SAIP2025 Poster Session 1
Wednesday 09 July 2025
16h10 - 18h00

Abstract ID & Poster Board #	Presenter (Affiliation)	Title	Student award level	Accepted track
18	Japie Engelbrecht (Nelson Mandela University)	An anomaly in a formula to calculate the refractive index of AlxGa(1-x)As	None	Track A - Physics of Condensed Matter and Materials
24	Jean Jules Mboukam (Tshwane University of Technology)	Structural and electrical transformations of Ag-implanted polyethylene terephthalate (PET) induced by swift heavy ion irradiation	None	Track A - Physics of Condensed Matter and Materials
28	lynet Allan (University of Nairobi)	First-Principles Study of ZrCo2Y/ZrCoY (Y=Sb, Bi, As)Interface for Thermoelectric Applications	PhD	Track A - Physics of Condensed Matter and Materials
29	Edwine Ntobe Matlou (University of LImpopo)	Potential Manganese Oxide (MnXOY) Catalysts for Oxygen Reduction Reaction (ORR)	Honours	Track A - Physics of Condensed Matter and Materials
37	Mamogo Masenya (iThemba LABS)	Stopping Force Measurements of 12C, 28Si, and 59Co Ions in Platinum Foils using Time-of-Flight Spectrometry	None	Track A - Physics of Condensed Matter and Materials
40	Bradley Nemutudi (University of Limpopo)	Interactions of s-triazine, xanthate and dithiocarbamate collectors on platarsite (100) surface at different pH conditions: A DFT-D3 study	PhD	Track A - Physics of Condensed Matter and Materials
42	Ivyn Ndhlovu (University of Limpopo)	Investigate the bulk and surfaces properties of PtAs2, PtSb2 and PtBi2 PGMs using the Ab-Initio Molecular Dynamics (AIMD) with Machine Learned Force Fields (MLFF) technique	MSc	Track A - Physics of Condensed Matter and Materials
44	Sibusiso Nqayi (University of Johannesburg)	Application of Crystal Field Theory in Understanding Magnetic Transitions: Correlating Structural, Chemical, and Magnetic Properties in $Sm_2MnB'O_6$ (B' = Mn, Ce and Ru)	None	Track A - Physics of Condensed Matter and Materials
53	Bridget Mokgabudi (University of Limpopo)	Effects of Tin (Sn) doping on the layered LiMnO2 cathode material for Lithium-ion batteries	Honours	Track A - Physics of Condensed Matter and Materials
56	Mubarak Yagoub (University of Johannesburg)	Up-conversion and thermometric performance of CaF2:Tb3+, Yb3+ material	None	Track A - Physics of Condensed Matter and Materials
66	Azile Same (University of Fort Hare)	Ab initio study of Structural, energetic, electronic, and mechanical properties of Pmmn-V2O5 and Pnma-V2O5 polymorphs through Density Functional Theory Analysis	MSc	Track A - Physics of Condensed Matter and Materials
77	Christy Graced	Adsorption behavior of ternary Fe1-XYXAl alloy with H2O and O2	PhD	Track A - Physics of Condensed Matter and Materials
97	Tshepo Ronaldo Maaka (University of Limpopo)	Investigation of the (Pt,Pd)BiTe and (Pt,Pd)Te2 bulk and surface stability at 300K using AIMD-MLFF	MSc	Track A - Physics of Condensed Matter and Materials
100	Pabalelo Malatjie (University Of Limpopo)	Co3O4 Surface Studies and Adsorption of Li2O2 Nanocluster	Honours	Track A - Physics of Condensed Matter and Materials
108	Precious Makhubela (University of Limpopo)	Analysing Core-Shell Compatibility During the Cycling Process Using Molecular Dynamics Simulations	PhD	Track A - Physics of Condensed Matter and Materials
111	Mallasaitiwa Mphahlele	Investigating the effects of Nickel and Phosphorus on the properties of copper using a first-principles approach.	PhD	Track A - Physics of Condensed Matter and Materials
118	Mphamela Enos Baloyi (University of Limpopo)	The effect of Ce and Gd on the magnetic and mechanical properties of Nd2Fe14B permanent magnets	None	Track A - Physics of Condensed Matter and Materials
123	Macheba Matakgane (Sefako Makgatho Health Science University)	Hydrothermal Synthesis of ZnO-TiO2: Yb3+/Ho3+ Phosphor Heterostructures for Up-conversion Luminescence Applications.	PhD	Track A - Physics of Condensed Matter and Materials
