Session Program

6–10 Jul 2026

SAIP2026

Poster Session 2

University of the Western Cape

Wednesday 8 July

16:20

Poster Session 2

Session | **Location:** University of the Western Cape, Great Hall

16:20–17:40 **Structural and gas sensing properties of Co3O4 prepared by the Hydrorthemal method.**

Speaker
Prince Mkwae

16:20–17:40 **AIMD-MLFF study of bulk, surface and collector's adsorption on sperrylite (PtAs2) mineral**

Speaker
Ivyn Ndhlovu

16:20–17:40

Influence of A- and B-Site Cation Substitution on the Structural, Thermodynamic, and Magnetic Properties of Brownmillerite $A_2B_2O_5$ (A = Sm, Ce; B = Ni, Co) Nanoparticles

Speaker
Khethiwe Cele

16:20–17:40

STRUCTURAL AND THERMOLUMINESCENCE PROPERTIES OF ZINC TITANATE (ZnTiO3) NANOSTRUCTURES

Speaker
Nolufundo Sintwa

16:20–17:40

Experimental and Computational Insights into Structure and Upconversion in Spinel Zn2TiO4:Er3+,Yb3+

Speaker
Sefako John Mofokeng

16:20–17:40 **Investigation of Ti4Nb2Pt2 shape memory alloys from binary phase diagram**

Speaker
Dr Mordecai Mashamaite

16:20–17:40

Rational Fabrication of p-n Co3O4 /Fe2O3 Heterojunction for Improved BTEX Gas Sensing

Speaker
Mr Suggest Baloyi

16:20–17:40

Comparison study on the TeO2-based materials developed using HNO3 and H2O2 for gas sensing applications

Speaker
TUMI KEVIN MGAGA

16:20–17:40 **Engineering of MoS_2-based sensor toward ppb-level H_2S detection.**

Speaker
Ntsako Jason Mathebula

16:20–17:40

Synergistic Charge Transport and Defect Chemistry in SrTiO3/Ti3C2Tx MXene Composites for Low Temperature Toluene Sensing.

Speaker
Nkosikhona Dlamini

16:20–17:40 **Adsorption studies of dithiocarbamate collectors on the mooihoekite (402) surface**

Speaker
Kagiso Mashishi

16:20–17:40 **The real-time detection of H2S based on a CuO/CeO2 sensor**

Speaker
Ms Karabo Lurcender Bridgette Masilela

16:20–17:40 **Implementing a Charm Equation of State in the QGP Hydrodynamic Simulation, Trajectum**

Speaker
Liam Harris

16:20–17:40

Enhanced toluene detection using Ag-functionalized high surface area Cr2O3@SnO2 core–shell heterostructure-based gas sensor

Speaker
Kholofelo Mohloishane Seloane

16:20–17:40 **Near- Redundant Calibration of HIRAX Visibility Simulation Data.**

Speaker
Luyanda Khanyile

16:20–17:40

Microscopic derivation of Open Quantum Brownian Motion for a particle in a potential with external periodic driving

Speaker
Sindiswa Nhlapo

16:20–17:40 **CHEMICAL SURFACE PROPERTIES OF MN3O4 (001), (010) & (100) FACETS.**

Speaker
Edwine Matlou

16:20–17:40

Investigation of antiferromagnetic hematite bulk and surface properties using ab-initio method

Speaker
Mariah Madie

16:20–17:40

First-principles study on Tin-doped Li1.2Mn0.8O2 cathode material for Lithium-ion batteries

Speaker
RAMAABELE BRIDGET MOKGABUDI

16:20–17:40

Density Functional Theory Driven Numerical Analysis of High-Efficient CsGeBr3 Perovskite Solar Cells

Speaker
Mr Kamogelo Sebolai

16:20–17:40

Computational Study of Thermodynamic, Mechanical, and Electronic Properties of LiMn1.5Ni0.5O4 Cathode Material

