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Useful Information

Information desk

- Open Tuesday from 07h30 to 16h00 and Wednesday from 08h00 to 16h00.
- Information email address: samsa2023@up.ac.za

Wi-Fi

- **eduroam** (education roaming) allows users (researchers, teachers, students, staff) from participating institutions to securely access the Internet from any eduroam-enabled institution.
- Username: **samsa@up.ac.za** & Password: **4818**

Abstracts and titles of talks

All abstracts and titles of talks can be found on the conference website
<http://www.up.ac.za/cf-samsa2023>

Social events

- Welcome Cocktail and Poster Session: Tuesday 18:30 – 20:00.
- Conference Dinner: Wednesday 19:00 – 21:00 at Future Africa Campus.
- Excursion: Thursday 14:00 – 18:00. As pre-booked for Bothongo Rhino & Lion Nature Reserve. See www.up.ac.za/cf-samsa2023 for further details.

Organising committee

For any other questions, please find one of the members of the organising committee:

Inger Fabris-Rotelli (Co-Chair)
Michael Chapwanya (Co-Chair)
Ellen Tshenye (Administrator)
Mapundi Banda
Alta Jooste
Lesedi Mabitsela
Mokhwetha Mabula
Sesuai Madanha
Samuel Manda
Najmeh Nakhaeirad
Gopika Ramkilawon
Bridgette Simelane
Paul van Staden