133	Oswald Roberts	Insights into the Structural, Thermodynamic, Electronic, and Mechanical Properties of CaMn2O4 Polymorphs via Density Functional Theory Analysis	PhD	Track A - Physics of Condensed Matter and Materials

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137	Sanele Dlamini (University of Mpumalanga)	Structural and Magnetic Properties of $Ni_{0.5}M_{0.5}Al_{0.1}Fe_{1.9}O_4$ (M = Zn, Mn, Mg) Ferrites	None	Track A - Physics of Condensed Matter and Materials
141	Luwy Swanepoel	Investigation of Poly(2,5)-benzimidazole (ABPBI)-Carbon Nanotube Composites for LEO Applications: An Integrated Computational and Experimental Study	Honours	Track A - Physics of Condensed Matter and Materials
145	Pankaj Mohanty (University of Johannesburg)	Synthesis and characterization of Gd2CoTO6 (T = Mn, Fe)	None	Track A - Physics of Condensed Matter and Materials
148	Khomotso Maenetja (University of Limpopo)	First-Principles Study of Nb/Mn Doping on $LiNiO_2$ (101) Surface And It's Interaction With Ethylene Carbonate	None	Track A - Physics of Condensed Matter and Materials
151	Kagiso Mashishi (University of Limpopo)	Theoretical Insights into Mooihoekite: A DFT-D Investigation of the bulk properties.	MSc	Track A - Physics of Condensed Matter and Materials
154	Caroline Ratlhagane	Annealing-Driven Structural and Optical Properties in $BaAl_2O_4/MgAl_2O_4:Tb^{3+}$ Mixed-Phase Nanophosphors Prepared by Citrate Sol-Gel Method	PhD	Track A - Physics of Condensed Matter and Materials
155	Mmeshi Jassicon Hiine	First-Principles Study of Mn-Doped $LiNiO_2$ (101) Surface and Its Interaction with Ethylene Carbonate Electrolyte	MSc	Track A - Physics of Condensed Matter and Materials
160	Malili Matshaba	Surface Properties of Nickel and Silver Metals	None	Track A - Physics of Condensed Matter and Materials
162	Mongezi Sean Mthimkulu	Optimisation-Deposition and Conversion of Lead Halide Thin Films to 2D Metal Halide Perovskite Thin Films via Low-Pressure CVD	MSc	Track A - Physics of Condensed Matter and Materials
167	Machaba Leanyatsa Abraham Letswalo (University of Johannesburg)	Study on the impact of Pr3+, Ce3+, and Pb2+ ions on luminescence properties of BaB8O13:Gd3+ for potential applications in phototherapy.	None	Track A - Physics of Condensed Matter and Materials
171	Amanda Sefage (University of Johannesburg)	Luminescence Study on the Impact of Alkaline Earth Metal Ions on Na3PO4:Ce3+ Phosphors for Colour Display Applications.	PhD	Track A - Physics of Condensed Matter and Materials
180	Eldas Maesela (Council for Scientific and Industrial Research)	Polyethylene glycol stabilized rGO/AuNP nanocomposites: Enhanced stability for sensing and biomedical applications.	MSc	Track A - Physics of Condensed Matter and Materials
188	Segoarihle Ntobeng (University of Limpopo)	Computational insights into the bulk and surface properties of cobaltite: A combined DFT-D+U and atomistic simulation study	PhD	Track A - Physics of Condensed Matter and Materials
202	Chewe Fwalo (University of Pretoria)	Probing the catalytic effects of beta-12 borophene cathode on various lithium and sodium oxide discharge products: A first-principles study	PhD	Track A - Physics of Condensed Matter and Materials
203	Brian Lutendo Munyai (Sefako makgatho health sciences university)	Annealing time-dependent Structural, morphological, and optical properties of Eu^{3+}-doped $BaAl_2O_4/MgAl_2O_4$ mixed phases nanophosphors synthesized via sol-gel method	MSc	Track A - Physics of Condensed Matter and Materials
211	Samkelo Bixa	ZnMn2O4-Based Anode Materials for Advanced Li-ion Batteries: A Study on the Impact of Co, Ni, and Cu partially substitution on Electrochemical Performance.	MSc	Track A - Physics of Condensed Matter and Materials
215	Ncembu Onke Ngubelanga (University of Zululand)	Structural and Optical properties of rare-earth doped Magnesium ferrites	MSc	Track A - Physics of Condensed Matter and Materials