Speaker
Ms Thandi Mulaudzi

16:20–17:40 **Electronics and structural properties of Indium Selenide**

Speaker
Mr Tsietsi Rex Mooka

16:20–17:40

DEVELOPMENT OF MACHINE LEARNING MODELS TO PREDICT PROPERTIES OF HALIDE PEROVSKITE MATERIALS

Speaker
Ms Angela Mmasefako Maboa

16:20–17:40 **Ab initio study of thermodynamic, mechanical and vibrational properties of FePt-Cu alloys**

Speaker
Mr Mashilo Matlala

16:20–17:40 **Enhancing V2O5 Nanostructures Properties Via Ag Doping for Gas Sensing Applications**

Speaker
Perseverence khosa

16:20–17:40

Molecular Dynamics Insights into the Properties of Pyrite-Type RuS_2: A Computational Study

Speaker
Monyeseroba Immaculate

16:20–17:40

Investigation of Silver and Cesium Migration and Structural Evolution in 6H-SiC Following Helium, Silver and Cesium Implantation and High-Temperature Annealing

Speaker
Nhlakanipho Mantengu

16:20–17:40 **Surface and electronic properties of LiTi2(PO4)3 as solid-state electrolyte: A DFT study**

Speaker
Leago Heaven Pitsa

16:20–17:40

Molecular dynamics simulations of TiO2 nanomaterials as a future anode electrode material

Speaker
Thamia Molefe

16:20–17:40

Synthesis, structural, and photoluminescent properties of green emitted Eu2+ doped SrAl2O4 phosphor

Speaker
Lethabile Masiu

16:20–17:40

Enhancing Structural Stability and Lithium Mobility in Spinel Cathodes via Prelithiated Core–Shell Engineering

Speaker
MOGAU KGASAGO

16:20–17:40 **Transport of Single Electrons on Superfluid Helium**

Speaker
Friedrich Voelcker

16:20–17:40 **The Heat Rate Kinetics on the Liquefied Gases During Sensing**

Speaker
Welcome Komana

16:20–17:40
Phase Stability and Atomic Ordering in MnPt1-xRux Alloys: A Cluster Expansion and First-Principles Investigation

Speaker
Thabang Kombesi

16:20–17:40
Synergetic Effect of Rare-Earth (Ce) Doped on Gas Sensing Properties of Cobalt Nickel Ferrites Nanoparticles.

Speaker
Mr Victor Sokhela

16:20–17:40 **Topology and Electrical Properties of Printed Silicon Nanoparticle Networks**

Speaker
Mr Siphumliso Mbidana

16:20–17:40 **Surface and electrical properties of high energy milled silicon nanoparticles**

Speaker
Nangamso Ndzamela

16:20–17:40
Effect of annealing temperature on structure, morphology, and optical properties of La2Z nTiO6

Speaker
Asanda Lakaje

16:20–17:40 **Space-time light sculpturing by bound states in the continuum**

Speaker
Kelsey Everts

16:20–17:40 **Phase stability of Ga-Doped MnAl using a Cluster Expansion Approach**

Speaker
Mr Thabang Mokwena

16:20–17:40 **Investigating the Implications of a Constant Density Profile in Stellar Convective Zones**

Speaker
Terry Mark Tukamusaba

16:20–17:40 **A Cosmological Framework with Variable Fundamental Constants**

Speaker
Bekithemba Sibanda

16:20–17:40

Employing Empirical Mode Decomposition for Investigating Temporal Systematics in HERA observations

Speaker
Mekuanint Kifle Hailemariam

16:20–17:40

From One to Eight: Supersymmetry Restoration in Lattice 3D ${\cal N} = 4$ Super Yang--Mills

Speaker
Dario Van den Berg

16:20–17:40

Trends in Maximum and Minimum Temperatures in Vuwani: Insights from the Southern African Universities Radiometric Network

Speaker
Muano Mbedzi

16:20–17:40

Comprehensive Ab-Initio Study of Optoelectronic Properties of CsGeBr3 using Quantum Espresso and WanTiBEXOS.