Acknowledgements



SAMSA



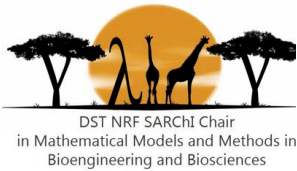
CoE-MaSS



IMU



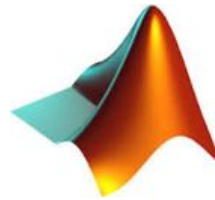
NGA-MaSS



SARCHI Chair
M2B3



National Research
Foundation



MATLAB



NITheCS



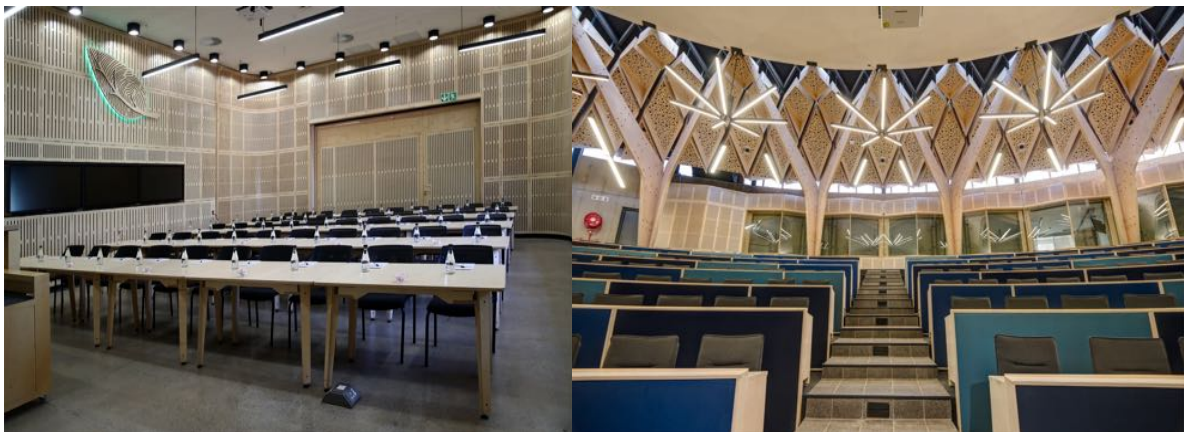
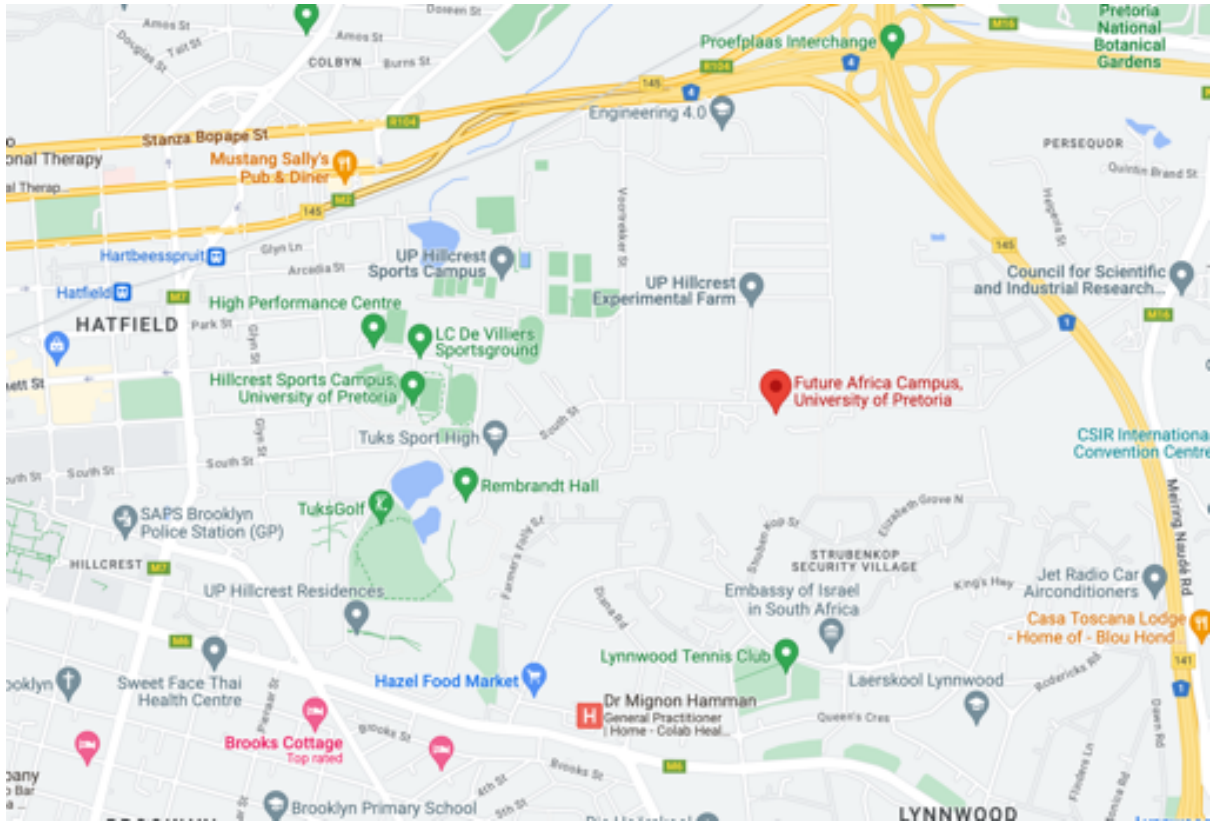
University of Pretoria



Future Africa
Campus

Map and Venues

Venue: Future Africa Campus (<https://www.futureafrica.science/>)



Local transport (Hatfield to Future Africa campus)

Most hotels provide transport upon request.

The LOC will provide transport as follows to registered SAMSA delegates:

- From the Hatfield Gautrain station to your accommodation within Hatfield and Brooklyn only, on Monday 20 November for arrival at the Hatfield station between 1pm and 6pm.
- From Future Africa immediately after the closure of the conference and lunch to the Gautrain station on Friday 24 November.

