



POSTER
SESSIONS

TRACK A - Physics of Condensed Matter and Materials

ID	TITLE	AUTHORS	AFFILIATION
30	SYNTHESIS AND ELECTRICAL CHARACTERIZATION OF GaN GROWN BY ELECTROCHEMICAL DEPOSITION	Abdulraof Ali	University of Pretoria
51	Cost effective sol-gel synthesis of mesoporous TiO ₂ nanoparticles: Reaction temperature and calcination effects	TSOTETSI, Dieketseng Glara	-
77	Effect of Er doping on structure, optical and electrical properties of the fabricated	AHMED, Mohammed	University of Pretoria
180	Schottky diodes based on ZnO MACHINE LEARNING MODEL FOR PREDICTING FORMATION ENERGIES FOR LITHIUM-ION BATTERY MATERIALS	MONARENG, Keletso Mabel	UL
184	IMPROVEMENT OF GAS SENSING SELECTIVITY OF VANADIUM PENTOXIDE NANO-STRUCTURES TOWARDS SULPHUR DIOXIDE BY GOLD DOPING	MOKWENA, Mick Molukie	University of Limpopo
199	Characterization of P3HT-CNT thin films for photovoltaic solar cell application	QOTSO, Angelina Seithati	UNISA
215	Computational Studies of Pentlandite Mineral: Structural and Dynamical Properties Probed by Molecular Dynamics	MEHLAPE, Mofuti	University of Limpopo
217	Computational modelling studies of Pentlandite (Fe, Ni) ₉ S ₈ surface: Oxidation and hydration	NTOBENG, Thapelo	University of Limpopo
219	High-resolution deep level transient spectroscopy (DLTS) study of vacancy defects donor pairs in P-, AS- and Sb-doped n-type Silicon	ALNAIM, Asil	University of Pretoria
236	ELECTRONIC PROPERTIES OF OXYGEN ADSORBED Li/MO ₂ (M= Ti, V, Mn) SURFACES IN Li-AIR BATTERY	MAENETJA, khomotso	University of Limpopo
237	Fabrication of MIT layers in diamond via boron ion implantation processes.	MAHONISI, Nyiku	University of Witwatersrand
239	First principles calculations study of O ₃ and P ₂ NaMn _{1/2} Fe _{1/2} O ₂ as potential cathode for Sodium ion battery application	DIMA, Ratshilumela Steve	University of Venda
247	Corrosion behaviour of spark plasma sintered Ti-Al alloys	SINTHUMULE, Mukonazwothe	University of Johannesburg
253	Improvement of Abrasive Wear Resistance and Toughness on Hammer Mill Beaters by Additions of Molybdenum and Vanadium-Ferroalloys in White Cast Iron	NYAMBI, Fumani	-
256	White-light emitting BaAl ₂ O ₄ /CaAl ₄ O ₇ :x% Dy ³⁺ (0 ≤ x ≤ 3) mixed phase nanophosphors synthesized using citrate sol-gel method.	MAHMAN, Bamba	SMU
257	Improvement of Abrasive Wear Resistance and Toughness on Hammer Mill Beaters by Additions of Molybdenum and Titanium-Ferroalloys in White Cast Iron	MOTEPE, Bakang Johannes	-
275	Optical, structural and electrical properties of Zr doped CoSe for photovoltaic application	OCHAI-EJEH, Faith	University of Nigeria
293	Magnetic properties of the layered structure compound Ce ₃ O _s 4Al ₁₂	DJOUMESSI FOBASSO, Redrisse	University of Johannesburg
297	Effect of Er doping on structure, optical and electrical properties of the Influence of duration of annealing on thermoluminescence of natural quartz annealed at 1000 °C	FOLLEY, Damilola	Rhodes University
304	Synthetic process of cesium lead tri-iodide (γ-CsPbI ₃) perovskites thin-films using sequential physical vapor deposition method	SIBIYA, Sizwe	University of Pretoria