Speaker
Mr Kamogelo Sebolai

16:20–17:40

DFT screening of interfacial properties in Cbznaph-SAMS for stable inverted perovskite solar cells.

Speaker
Dr NEANI TSHILANDE

16:20–17:40 **Geometric Modelling of Crab-like and Vela-like Pulsar Systems**

Speaker
Mr Trevor Nyambe

16:20–17:40

Dopant-Concentration Dependence of Structural and Transport Properties in Ni/Co-Doped LiMn2O4 spinel from Molecular Dynamics Simulations

Speaker
Mr Tharollo Malepe

16:20–17:40

Refractory High-Entropy Silicide–Boride Compounds $V_{10}Si_6B$ and V_5Si_3B for High-Temperature Structural Applications

Speaker
Ibrahim Ali

16:20–17:40

Molecular Insights into Novel Collector Adsorption on Hydrated Spodumene and Feldspar Surfaces: An AIMD-MLFF Study

Speaker
Lesetja Matlabjane

16:20–17:40

First-Principles Study of a Novel ZrSC Janus Monolayer: Structural, Mechanical, Vibrational, and Electronic Properties

Speaker
Edwin Mapasha

16:20–17:40
Thermoluminescence and kinetic parameters of ErTaO4, synthesized by the solid-state reaction method

Speaker
Dr Dumisani Mlotswa

16:20–17:40 **Influence of Ta on the Magnetic and Mechanical Properties of Fe50Co43.75Pt6.25 Alloy**

Speaker
Dineo Maepa

16:20–17:40
Investigating the maslovite (PtBiTe) surface stability and adsorp-tion of SDTBAT and SBOTTAs collectors using standard DFT and AIMD-MLFF.

Speaker
TSHEPO RONALDO MAAKA

16:20–17:40
Transport Properties Insights toward the Enhancement of Bulk $LiTi_2(PO_4)_3$ Solid-State Electrolyte Materials

Speaker
Lisbon Maake

16:20–17:40 **Pulse profiles of the RRAT J1819-1458**

Speaker
Kevin Rorke

16:20–17:40
The effect of temperature on structural, and thermal properties of ZrTiVNbCr high entropy alloy

Speaker
Ms Lebogang Motsomone

16:20–17:40
Synthesis and electron spin resonance study of MgxZn1-xAl0.4Fe1.6O4 nanocrystalline compounds

Speaker
Nwabisa Mkhize

16:20–17:40
A Simulation of Galactic Proton Spectrum Observed Over Solar Minimum Period of Solar Cycle 24

Speaker
THATO MAJA

16:20–17:40 **Response of Topside Ionospheric Electron Density during Solar Flares**

Speaker
Kenny Monontsi

16:20–17:40
Algorithm for detecting Radio Frequency Interference (RFI) in MeerKLASS Intensity mapping Data

Speaker
Tamera Kassie

16:20–17:40

Unravelling the adsorption behaviour of modified heterocyclic collectors on pyrite mineral surface

Speaker
Prof. Peace Mkhonto

16:20–17:40

Enhancing the Thermodynamic Stability and Mechanical Properties of FCC Platinum through Vanadium and Chromium Alloying, for jewellery application: A DFT Study

Speaker
Mr Mawisha Jan Mafifi

16:20–17:40

Effect of thermal annealing on the structural, optical and thermoluminescent properties of NaYF4 nanoparticles

Speaker
Prof. Pontsho Mbule

16:20–17:40

Thermal Evolution of Structure and Morphology in Noble Metal-Doped TiO_2: A Comparative XRD and SEM Study of Au and Pt Stability and Phase Transformation Dynamics from 100 to 1100 °C

Speaker
Olatunbosun Nubi

16:20–17:40 **Probing the Overabundance of X-type Asteroids Among Small Near-Earth Asteroids**

Speakers
Thobekile Ngwane, Christine Margarete Steenkamp

16:20–17:40

Comparative gas sensing performance of LaFeO3 and SmFeO3 perovskite nanoparticles prepared by Hydrothermal Method .