Conference Block Schedule

Tuesday, November 21

07:30 - 08:20	Registration		
08:20 - 08:40	Prof Vinesh Maharaj, Deputy Dean - Faculty of Agricultural & Natural Sciences, University of Pretoria		
08:40 - 09:00	Prof Farai Mhlanga, SAMSA President		
09:00 - 09:40	Plenary: Prof GA Ngwa		
	Auditorium	Conference 1	Conference 2
09:40 - 10:00	Correia	Machingauta	<i>Hove</i>
10:00 - 10:20	Folorunsho	Magagula	Mwigilwa
10:20 - 10:50	Tea/Coffee		
10:50 - 11:30	Plenary: Prof CJ Edholm		
	Auditorium	Conference 1	Conference 2
11:30 - 11:50	<i>Jafta</i>	Malinzi	Savku
11:50 - 12:10	<i>Stander</i>	<i>Naz</i>	Mhlanga
12:10 - 12:30	<i>Mahloromela</i>	Nakakawa	<i>Nkosi</i>
12:30 - 12:50	Balakrishna	Dobson	Ohanuba
12:50 - 14:00	Lunch		
14:00 - 14:40	Plenary: Prof S Lubbe		
	Auditorium	Conference 1	Conference 2
14:40 - 15:00	Anderlucci	<i>Madueme</i>	Mhlongo
15:00 - 15:20	Hussain	Orwa	Belay
15:20 - 15:40	<i>Dlamini</i>	Oluwadare	<i>Font</i>
15:40 - 16:00	Shongwe	<i>Juga</i>	<i>Molefe</i>
16:00 - 16:30	Tea/Coffee		
	Auditorium	Conference 1	Conference 2
16:30 - 16:50	<i>Leshilo</i>	Raftery	Iliyasu
16:50 - 17:10	Malela	Wannenburg	Mbabazi Ssebuliba
17:10 - 17:30	<i>Netshiozwi</i>	<i>Rivett-Carnac</i>	Sigauke
17:30 - 17:50	<i>Otto</i>	Talbi	Nthoiwa
17:50 - 18:30	HoD Meeting		
18:30 - 20:00	Welcome Function and Poster presentations		

Wednesday, November 22

08:20 - 09:00	Plenary: Prof. AM Montanaro		
	Auditorium	Conference 1	Conference 2
09:00 - 09:20	AkbariLakeh	Dankelmann	Bime
09:20 - 09:40	<i>Bitew Belay</i>	Kriel	<i>Tladi</i>
09:40 - 10:00	Whata	Rakotonarivo	Terefe
10:00 - 10:20	Nakhaeirad	Thackeray	Ramanantoanina
10:20 - 10:50	Tea/Coffee		
10:50 - 11:30	Plenary: Prof J van den Berg		
	Auditorium	Conference 1	Conference 2
11:30 - 11:50	Nevhungoni	Mukwembi	Saal
11:50 - 12:10	Ogunleye	Isabel Harris	Graham
12:10 - 12:30	Zulu-Moyo	Hurlbert	Yakubu
12:30 - 12:50	<i>Skhosana</i>	Hefty	Maposa
12:50 - 14:00	Lunch		
14:00 - 14:40	Plenary: Prof G Di Nunno		
	Auditorium	Conference 1	Conference 2
14:40 - 15:00	<i>Marambakuyana</i>	Dumani	Mkhatshwa
15:00 - 15:20	<i>van Wyk de Ridder</i>	<i>Mahlakwana</i>	Agbolade
15:20 - 15:40	<i>Pillay</i>	Banda	<i>Mothebe</i>
15:40 - 16:00	Abdulsalaam	Osinuga	<i>Khumalo</i>
16:00 - 16:30	Tea/Coffee		
	Auditorium	Conference 1	Conference 2
16:30 - 16:50	Matsuokwane	Dumont	Adams
16:50 - 17:10	Farne	van Wyk	Kirenga
17:10 - 17:30	Singini	Stapelberg	Nuugulu
17:30 - 17:50	<i>de Klerk</i>	Lokoto	Mwakilama
17:50 - 18:30	Plenary: Prof AU Chukwu		
19:00 - 20:00	Gala Dinner		
20:00 - 21:00	Gala Dinner		

Thursday, November 23

08:00 - 08:40	Prof Loyiso Nongxa		
	Auditorium	Conference 1	Conference 2
08:40 - 09:00	Abbas	<i>Mchunu</i>	Sitoe
09:00 - 09:20	<i>Frances</i>	Bolarin	Shoko
09:20 - 09:40	Makoni	Oyamakin	Nkomo
09:40 - 10:00	Abbasi	Atiah	Namundijebo
10:00 - 10:20	Chirwa	Bii	Ayogu
10:20 - 10:50	Tea/Coffee		
10:50 - 11:30	Plenary: Prof L Labuschagne		
	Auditorium	Conference 1	Conference 2
11:30 - 11:50	Motsa	Kotanmi	Dzupire
11:50 - 12:10	Rundora	Taukobong	Ibrahim
12:10 - 12:30	Ayano	Masizana	Charumbira
12:30 - 12:50	Ali	Chipumuro	Chamunorwa
12:50 - 14:00	Lunch		
14:00 - 15:00	Excursion	MATLAB Workshop	
15:00 - 16:00		STEM Workshop	
16:00 - 17:00			
18:00 - 18:00			

