamics in the ATLAS Detector. CONNELL, Matthew (University of Johannesburg)		2 2 8 Blending and thermal stability studies of a composite biopolymeric material for the removal of toxic pollutants in pharmaceutical effluents. SIMELANE, Nontobeko Precious	
12:15 - 12:30	1 1 5 Threading a Laser Through the Eye of a Needle: Multimode Fibre Coupling in Turbulence. IGA, Fortune (University of the Witwatersrand)	2 8 2 Optimised mathematical library for Atmel microcontrollers. MARIOLA, Marco (University Of Kwazulu Natal)		2 6 9 Physics-Informed Neural Networks MATTHEWS, Alan (UKZN)	
12:30 - 12:45	1 2 2 The Vacuum Arc Ion Thruster. STANSELL, Paul (University of the Witwatersrand)	2 9 5 Serendipitous p- to n-type response switching in β -Ga2O3 needles: A potential application to selective CO and CH4 gas sensors. GATSI, Nyepudzai Charline (University of the Witwatersrand)		1 5 4 Analysis of bulk materials using fast neutron transmission analysis. MHLONGO, Sizwe (University of Cape Town)	
12:45 - 13:00	1 2 8 Fast, cheap, variable sensitivity wavefront sensor for applications in communication to microscopy and beyond SINGH, Kshaan (University of the Witwatersrand)	3 4 0 Direct-couple PVWPS sizing using borehole hydraulic parameters. MASEVHE, Livhuwani (UNIVEN)	1 5 5 Validation of the Monte Carlo Detector Effects model for the UCT POLARIS Compton camera. SMUTS, Frank (University of Cape Town)		
13:00 - 14:00	LUNCH BREAK	LUNCH BREAK	LUNCH BREAK	LUNCH BREAK	LUNCH BREAK
14:00 - 14:45	Special lecture: Higgs Boson Chair: Freddie Vorster	Plenary 3 Chair: Trevor Derry	Plenary (WiPISA)	Plenary 5 Chair: Trevor Derry	Plenary 8
15:00 - 15:15	3 4 3 Non Specialist Lecture: Synchrotron-enabled macromolecular crystallography in Brazil: From plant biomass hydrolysis to biomedical applications. POLIKARPOV, Igor	1 2 5 Comparison between the empirical, machine and deep learning techniques to predict global solar irradiance for Mutale area in Limpopo Province, South Africa. MURIDA, Thalukanyo Whitney (University of Venda)		6 4 4 ATLAS Tile Calorimeter Phase-II upgrade low-voltage power supply production and testing. NKADIMENG, Edward (University of the Witwatersrand)	Annual General Meeting (AGM)
15:15 - 15:30	1 4 3 Reconstructing a quantum ghost image without a camera. MOODLEY, Chané Simone (University of the Witwatersrand)	1 4 1 Construction of the Solar trough Cavity receiver. FERRER, Phil (WITS)		1 7 3 MicroPEPT: A step towards hybrid PEPT detectors. VAN DER MERWE, Robert (University of Cape Town)	
15:30 - 15:45	1 3 9 Simulation Modelling the Conductivity of Metal Oxide Gas Sensors from the First Principles. NHLOZI, Blessing Mvana (University of Zululand)	2 9 1 Development of a luminescence imaging system for the characterization of PV cells. ROODT, Roelof (Nelson Mandela University)		2 6 0 Developing a Nuclear Orientation Thermometer for the UCT Dilution Refrigerator. NTOLOSI, Yanga (NMISA & University of Pretoria)	
15:45 - 16:00	1 4 4 Tailoring Noise Invariant Light for Robust Optical Communication. PETERS, Cade Ribeiro (University of the Witwatersrand)	2 9 2 Analysis of degradation of Perovskite PV devices using injection dependent Photoluminescence imaging. DIX-PEEK, Ross (Nelson Mandela University)		2 6 7 Measurement of fast neutron removal cross sections for the elemental analysis of concrete. SEGALE, Nalesi (University of Cape Town)	
16:00 - 16:15	1 4 8 Outdoor current-voltage testing of bifacial photovoltaic modules to determine bifaciality coefficients and gain. NDZONDA, Siyabonga (Nelson Mandela University)	3 0 5 Positron Emission Particle Tracking (PEPT): Data analysis techniques for tracking multiphase flows. SITOBOLI, Rorisang (University of the Witwatersrand)	2 6 3		
16:15 - 16:30	1 4 9 Modal Description of Optical Elements. ORNELAS, Pedro (University of the Witwatersrand)				