ID	TITLE	AUTHORS	AFFILIATION
307	Incorporation of gold metal nanoparticles in organic solar cells	SEIMELA, Thapelo	University of Pretoria
319	Characterization of defects in ZnO impanted with Ar ⁺ ions using positron annihilation technique	KHULU, Musawenkosi	University of Zululand
322	The effect of Sm ³⁺ concentration on the structure, morphology and photoluminescence properties of co-doped CaAl ₂ O ₄ :0.1%Tb ³⁺ , x%Sm ³⁺ (0 ≤ x ≤ 2) nanophosphor prepared by the citrate sol gel technique.	MHLONGO, Motlalepula Rebecca	Sefako Makgatho Health Sciences University
325	Green Synthesis of Fe ₃ O ₄ Nanoparticles: Structure and Magnetic Properties	NAGARAJ, Shobana	University of Johannesburg
382	MOLECULAR DYNAMICS STUDY OF STRUCTURAL PROPERTIES OF Ti ₅₇ NANOCUSTER	PHAAHLA, Tshhegofatso Michael	University of Limpopo
383	Computational modelling of Ti ₅₀ Pd _{50-x} Cu _x (0 ≤ x ≤ 25) high temperature shape memory alloys	DIALE, Ramogholo	University of Limpopo
387	Investigation of energy transfer mechanism in Sm ³⁺ and Eu ³⁺ doped Na ₆ Mg(SO ₄) ₄ nanophosphors prepared by solution combustion technique	K.B., Morebodi	University of Johannesburg
113	A compact neutron spectrometer for neutrons produced by cosmic rays	JARVIE, Erin	University of Cape Town
141	L-SHELL X-RAY PRODUCTION CROSS SECTIONS IN A RARE EARTH ELEMENT INDUCED BY CI AND C IONS.	EJEH, Ernest	University of Pretoria
192	The effects of implantation temperature and annealing on glassy carbon implanted with Se ions	ADEOJO, Samuel	University of Pretoria
225	Effects of helium (He) in the migration behavior of silver (Ag) implanted into polycrystalline SiC	MTSI, Sive	University of Pretoria

Track B - Nuclear, Particle and Radiation Physics

ID	TITLE	AUTHORS	AFFILIATION
31	Search for WZ production in the Full Run 2 ATLAS dataset using events with four leptons	REICH, Jake	University of Cape Town
32	Application of tagged neutron method for detecting diamonds in kimberlite	SEBELE, Motswakae	Botswana International University of Science and Technology
35	Statistical properties of ¹³³ Xe from inverse kinematics Reactions extracted using the Ratio Method	SEAKAMELA, Tefo	University of Johannesburg
40	The use of machine learning to understand the excesses of events in SS and 3 lepton events with b-jets at the LHC	MATHAHA, Thuso	University of the Witwatersrand
43	Looking at overfitting within semi-supervision with Generative Adversarial Networks for physics searches at the LHC	LEBESE, Thabang	University of the Witwatersrand

Track B - Nuclear, Particle and Radiation Physics

ID	TITLE	AUTHORS	AFFILIATION
46	Search for Z _y high-mass resonances using the ATLAS Detector	MOKGATITSWANE, Gaogalalw	University of the Witwatersrand
84	VALIDATION OF THE MONTE CARLO MODEL FOR 6 AND 15 MV PHOTON BEAMS OF VARIAN CLINAC IX LINAC	DUMELA, Khombo Eunice	University of the Witwatersrand
90	Assessment of NORM in fruits and vegetables from local markets in Hartbeespoort, Mahikeng and Pretoria	GOUWS, Veronica	Tomsk Polytechnic University
123	The physics of the fragmentation region in heavy-ion collisions	KOLBE, Isobel	University of Cape Town
129	Measurements of neutron energy spectra up to 200 MeV at the iThemba LABS fast neutron beam facility	MAIBANE, Kutullo	University of Cape Town
131	Measurement of the photoabsorption cross section of 24 Mg	GUSINOW, Roy	-
132	Computational Studies of Pentlandite Mineral: Structural and Dynamical Properties Probed by Molecular Dynamics	BEKKER, Jacob	University of the Witwatersrand
140	Fine structure of the ISGMR in 90Zr, 120Sn and 208Pb	BAHINI, Armand	University of the Witwatersrand
169	The scissors resonance in 151Sm	MAGAGULA, SEBENZILE PRETTY ENGELINAH	University of the Witwatersrand
172	Investigation of limit of detection using standard radioactive sources with a LaBr3(Ce) detector	VAN NIEKERK, Ferdie	University of Cape Town
177	Towards hydrodynamic initial conditions in the fragmentation region	LUSHOZI, Mawande	University of Washington
185	Activity Concentration Measurement of Naturally-Occurring Radionuclides in Various Vegetation plots in Rustenburg, North-West Province, South Africa	OLAGBAJU, Peter Oluwadamillare	North West University
195	Measurement of the leptonic charge asymmetry in the tri-lepton final state of ttW in proton-proton collisions at a centre-of-mass energy of 13 TeV using the ATLAS detector	GARVEY, Cameron	-
229	Multi-photon decay mode spectroscopy of positronium	JOHNSON, Storm	University of Cape Town
260	Optic Fibre Sensors for Temperature Sensing in Pressurized Water Reactors	MAQABUKA, Bongani	University of Johannesburg
268	Comparison of Indoor Radon Levels measured with three different Detectors (Passive and Active)	SETHABELA, Cynthia	North-West University
271	Impact of Experimentally Constrained Nuclear Level Density and Photon Strength Function of 182 Hf on the Nucleosynthesis Puzzle of 182 Hf	YENDE, Nomcebo	University of Johannesburg
280	Searches for heavy scalar resonance through hadronic jet reconstruction using ML techniques at e-p colliders	MALWA, Elias	University of the Witwatersrand
61	The replacement and refurbishment of Gap Scintillator Counters for the ATLAS Tile Calorimeter Phase-I Upgrade	MOKGATITSWANE, Gaogalalwe	University of the Witwatersrand