Friday, November 24

08:00 - 08:40	Plenary: Prof D Lin		
	Auditorium	Conference 1	Conference 2
08:40 - 09:00	Ndumba	Gatabazi	Salihu Chimo
09:00 - 09:20	Mennen	Chikore	Abdulhameed
09:20 - 09:40	Horn	<i>Mwareya</i>	<i>Ahmedai</i>
09:40 - 10:00	<i>Mbambo</i>	<i>Mucomole</i>	Alexandrov
10:00 - 10:20	Ngoc Anh	Ogbuisi	Thosago
10:20 - 10:50	Tea/coffee		
	Auditorium	Conference 1	Conference 2
10:50 - 11:10	van Staden	<i>Keganneng</i>	Vera villagran
11:10 - 11:30	Bonnini	Chikodza	Maphane
11:30 - 11:50	Chandiwana	Jere	Tomno
11:50 - 12:10	Chinofunga	Ogbaji	Ugwunnadi
12:10 - 12:50	Plenary: Prof M Glickman		
12:50 - 13:05	Closing		
13:05 - 14:00	Lunch		
14:00 - 18:00	Departure		

Full Scientific Programme

Tuesday, November 21

07:30 - 08:20	Registration: venue	
08:20 - 09:00	<p>Chair: Prof Mapundi Banda: HoD, Department of Mathematics & Applied Mathematics, University of Pretoria</p> <p>Opening address: Prof Vinesh Maharaj, Acting Dean, Faculty of Natural and Agricultural Sciences, University of Pretoria</p> <p>Remarks from SAMSA President: Prof Farai Mhlanga, University of Limpopo</p> <p>Information from LOC: Prof Inger Fabris-Rotelli</p>	
	Venue: Auditorium	<i>Session Chair: Jacek Banasiak</i>
09:00 - 09:40	Plenary 1: Prof GA Ngwa	The dynamics of malaria in varying populations: A mathematical modeller's perspective on the role of the mosquito's gonotrophic cycles and demographic considerations
	Venue: Auditorium	<i>Session Chair: Samuel Manda</i>
09:40 - 10:00	Correia	Explanations for persistence in agricultural conservation practices using interpretable machine learning
10:00 - 10:20	Folorunsho	Weather prediction and climate change studies using convolution neural network deep learning technique with explainable artificial intelligence
	Venue: Conference 1	<i>Session Chair: Joseph Malinzi</i>
09:40 - 10:00	Machingauta	Assessing the Interplay: The Influence of Agricultural Practices on Malaria Transmission Dynamics
10:00 - 10:20	Magagula	Navigating the Intersection: A Mathematical Model for Co-Infection Dynamics of Malaria and COVID-19
	Venue: Conference 2	<i>Session Chair: Giulia Di Nunno</i>
09:40 - 10:00	Hove	Local times of deterministic and model-free càdlàg price paths
10:00 - 10:20	Mwigilwa	Optimal investment and reinsurance strategies with Federal Income tax under the Geometric Mean Reversion (GMR) model
10:20 - 10:50	Tea/Coffee	
	Venue: Auditorium	<i>Session Chair: Samuel Manda</i>
10:50 - 11:30	Plenary 2: Prof CJ Edholm	Modeling Stages of the COVID-19 Pandemic with Mathematics
	Venue: Auditorium	<i>Session Chair: Inger Fabris-Rotelli</i>
11:30 - 11:50	Jafta	Spatial-temporal topic modelling of COVID-19 tweets in South Africa
11:50 - 11:20	Stander	Variogram estimation for spatial lattice data
11:20 - 11:40	Mahlromela	Window selection in point pattern analysis
11:40 - 12:10	Balakrishna	Identifying Food Groups Using Multivariate Model-Based Clustering