Speaker
Philani Kunene

16:20–17:40 **AUTOMATED FOURIER ANALYSIS WITH PYTHON**

Speaker
Sibongile Majola

16:20–17:40 **Effect of Shell Thickness on Interfacial Stability in Li2MnO3 Core–Shell Cathodes**

Speaker
Tshidi Mogashoa

16:20–17:40 **Fabrication of Co3O4 Co-doped with NiZn for Selective LPG Gas Sensing**

Speaker
Mondli Ntshangase

16:20–17:40

Hydrothermal fabrication and temperature-dependent magnetic properties of cobalt nanoferrite for high-frequency devices

Speaker
Dr Amos Nhlapo

16:20–17:40 **Investigation of the redox characteristics of the Co_3O_4 (001) surface**

Speaker
Pabalelo Malatjie

16:20–17:40 **Thermoluminescence of ajoite**

Speaker
Dr Bereket Dalga Dana

16:20–17:40

Volatile Organic Compound Sensor Based on 2D NiO-WS2 Heterostructured Nanomaterials

Speaker
Teboho Mokoena

16:20–17:40

Solid-state synthesised Zn doped CdO nanoparticles for potential supercapacitor applications

Speaker
Mpho Maswanganye

16:20–17:40

Fluorine-Doped Siligraphene (SiC_2): A Cluster Expansion and DFT Study of Stability, Electronic, and Mechanical Properties.

Speaker
Samson Singo

16:20–17:40

Electron spin resonance study of Ce3+ and Dy3+ ions substituted cobalt and nickel nanoferrites : Low field microwave absorption

Speaker
Anele Madlala

16:20–17:40

Deep-Level Defects in Electron-Irradiated n-GaAs Investigated by Conventional, Laplace DLTS and Admittance Spectroscopy

Speaker
Dr Assane Talla

16:20–17:40

First-principles study of adsorption mechanisms of CO2 and CO on monolayer Nb2Se2C TMCC as an efficient gas sensor

Speaker
Dr Chewe Fwalo

16:20–17:40

Structure, Electron Spin Resonance and Magnetic Properties of Cr-Co Nanoferrite for Biomedical Applications

Speaker
Metuel Dipuo Sethosa

16:20–17:40

Investigating The Mechanical and Electronic Properties of Silver, Gold and Aluminium: First-Principle Study

Speaker
Melokuhle Hadebe

16:20–17:40 **Quantization of radiation-induced defects in SnO2 using positron lifetime components.**

Speaker
Ms Dineo Motjope

16:20–17:40

The effect of Ni and Ru substitution on structural and mechanical properties of FCC Ir. A first-principles study

Speaker
Mr Thabo Nhlakanipho Nhlenyama

16:20–17:40

A study of Phase Stability and Atomic Ordering in Quenched Fe-Ga-Tb Magnetostrictive Alloys

Speaker
Anelisiwe Gqumani

16:20–17:40

Composition-Dependent Electronic and Optical Properties of Ge-Doped $CsSnI_3$ from First-Principles Calculations

Speaker
Dr Neelam Saghir

16:20–17:40 **Confronting the Universe's Accelerating Expansion: Insights from a Hybrid Scale Factor**

Speaker
Goratamang Ann Gaedie

16:20–17:40

Optimization of lead-free BaZrS3-based perovskite solar cell for better performance using SCAP-1D

Speaker
Dr Paulinah Fasanmi

16:20–17:40

Extraction and Geospatial Analysis of Wind and Solar Power Infrastructure Using OpenStreetMap Data in African Countries

Speaker
Mr Nhlamulo Khosa

16:20–17:40 **Thermal stability evaluation of hexagonal molybdenum diselenide**

Speakers
Mr Thapelo Lebopo, Prof. Thuto Mosuang

16:20–17:40 **Automating Galaxy Classification with Unsupervised Machine Learning**

Speaker
Kirsten Elliott

16:20–17:40

Detection of the kinematic Sunyaev-Zeldovich signals using Pairwise momentum estimator.