Track C - Photonics

ID	TITLE	AUTHORS	AFFILIATION
25	A comparison between photobiomodulation at 830 nm and 660 nm on differentiation in diabetic human skin fibroblast cells	OYEBODE, Olajumoke	University of Johannesburg
57	Targeted photodynamic diagnosis of colorectal cancer	SIMELANE, Nokuphila	Laser Research Centre
64	Photobiomodulated Differentiation Of Adipose Derived Stem Cells Into Osteoblasts.	DA SILVA, Daniella	Laser Research Centre
76	Intelligent and efficient dual-wavelength ghost imaging	MOODLEY, Chané Simone	University of the Witwatersrand
91	Dicoma anomala enhances the zinc phthalocyanine tetrasulphonic acid (ZnPcS4) mediated photodynamic therapy in breast cancer cells	CHOTA, Alexander	University of Johannesburg
109	Resonant Ionization Spectroscopy for laser isotope separation of zinc isotopes	DE BRUYN, Andre	Stellenbosch University
154	Comparison of spectral focusing approaches in single-beam CARS	VILJOEN, Ruan	Stellenbosch University
168	Setup of a 300-meter Optical Link through Atmospheric Turbulence	DROZDOV, Alice Vadimovna	University of the Witwatersrand
228	Toolbox for the Development of a MIR NOPA for Time-Domain Ptychography and Initial Results	DE BEER, Anthonie	Stellenbosch University
244	Spatial profile shaping for use in optical fibres.	FORBES, Andrew	University of the Witwatersrand
246	Diffraction from polarisation filtering axicons	SINGH, Keshaan	University of the Witwatersrand
250	Simulating a deformable mirror with a digital micro-mirror device	MOHAPI, Lehloa	University of the Witwatersrand
298	Determination of amplification characteristics in end-pumped solid-state amplifiers	HARRISON, Justin	University of the Witwatersrand
301	Selection of a Vortex beam using a Sagnac Interferometer	MEREOTLHE, Mailshoko	University of the Witwatersrand

Track D1 - Astrophysics

ID	TITLE	AUTHORS	AFFILIATION
87	The multi-wavelength behaviour of PSR B1259-63 during the 2021 periastron passage	VAN SOELEN, Brian	University of the Free State
94	A dynamical systems analysis of interacting dark energy models	MOLOSI, VUYANI	North-West University
114	Kinematics and star formation histories of brightest cluster galaxies	NKOSI, Siyabulela Andile	North-West University
128	SALT spectroscopy of gas-rich galaxies in Fornax A	MOSIA, Kalleho	North-West University