	Venue: Conference 1	<i>Session Chair: Vusi Magagula</i>
11:30 - 11:50	Malinzi	Mathematical modelling of the synergistic effects of combining two oncolytic viruses
11:50 - 11:20	Naz	Modelling COVID-19 Infection dynamics with preventive measures
11:20 - 11:40	Nakakawa	Spatial Dynamics of Malaria Transmission
11:40 - 12:10	Dobson	Mixed regression models in evolutionary biology
	Venue: Conference 2	<i>Session Chair: Lesedi Mabitsela</i>
11:30 - 11:50	Savku	A Nonzero-Sum Regime-Switching Stochastic Differential Game Application with Constraints
11:50 - 11:20	Mhlanga	Quadratic variation for deterministic paths with jumps
11:20 - 11:40	Nkosi	Bounding the expectation of a skew geometric Brownian motion using a scale function
11:40 - 12:10	Ohanuba	Dynamic Programming to Portfolio Return Optimization of Bellman's Model: The Best Cluster Pattern for the Model
12:50 - 14:00	Lunch	
	Venue: Auditorium	<i>Session Chair: Inger Fabris-Rotelli</i>
14:00 - 14:40	Plenary 3: Prof S Lubbe	Multi-dimensional visualisations with biplotEZ
	Venue: Auditorium	<i>Session Chair: Ramkilawon</i>
14:40 - 15:00	Anderlucci	Dataset shift in supervised classification tasks: can data perturbation help?
15:00 - 15:20	Hussain	Majority Logic Criterion-Based Statistical Analysis of S8 S-Boxes
15:20 - 15:40	Dlamini	Prof Finkelstein: A review and some perspective of his 25 years of research contribution at the University of the Free State
15:40 - 16:00	Shongwe	A novel application of statistical process control charts in financial market surveillance with the idea of profile monitoring
	Venue: Conference 1	<i>Session Chair: Gideon Ngwa</i>
14:40 - 15:00	Madueme	A mathematical modeling approach for the Lassa Fever infection: a progressive study
15:00 - 15:20	Orwa	Mathematical Model for the In-host Malaria Dynamics subject to Malaria Vaccines
15:20 - 15:40	Oluwadare	Molecular Study on the DKP Equation in (1+3) Dimensions with Isotropic Oscillator plus Inverse Quadratic Potential in Non-Commutative Space
15:40 - 16:00	Juga	Modelling the impact of stigmatisation of Ebola survivors on the disease transmission dynamics
	Venue: Conference 2	<i>Session Chair: Farai Mhlanga</i>
14:40 - 15:00	Mhlongo	Analysis of heat transfer in a longitudinal fin of the convex parabolic profile subject to a step change in base temperature and heat flux using Lie symmetry techniques
15:00 - 15:20	Belay	Solutions of Split Equality Hammerstein Type Equation Problems in Reflexive Real Banach Spaces
15:20 - 15:40	Font	Heston-Hawkes stochastic volatility model: Change of measure and Thiele's PIDE
15:40 - 16:00	Molefe	An Ecological Mode for Crime Dynamics with Criminal Refuge
16:00 - 16:30	Tea/Coffee	

	Venue: Auditorium	<i>Session Chair: Andriette Bekker</i>
16:30 - 16:50	Leshilo	Hypersphere Candidates Emanating from Dirichlet and Extensions
16:50 - 17:10	Malela	Distribution-free double sampling precedence monitoring scheme to detect unknown shifts in the location parameter
17:10 - 17:30	Netshiozwi	Data-Driven Surveillance of Internet Usage Using a Polynomial Profile Monitoring Scheme
17:30 - 17:50	Otto	A convenient reparameterisation of the inverted Dirichlet model for insightful multivariate clustering
	Venue: Conference 1	<i>Session Chair: Yash Madanha</i>
16:30 - 16:50	Raftery	Singly generated quasivarieties and residuated structures
16:50 - 17:10	Wannenburg	Elementary equivalence in positive logic via prime products
17:10 - 17:30	Rivett-Carnac	Diameter of orientations of graphs with given order and number of blocks
17:30 - 17:50	Talbi	The Average Hull Dimension of Negacyclic Codes over a Semi-local Ring
	Venue: Conference 2	<i>Session Chair: Joseph Malinzi</i>
16:30 - 16:50	Iliyasu	An assessment of the relationship between knowledge level and awareness level of risk factors contributing to VVF in Jahun General Hospital of Jigawa State Nigeria
16:50 - 17:10	Mbabazi Ssebuliba	Compartmental and State space models
17:10 - 17:30	Sigauke	Assessing the significance of introducing a community-based care and the contaminated environment in the dynamics of the pneumonia infection
17:30 - 17:50	Nthoiwa	Regularized Singular Value Decomposition and Application to Ordination Methods for Ecological Data with Missing Values
17:50 - 18:30	HoD Meeting	
18:30 - 20:00	Welcome Function and Poster Session	