Speaker
Ms Ayanda Mnikathi

16:20–17:40

Building a Public Database for Ground-Based Solar Observations at the North-West University

Speaker
Ruhann Steyn

16:20–17:40
Assessment of the Impact of SAIP ECD Science Skills Accelerator Programme Training on ECD Practitioners' Confidence in Vhembe District, South Africa

Speaker
Vhuhwavho Khomunala

16:20–17:40
Characterization and Analysis of Radio Sources Detected in MeerKAT Galaxy Proto-Cluster Fields

Speaker
SEKHONA TOLE

16:20–17:40 **ANALYSING VARIABILITY IN BLUEBERRY GALAXIES IN SEARCH OF AGN ACTIVITY**

Speaker
Unathi Tshabalala

16:20–17:40 **Numerical Simulation Of The Astrospheres**

Speaker
Mr Solomzi Nobute

16:20–17:40 **Field Calibration of Cosmic-Ray Neutron Sensors for Accurate Soil Moisture Monitoring**

Speaker
Aimee Dumont

16:20–17:40 **Elongated Radio Galaxies in MeerKAT Observations of Proto galaxy-clusters**

Speaker
Bevan Petersen

16:20–17:40 **Constraining Spider Pulsar Binary Plasma Properties Through Radio Eclipses**

Speaker
Thulo Letsele

16:20–17:40
Measurment of the Dark Energy Spectroscopic Instru- ment (DESI) Galaxy cluster bulky velocity with kinematic Sunyaev- Zeldovich (kSZ) signals from Atacama Cosmology Telescope Polarime- ter (ACTPol) Data Release 4.

Speaker
Mr Isaac Gwato Chitete

16:20–17:40
Adsorption of Croconate Dye (CR1) on (210) Brookite TiO2, Surface for Application in Dye-Sensitized Solar Cells (DSSCs)

Speaker
Nkosana Mkhatshwa

16:20–17:40
Chemical trends in defect stability, electronic and magnetic properties of 3d TM-doped WSe_2

Speaker
Prof. Evans Benecha

16:20–17:40 **Exploring Long-term Ionospheric Total Electron Content over South Africa.**

Speaker
Modiri Mokaila

16:20–17:40
Trends, Performance Gaps, and Systemic Inequalities in Physical Sciences Education in South Africa (2008–2023)

Speaker
Nthangeni Rofhiwa

16:20–17:40 **Luminescent Enhancement of ZnO-SnO2 Heterostructures Doped with Pr3+**

Speaker
Tahleho Mofokeng

16:20–17:40
Preliminary Experimental and Computational Investigation of Vacuum-Induced Outgassing in Poly(2,5)-benzimidazole Nanocomposites for Low Earth Orbit Applications

Speaker
Ms Luwy Swanepoel

16:20–17:40 **Effect of Zinc concentration on ZnxFe2o4 for detecting toxic and flammable gaese**

Speaker
Vuyolwethu Mhlebi

16:20–17:40
Experimental investigation of MoS2, Ti3C2, and graphene-based composites for low Earth orbit applications

Speaker
Nico Snyman

16:20–17:40 **AUTOMATED FOURIER ANALYSIS WITH PYTHON**

Speaker
Sibongile Majola

16:20–17:40
Phase stability and electronic properties study of Sc 6 As 2 B boride for high-temperature structural applications: Insights from First principles DFT

Speaker
Bhila Oliver Mnisi

17:40