223	Leago Heaven Pitsa (University of Limpopo)	First-Principles Study of Anion-Doped $LiTi_2(PO_4)_3$ Solid Electrolytes.	MSc	Track A - Physics of Condensed Matter and Materials
224	Bonginkosi Richard Zikhali (University of Zululand)	Investigation of the radiation shielding properties of borosilicate glass configurations with varying concentration of Ta2O5, La2O3, and Sm2O3	PhD	Track A - Physics of Condensed Matter and Materials

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232	Thato Manyama (University of Limpopo)	Exploring the bulk and surface structures of ZnS, FeS2 and PbS minerals using AIMD-MLFF technique.	PhD	Track A - Physics of Condensed Matter and Materials
233	Peace Mkhonto (University of Limpopo)	Interaction of modified heterocyclic collectors with chalcopyrite mineral surface	None	Track A - Physics of Condensed Matter and Materials
235	Sikho Maxhayi (University of Fort Hare)	Ab Initio Studies of Structural, Thermodynamic, Magnetic, and Mechanical Properties of Mn-Ir Alloys	MSc	Track A - Physics of Condensed Matter and Materials
239	Redrisse Djoumessi Fobasso (University of Johannesburg)	Thermodynamic Properties of (Pr,Gd)OsGa4 Intermetallic Compounds	None	Track A - Physics of Condensed Matter and Materials
241	Redrisse Djoumessi Fobasso (University of Johannesburg)	Perovskites in the Quantum Age: Bridging Materials Science and Technologies	None	Track A - Physics of Condensed Matter and Materials
248	Andile Mazibuko (University of Limpopo)	Modelling the thermodynamic properties of TiCl3 medium	PhD	Track A - Physics of Condensed Matter and Materials
249	Njabulo Sithole (University of Limpopo)	Optimising Buckingham interatomic potentials for use in molecular dynamics using DFT total energies Na-doped Li-rich Li1.2Mn0.8O2 Cathode Simulation	PhD	Track A - Physics of Condensed Matter and Materials
255	Khulekani Manqele	Effect of hydrogen in the migration of Sr implanted into SiC	PhD	Track A - Physics of Condensed Matter and Materials
267	Thabiso Mathews (University of Pretoria)	Surface Modified Glassy Carbon for Improved Fibronectin Protein Adsorption and Bioactivity in Bone Implants	PhD	Track A - Physics of Condensed Matter and Materials
270	Bridgette Kabekwa	AB-INITIO study of structural, elastic, electronic and optical properties of ABX3 based perovskites for solar cell application	MSc	Track A - Physics of Condensed Matter and Materials
271	Lucas Melato (Wits University)	Atmosphere-Dependent Annealing of ZnO Nanoparticles: Implications for Photodetector Performance and Electrochemical Response	PhD	Track A - Physics of Condensed Matter and Materials
272	Arnold Mutubuki (Nelson Mandela University)	Structural and optical properties of natural single crystalline TiO2	PhD	Track A - Physics of Condensed Matter and Materials
274	Tshegofatso Mashabela (University of Pretoria)	Growth Kinetics and Structural Evolution of Apatite Coatings on Titanium Alloy in Simulated Body Fluid.	PhD	Track A - Physics of Condensed Matter and Materials
275	Emmanuel Diutlwetse Magasi (University of Johannesburg)	Investigating the Correlation between Magnetic and Photoluminescent Properties of Fe3+ doped ZnAl2O4: A Multifunctional Material for Emerging Applications.	MSc	Track A - Physics of Condensed Matter and Materials
280	Samson Singo (University of Limpopo)	Examining the structural, mechanical and electronic properties of Si-C composite for next-generation anode material	Honours	Track A - Physics of Condensed Matter and Materials
281	Barnard Molala (University of Limpopo)	Ab initio density functional theory of Fe5Ni4S8 (P4_2/nmc) (311) and (111) surfaces : Computational study	PhD	Track A - Physics of Condensed Matter and Materials
