

Session Program

6–10 Jul 2026



SAIP2026

Nuclear, Particle and Radiation Physics -2

University of the Western Cape

Tuesday 7 July

09:30

Nuclear, Particle and Radiation Physics -2: Session-1

Session | Location: University of the Western Cape, Lecture Hall GH3 | Convener: Edward Nkadameng

09:30–09:50

Guided Weakly Supervised Machine Learning for Resonance Searches in Low-Energy Regions of Phase Space in the $\gamma\gamma + 1\tau$ channel at the Large Hadron Collider

Speaker

Phodiso Maroeshe

09:50–10:10

Radiative Signature of New Scalar Boson Decays in the $m_{\ell\ell\gamma}$ Spectrum at the LHC

Speaker

Dr Mukesh Kumar

10:10–10:30

Probing Dark Photons in Top-Associated Production at the LHC

Speaker

Thabo James Lepota

10:30

11:00

Nuclear, Particle and Radiation Physics -2: Session-2

Session | Location: University of the Western Cape, Lecture Hall GH3 | Convener: Dr Arnab Laha

11:00–11:20

Probing Axion-Like Particle Couplings to the Top Quark at the Future e^+p Collider

Speaker

Karabo Mosala

11:20–11:40

Probing charged Higgs in single anti-top production at the LHeC

Speaker

Thapelo Gerry Leboho

11:40–12:00

Probing Anomalous Higgs Couplings in μ^+p Collisions

Speaker

Edward Nkadameng

12:00–12:20

Probing the anomalous top quark couplings to the photon at future e^+p colliders

Speaker

Dr Mukesh Kumar

12:40

14:40

Nuclear, Particle and Radiation Physics -2: Session-3

Session | Location: University of the Western Cape, Lecture Hall GH3 | Convener: Dr Mukesh Kumar

14:40–15:00

Using Machine Learning Algorithms in the search for photons in the $H \rightarrow Z + \gamma$ with the ATLAS detector at the LHC

Speaker

Roja Rimer

15:00–15:20

Search for emerging jets with the ATLAS experiment

Speaker

Arnab Laha

15:20–15:40

From petabytes to new physics: data compression at the Large Hadron Collider

Speaker

Bralyne Vanessa Kamga Matoukam

16:00

Wednesday 8 July

09:30

Nuclear, Particle and Radiation Physics -2: Session-4

Session | Location: University of the Western Cape, Lecture Hall GH3 | Convener: Dr Arnab Laha

09:50–10:10

Enhancing sensitivity to tWZ production in the four-lepton channel with the ATLAS detector using machine learning

Speaker

Kevin Barends

10:10–10:30

3D Parameterised Reconstruction of the PAUL Underground Overburden from Cosmic Muons

Speaker

Nkosiphendule Njara

10:30

11:00

Nuclear, Particle and Radiation Physics -2: Session-5

Session | Location: University of the Western Cape, Lecture Hall GH3 | Convener: Phuti Rapheeha

11:00–11:20

Monte Carlo Background Modelling and Signal Sensitivity Studies in the Diphoton Final State in Association with an electron with ATLAS Run-3 Data

Speaker

Baballo-Victor Ndhlovu

11:20–11:40

Background studies and Performance Evaluation of Tau Identification Working Points in the Diphoton–Hadronic Tau Final State with ATLAS Data in the mass range 130 – 200 GeV

Speaker

Mr Vuyolwethu Happyboy Kakancu

11:40–12:00

Diphoton Scalar Resonance Search in the $\gamma\gamma + 1\mu$ Channel: Background Composition, Modelling, and Muon Working Point Optimisation with $\mathcal{L} = 164\text{~fb}^{-1}$ of ATLAS Data

Speaker

Kgothatso Ntumba

12:00–12:20

Searches for Scalar Resonances in Diphoton Final States in Association with Multileptons at the Electroweak Scale in the ATLAS Detector at the LHC

Speaker

Njokweni Mbuyiswa

12:40

14:50

Nuclear, Particle and Radiation Physics -2: Session-6**Session** | **Location:** University of the Western Cape, Lecture Hall GH3 | **Convener:** Edward Nkadameng**14:50–15:10****Searches for scalar resonances in the $\gamma\gamma + 0\ell 1\tau$ final state at $\sqrt{s} = 13.6$ TeV with ATLAS Run 3 data using background modelling, spurious signal testing, and DSCB signal parameterisation****Speaker**

Thapelo Gerry Leboho

15:10–15:30**Searching for Diphoton Resonances in Association with Leptons in the Mass Range 130–200 GeV with the ATLAS Detector****Speaker**

Phuti Rapheeha

15:30–15:50**General Applications of High Energy Physics methods to financial systems,****Speaker**

Nkosiphendule Njara

16:10

Thursday 9 July

09:30

Nuclear, Particle and Radiation Physics -2: Session-7

Session | Location: University of the Western Cape, Lecture Hall GH3 | Convener: Mpho Gololo

09:30–09:50 Testbeam Analysis of HGTD Prototype Modules for the ATLAS Phase-II Upgrade

Speaker

Karabo Tau

09:50–10:10

Enhancing Forward Jet Reconstruction with HGTD Timing in the ATLAS Particle Flow Algorithm

Speaker

Thabo James Lepota

10:10–10:30

Air Quality Forecasting in South African Urban Areas Using LSTM Models and SACAQM Data to Capture Temporal Dynamics and Patterns

Speaker

Lehlohonolo Moloi

10:30

11:00

Nuclear, Particle and Radiation Physics -2: Session-8

Session | Location: University of the Western Cape, Lecture Hall GH3 | Convener: Mpho Gololo

11:00–11:20 Upgrade of the ATLAS Tile Calorimeter for HL-LHC Operation

Speaker

Edward Nkadameng

11:20–11:40

Finger Low Voltage Power Supply Upgrade for the ATLAS Tile Calorimeter in South Africa

Speaker

Lungisani Phakathi

11:40–12:00

Thermal Stability Analysis of ATLAS TileCal Phase-II LVPS in Production Burn-in Testing

Speaker

Donald Ngobeni

12:00–12:20

Response of gap and crack scintillators of the ATLAS Tile Calorimeter to muons from $\sqrt{s} = 13.6$ TeV collisions using Run 3 collision data

Speaker

Karabo Mosala

12:40

14:40

Nuclear, Particle and Radiation Physics -2: Session-9 Division Meeting

Session | Location: University of the Western Cape, Lecture Hall GH3 | Conveners: Sifiso Ntshangase, Dr Mukesh Kumar

16:00

16:30

Nuclear, Particle and Radiation Physics -2: Session-10

Session | Location: University of the Western Cape, Lecture Hall GH3

17:30

Friday 10 July

09:30
10:30
11:00
12:40

Nuclear, Particle and Radiation Physics -2: Session-11
Session | Location: University of the Western Cape

Nuclear, Particle and Radiation Physics -2: Session-12
Session | Location: University of the Western Cape