Theoretical & Computational Physics



	4 JULY 2022	5 JULY 2022
09:30 - 10:15	Opening function	
10:30 - 11:15	Plenary 1 Chair: Thomas Konrad	Plenary 2 Chair: Alan Cornell
11:30 - 11:45	1 7 5D MSSM at Two loop. CORNELL, Alan (University of Johannesburg)	3 1 Matters of the $R_h=ct$ universe. ABEBE, Amare (North-West University)
11:45 - 12:00	1 5 Black holes and nilmanifolds: quasinormal modes as fingerprints of extra dimensions CHRYSOSTOMOU, Anna (University of Johannesburg)	3 2 5 Is gravity quantised? MAHARAJ, Shamik (University of KwaZulu-Natal)
12:00 - 12:15	1 6 6 Rapidity Distributions of Pb+Pb and Au+Au from the microscopic Ultra-relativistic Quantum Molecular Dynamics (UrQMD 3.3) model. NEMAKHAVHANI, Thendo Emmanuel (University of Johannesburg)	1 7 5 Quantum spectrum of tachyonic black holes in a brane-anti-brane system. BEESHAM, Aroonkumar (University of Zululand)
12:15 - 12:30	2 4 2 First principle' study of the properties of the Titanium based alloys (Ti doped with Mo, Mg, Zr, Ta and Si) for biomedical applications MABEBA, Kobe	1 1 1 The Physics of Core-Collapse Supernovae NZUZA, Wandile (University of Witwatersrand)
12:30 - 12:45	5 4 The QCD Equation of State in Small Systems HOROWITZ, William (University of Cape Town)	
12:45 - 13:00	7 6 An Introduction to Lattice QCD: The Metropolis Algorithm and the Anharmonic Oscillator. NGWENYA, Blessed Arthur (University of Cape Town)	2 8 9 Anomaly Detection on the high throughput network of the ATLAS TDAQ system. PHIRI, Mitchell (University of Johannesburg)
13:00 - 14:00	LUNCH BREAK	LUNCH BREAK
14:00 - 14:45	Plenary 2 Chair: Alan Cornell	Plenary 3 Chair: Azwinnidini Muronga
15:00 - 15:15	2 2 5 Statistical thermal models for particle reproduction in heavy ion collisions. SITHOLE, Kudzai (University of the Western Cape)	3 2 9 Control of quantum systems by quantum systems KONRAD, Thomas (UKZN)
15:15 - 15:30	2 5 3 Quantum key distribution protocol implemented with biphotons. SEKGA, Comfort (Botswana International University of Science and Technology)	3 2 8 Wigner functionals in Quantum optics DURGAPERSADH, Akshay
15:30 - 15:45	3 2 4 Quantum-optical description of sum-frequency generation in terms of spatial light modes. PERMAUL, Tanita (University of KwaZulu-Natal)	3 3 5 A generalised approach to measurement-based feedback Control of a Quantum System in a Harmonic Potential. ROUILLARD, Amy (University of KwaZulu-Natal)
15:45 - 16:00	8 6 Measurement-Based Quantum Network Coding on a Noisy Superconducting Processor. RALL, Hjalmar (Stellenbosch University)	2 0 0 A new Bell inequality for measuring entanglement in relativistic frames. HARTMAN, Jonathan (University of Johannesburg)
16:00 - 16:15	3 3 3 A verification scheme for universal quantum computers. SEGIREDDY, Anirudh Reddy (UKZN)	1 2 0 Cavity QED based open quantum walks. ZUNGU, Ayanda (North-West University)
16:15 - 16:30	8 7 Using linear spectroscopy to accurately determine the Hamiltonian of a light-harvesting complex. NÖTHLING, Towan (University of Pretoria, NITheCS)	3 4 2 Higher order relativistic dissipative fluid dynamics for heavy ion collisions and astrophysics. MURONGA, Azwinnidini (Nelson Mandela University)

This track is sponsored by **NITheCS** National Institute for Theoretical and Computational Sciences

	6 JULY 2022	7 JULY 2022	8 JULY 2022
09:30 - 10:15			
10:30 - 11:15	Plenary 4	SAIP Day	Plenary 6
11:30 - 11:45	Poster Session		
11:45 - 12:00			
12:00 - 12:15			
12:15 - 12:30			
12:30 - 12:45			
12:45 - 13:00	Plenary (WiPISA)		
13:00 - 14:00	LUNCH BREAK	LUNCH BREAK	LUNCH BREAK
14:00 - 14:45		Plenary 5	Plenary 7
15:00 - 15:15	Poster session (judging)		Annual General Meeting (AGM)
15:15 - 15:30			
15:30 - 15:45			
15:45 - 16:00			
16:00 - 16:15			
16:15 - 16:30			