286	Ntokozo Cebekhulu	Investigation of samarium-doped hematite nanostructure prepared by hydrothermal method: characterization and application	PhD	Track A - Physics of Condensed Matter and Materials
11	Mbulelo Dondolo	Probabilistic Risk Assessment for Calculating Health Effects Associated with a Potential Nuclear Accident in the Vicinity of a Nuclear Facility	PhD	Track B - Nuclear, Particle and Radiation Physics
32	Edward Nkadimeng (iThemba LABS)	Technology Innovation Platform at NRF-iThemba LABS	None	Track B - Nuclear, Particle and Radiation Physics
35	Oluwakayode Oyedokun (North-West University)	Fuzzy-based criterion for groundwater quality classification in some rural parts of North-West Province, South Africa	None	Track B - Nuclear, Particle and Radiation Physics
71	Vuako Maluleke (University of Venda, iThemba LABS)	Enhancing Gamma-Ray Spectrometry Through Convolutional Neural Networks and Kolmogorov–Arnold Networks	MSc	Track B - Nuclear, Particle and Radiation Physics

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125	Tshegofatso Bokhutlo (Botswana International University of Science and Technology)	Characterization of instrumental background in a (p,γ) reaction, studied at the iThemba LABS Tandetron facility	MSc	Track B - Nuclear, Particle and Radiation Physics
127	Thabo Pilusa (University of the Witwatersrand)	Burn-in Testing for Transformer-Coupled Buck Converters in the ATLAS Tile Calorimeter's Low Voltage Power Supplies	PhD	Track B - Nuclear, Particle and Radiation Physics
179	Ernest Ejeh (iThemba LABS)	Multiple Outer-Shell Ionization Induced by Heavy Ion Impact on Bi, Gd, and Y Targets.	None	Track B - Nuclear, Particle and Radiation Physics
200	Nosihle Msabala (University of Zululand)	Investigation of X-rays and Gamma-ray Shielding Properties of Heavy Metal Oxide Glass Materials	MSc	Track B - Nuclear, Particle and Radiation Physics
213	Nidhi Tripathi	Comparative Analysis of Deep Neural Networks and XGBoost for γγ + τ Signal-Background Classification Using Monte Carlo Data at the LHC	PhD	Track B - Nuclear, Particle and Radiation Physics
240	Karabo Tau (University of the Witwatersrand)	Using Machine Learning algorithms in the search for dark photons with the ATLAS detector at the LHC.	MSc	Track B - Nuclear, Particle and Radiation Physics
250	Vongani Chabalala (University of the Witwatersrand)	Quality Assurance for LVPS Bricks in the Phase-II Tile Calorimeter Upgrade.	PhD	Track B - Nuclear, Particle and Radiation Physics
265	Gcobani Ntshobeni (University of Pretoria)	The influence of helium (He) bubbles on the migration behavior of silver (Ag) and strontium (Sr) co-implanted into polycrystalline silicon carbide (SiC) during isochronal annealing.	PhD	Track B - Nuclear, Particle and Radiation Physics
430	Joshua Browne (University of Cape Town)	Study of Parton Distribution Functions using the Muonic Decay Channel of Electroweak Bosons at ALICE	MSc	Track B - Nuclear, Particle and Radiation Physics
450	Stephen Friday OLUKOTUN (North-West University)	Nuclear Forensic Science: A Tool for Mitigating Environmental Impact and Risks Associated with Nuclear Wastes	None	Track B - Nuclear, Particle and Radiation Physics
508	Gaurav Lall (University of the Witwatersrand)	FLUKA Simulations of Gamma Irradiation Effects on Dynode Materials for the ATLAS TileCal	None	Track B - Nuclear, Particle and Radiation Physics
521	Salmaan A Barday (University of Cape Town)	Track Matching Using ML Techniques in the ALICE Muon Forward Tracker	MSc	Track B - Nuclear, Particle and Radiation Physics
46	Sipho Chauke (Council for Scientific and Industrial Research)	A comparison of two biosensing recognition elements using SPR for the detection of drug-resistant genes	PhD	Track C - Photonics
186	Christopher Rawlings (University of the Witwatersrand)	How to Build and Benchmark an Optical Neural Network Using Multimode Fibres	MSc	Track C - Photonics