Track D1 - Astrophysics

ID	TITLE	AUTHORS	AFFILIATION
137	Effects of emission by electron-positron pairs from gamma-ray absorption in the BLR of gamma-ray blazars on the broadband SED	NTSHATSHA, Mfuphi	University of Johannesburg
148	Optical spectropolarimetry monitoring of flaring blazars	BARNARD, Joleen	University of the Free State
149	Determining the orbital parameters of the gamma-ray binary HESS J0632 +057	MATCHETT, Natalie	University of the Free State
157	Interacting Viscous Dark fluid models	MBEWE, BONANG GEORGE	North-West University
165	Spectral analysis of S5 1803+784 in the recent flaring state	OMOJOLA, Joseph	University of the Witwatersrand
238	Multi-messenger observations of ultra-faint dwarf galaxies as probes of dark matter	NOORBHAI, Raees	University of the Witwatersrand
241	Scaling Relations of the galaxies Interstellar Medium in Cosmological Simulations	LEEUEW, Lerothi	University of the Western Cape
252	The Diffuse Extragalactic Radio Background and the implications for gamma-ray astrophysics	MOTHA, Nomthendeleko	University of Johannesburg
321	Dark Coupling: Cosmological implications of interacting dark energy and dark matter fluids	VAN DER WESTHUIZEN, MarcelLINAH	North West University
342	The Effect of Dark Matter in the Epoch of Reionization	KGOADI, Mpho	University of the Witwatersrand
347	A hadronic synchrotron mirror model for blazars - application to 3C279	OBERHOLZER, Laenita	North West University
384	MeerKAT's view of the interaction between intra-cluster magnetic field and jets of a radio galaxy	CHIBUEZE, James	North West University

Track D2 - Space Science

ID	TITLE	AUTHORS	AFFILIATION
29	Solar modulation of cosmic ray proton related to observations by PAMELA from 2006 to 2014	RAMOKGABA, Innocentia	North-West University
49	Climatology of the nighttime thermospheric winds over Sutherland, South Africa.	OJO, Taiwo	SANSA
59	Statistical analysis between Travelling Ionospheric Disturbances (TIDs) and SuperDARN Near Range Echoes (NREs)	HIYADUTUJE, Alicreance	SANSA
67	Pitch-angle Scattering vs. Magnetic Confinement in Flare Loops	VAN DEN BERG, Jabus	North-West University
183	Equatorward large-scale travelling ionospheric disturbances of high latitude origin during quiet conditions	GOLEKAMANG, Thaganyana	North-West University
197	Numerical Simulation of Sunspot Rotation	JOHNSON, Daniel	University of Central Lancashire

Track D2 - Space Science

ID	TITLE	AUTHORS	AFFILIATION
328	DAILY GLOBAL SOLAR RADIATION ESTIMATION USING AN ARTIFICIAL INTELLIGENT APPROACH	OLORUNFEMI, Yetunde	North-West University
369	Maximum Usable Frequency current forecast verification and new local prediction model development	BRIJRAJ, Sahil	University of KwaZulu-Natal

Track E - Physics for Development, Education and Outreach

ID	TITLE	AUTHORS	AFFILIATION
337	Natural Sciences and Physical Sciences teachers' professional development programme at the Department Physics and Astronomy, University of the Western Cape	HERBERT, Mark	University of the Western Cape
340	First year physics students' perception of problem solving	HERBERT, Mark	University of the Western Cape

Track F - Applied Physics

ID	TITLE	AUTHORS	AFFILIATION
22	A thermo-effusion pump for air sampling: theoretical considerations.	MALAN, Daniel	Scidat Pty Ltd
36	The development of a real-time Monitoring system for the ATLAS Tile Calorimeter Phase-II Upgrades	GOLOLO, Mpho	University of the Witwatersrand
50	Integration of the ALTI module in the ATLAS Tile Calorimeter system	TLOU, Humphry	University of the Witwatersrand
53	Quality control software development for testing the next generation of upgraded low voltage power supplies for the ATLAS Tile Calorimeter	NKADIMENG, Edward	University of the Witwatersrand
63	A Burn-in test station for the ATLAS Phase-II Tile-calorimeter low-voltage power supply transformer-coupled buck converters	MCKENZIE, Ryan	University of the Witwatersrand
122	A Zinc Oxide(ZnO) Gas Sensor Approach To Measure Oxidizing Gases	PHAKATHI, Lungisani	University of Zululand
124	ENHANCING ZINC OXIDE GAS SENSING DEVICE FOR MICRO-CONTROLLER APPLICATION	GUMEDE, Sanele Scelo	University of Zululand
136	A review of solar food dryers with thermal energy storage.	MOTHUPI, Molebogeng	-
138	A REVIEW ON MODELLING OF SOLAR FOOD DRYERS WITH THERMAL ENERGY STORAGE	RAMOKALI, Masodi	-
139	Influence of coating techniques on the structural and optical properties of α -Fe ₂ O ₃ nanostructures	HOLTZHAUSEN, Adiel	University of Pretoria
147	Seed-Mediated synthesis and application of Gold nanorods in Organic Solar Cells	MNGUNI, Siphesihle	University of Pretoria