308	Jacques Buÿs (Stellenbosch University)	Computational framework for light-sheet fluorescence image processing.	MSc	Track C - Photonics
310	Vasili Cocotos (University of the Witwatersrand)	Simulating the Sky: Digitizing Atmospheric Turbulence	MSc	Track C - Photonics
320	Cade Peters (Univeristy of the Witwatersrand)	The behaviour of vectorial structured light through real-world atmospheric turbulence	PhD	Track C - Photonics
321	Hadrian Bezuidenhout (University of the Witwatersrand)	Matrix Optimisation with Light-speed Multiplication	MSc	Track C - Photonics
323	Pedro Dinis Ornelas (University of the Witwatersrand)	Protecting quantum information using topological armour	PhD	Track C - Photonics
327	Sachleen Singh	Nonlinear control of structured light	PhD	Track C - Photonics

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334	Neelan Gounden (University of the Witwatersrand)	Deconstructing a high dimensional mug into 2 dimensional donuts	PhD	Track C - Photonics
346	Moslem Mahdavifar (University of the Witwatersrand)	3D printed optics achieves broadband structured light	None	Track C - Photonics
366	Shuailing Wang (Tongji university)	Enhancing the Robustness of Structured Light Communication via Skyrme Number in Complex Medium	PhD	Track C - Photonics
384	Tatjana Kleine (University of the Witwatersrand)	Engineering Exotic Hybrid States	MSc	Track C - Photonics
392	Fazilah Nothlawala (University of the Witwatersrand)	Grover's ghost: Quantum searches in a new light	MSc	Track C - Photonics
424	Michael Mcoyi (Council for Scientific and Industrial Research)	Label-free optical biosensing as an alternative for HIV-1 drug resistant mutation detection	PhD	Track C - Photonics
572	Subith Kumar Purakkatteri Meethal	Hilbert's Hotel paradox Using structured light	None	Track C - Photonics
573	Ram Kumar (University of the Witwatersrand)	Spatially resolved spin angular momentum mediated by spin-orbit interaction in tightly focused spinless vector beams in optical tweezers	None	Track C - Photonics
38	Joseph Omojola (North-West University)	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	None	Track D2 - Space Science
47	Goratamang Ann Gaedie (North-West University/South African Astronomical Observatory)	Developing a critical component of a fiber cable for the Affordable Multiple Aperture Spectroscopy Explorer Prototype (AMASE-P)	MSc	Track D1 - Astrophysics
70	Christo Pretorius (North-West University)	MHD simulations of Lambda Cephei like astrospheres	Honours	Track D1 - Astrophysics
84	Muano Mbedzi	Long-term Be disc structural study of Be X-ray binaries using MeerLICHT	Honours	Track D1 - Astrophysics
169	Marcel van der Westhuizen (North-West University)	Understanding Interacting Dark Energy from a Dynamical Systems Analysis Approach	PhD	Track D1 - Astrophysics
194	Obakeng Phiri	The evolution of the 98 GHz ACT source population since z = 4.5	MSc	Track D1 - Astrophysics
254	Sello Motsoane	Search for variable stars in Kepler database	Honours	Track D1 - Astrophysics
263	Thando Kekana (University of Johannesburg)	The Evolution of the Infrared–Radio Correlation with Redshift and Stellar Mass for galaxies in the MIGHTEE COSMOS field.	PhD	Track D1 - Astrophysics
295	Jaydon Durow	Identification of Cosmic Filaments using the Simba-C simulation and DisPerSE Filament Finder	Honours	Track D1 - Astrophysics
410	Raees Noorbhai (University of the Witwatersrand)	The Evolution of the Dark Matter Paradigm	None	Track D1 - Astrophysics
455	Javeria Makda (University of the Witwatersrand)	Looking for axion decay around a black hole	PhD	Track D1 - Astrophysics
486	Phemelo Motloba (North-West University)	Using different Vlsr ’s to obtain better-pointing statistics and source confu- sion insights	Honours	Track D1 - Astrophysics
182	Amarachi Albert (University of Johannesburg, Laser Research Centre)	TGF-β Pathway Modulation: A Key Mechanism of Photobiomodulation Induced Tenogenesis	None	Track C - Photonics