Track F - Applied Physics

ID	TITLE	AUTHORS	AFFILIATION
193	Effects of partial soiling on Thermal Infrared imaging of crystalline PV modules	VUMBUGWA, Monphas	Nelson Mandela University
224	Effects of deposition cycle and heating rate on the structural, optical and photocatalytic properties of electrodeposited hematite films	POOE, Willia	University of Pretoria
233	Modulating properties of solid carbon nanospheres via ion implantation with heteroatoms.	DERRY, Trevor	University of the Witwatersrand
264	High resolution Laplace deep-level transient spectroscopy characterization of radiation induced defects in germanium.	THABA, Cambel	University of Pretoria
281	NUCLEAR-MEDICAL TECHNIQUES IN 4IR DIAMOND MINING	GIDEON BENTUM	University of Johannesburg
282	Growth and characterization of CZTS and CZTSSe for solar cell application	MZAMO, Sibusisiwe Phindile	University of Pretoria
318	COMPUTED TOMOGRAPHY RECONSTRUCTION FOR THE REDUCTION OF THE EFFECTS OF METALLIC INCLUSIONS	CHINAMATIRA, Gideon	University of the Witwatersrand
34	Analysis of UOC for nuclear forensics using Scanning Electron Microscope	MOKHINE, Naomi Dikeledi	North-West University
221	Investigation of the Rare Earth Elements Pattern for uranium attribution in nuclear forensics environment	KUPI, Tebogo	North West University
263	Forecasting photovoltaic power generation using the temperature-based model – A case study at Vuwani Science Resource Centre	MASEVHE, Livhuwani	-

Track G - Theoretical and Computational Physics

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93	Investigating New Computational Techniques for Solving Black Hole Perturbation Equations.	NCUBE, Anele	University of Johannesburg
96	On the advantages of relative Toffoli gates	SKOSANA, Unathi	Stellenbosch University
161	TI CONTENT ON THE MAGNETIC AND MECHANICAL PROPERTIES OF B2 FeCo ALLOY: A COMPUTATIONAL STUDY	LEDWABA, Tebogo	University of Limpopo
171	Studies on surface properties of SnO2 doped with Nitrogen, Antimony and Molybdenum	NDITSHENI, NEKHWEVHA	University of Venda
194	First principle study of Hematite (α -Fe2O3) surface structures doped with Copper (Cu) Titanium (Ti) and Nickel (Ni).	MABASO, CLARENCE VUSI	University of Venda
213	Density Functional Study on the adsorption of O2 and H2O on PtSb2 (100) surface.	MANGWEJANE, Samuel Seshupo	University of Limpopo
216	A QUANTUM LOOK AT DIFFERENCE-FREQUENCY GENERATION	PERMAUL, Tanita	University of KwaZulu-Natal

Track G - Theoretical and Computational Physics

ID	TITLE	AUTHORS	AFFILIATION
234	Robust control of quantum systems by quantum systems	ROUILLARD, Amy	University of KwaZulu-Natal
303	Statistical and Thermal Models for Heavy Ion Collisions and Astrophysics	MAFUNE, Khodani	UNIVEN
308	Correlations in Multiple Gluon Bremsstrahlung following a Hard Scattering Event	RENECLE, Antonio	University of Cape Town
311	Jet transverse momentum broadening	CLAYTON, Hannah	University of Cape Town
326	Equation of State of Neutron stars	GOPAL, Sumeera	University of the Western Cape
333	Bjorken Hydrodynamics for Heavy Ion Collisions	SEABI, Magdeline Mohlao	University of the Western Cape
86	Looking for Lorentz invariance violation (LIV) in the latest long baseline accelerator neutrino oscillation data	RAHAMAN, Ushak	University of Johannesburg
111	Dark matter searches through dark photons and heavy top quark partner	VAN DER SCHYF, Hannah	University of the Witwatersrand
291	Warm Inflation and Swampland Conjecture	SHEIKHAHMADI, Haidar	North West University