Wednesday, November 22

	Venue: Auditorium	<i>Session Chair: Johan Ferreira</i>
08:20 - 09:00	Plenary 4: Prof Montanaro	Shrinking or screening: solutions for high dimensional regression
	Venue: Auditorium	<i>Session Chair: Najmeh</i>
09:00 - 09:20	AkbariLakeh	Regression estimation for length-biased data: A review and comparative study
09:20 - 09:40	Bitew Belay	Bayesian Multivariate joint modeling of longitudinal and time-to-event data using HIV/AIDS patients
09:40 - 10:00	Whata	Causal Inference in Survival Analysis: Estimating Treatment Effects in the Presence of Time-Dependent Covariates
10:00 - 10:20	Nakhaeirad	Quasi-likelihood method for heteroscedastic interval censored survival data
	Venue: Conference 1	<i>Session Chair: Simon Mukwembi</i>
09:00 - 09:20	Dankelmann	Eccentric Sequences to Bound Graph Parameters of Trees
09:20 - 09:40	Kriel	Sizes of flats of cycle matroids of complete graphs
09:40 - 10:00	Rakotonarivo	A polynomial associated with rooted trees and specific posets
10:00 - 10:20	Thackeray	Every friend of 10 has at least 10 different prime factors
	Venue: Conference 2	<i>Session Chair: Yves Dumont</i>
09:00 - 09:20	Bime	A Mathematical Study to Assess the Impact of Multiple Feeding Attempts on Mosquito Populations and Vector-Borne Disease Dynamics
09:20 - 09:40	Tladi	Cervical cancer screening uptake, associated barriers and facilitators in Botswana: a systematic review and meta-analysis
09:40 - 10:00	Terefe	Effect of cross-border migration on the healthcare system of a destination community
10:00 - 10:20	Ramanantoanina	Dispersal strategies and population persistence in the face of climate change
10:20 - 10:50	Tea/Coffee	
	Venue: Auditorium	<i>Session Chair: Peter Dankelmann</i>
10:50 - 11:30	Plenary 5: Prof van den Berg	V-domain constructions using a Kolchin type universal field
	Venue: Auditorium	<i>Session Chair: Nakhaeirad</i>
11:30 - 11:50	Nevhungoni	Childbearing Transition Dynamics among Women: A Multiprocess Modeling Approach Using Data from the South African Population Research Institute (SAPRIN)
11:50 - 12:10	Ogunleye	Performance evaluation of machine learning classifiers for the detection of phishing websites
12:10 - 12:30	Zulu-Moyo	Statistical Modelling Of Livestock And Climate Change
12:30 - 12:50	Skhosana	Estimating semi-parametric Gaussian mixtures of non-parametric regressions

	Venue: Conference 1	<i>Session Chair: Yash Madanha</i>
11:30 - 11:50	Mukwembi	Pain
11:50 - 12:10	Isabel Harris	Time-Dependent Covariates
12:10 - 12:30	Hurlbert	On the Target Pebbling Conjecture
12:30 - 12:50	Hefty	Semi-Transitive Orientations of Hasse Diagrams
	Venue: Conference 2	<i>Session Chair: Marien Graham</i>
11:30 - 11:50	Saal	Comparative analysis of ICT perceptions and self-efficacy among mathematics and non-mathematics teachers in South African schools
11:50 - 12:10	Graham	Securing the path to academic excellence: Exploring safety factors and Grade 5 mathematics achievement in South African schools
12:10 - 12:30	Yakubu	Two-Step Runge-Kutta Collocation Methods for the Numerical Integration of Stiff Systems
12:30 - 12:50	Maposa	Heritability of cardiovascular health measures across three generations of families in Soweto, South Africa. An application of random family method, Bayesian MCMC and Hamiltonian Monte Carlo (HMC) approaches
12:50 - 14:00	Lunch	
	Venue: Auditorium	<i>Session Chair: Farai Mhlanga</i>
14:00 - 14:40	Plenary 6: Prof Di Nunno	Dynamic risk assessment, horizon risk, and interest rate uncertainty
	Venue: Auditorium	<i>Session Chair: Johan Ferreira</i>
14:40 - 15:00	Marambakuyana	Modelling heavy tailed loss data - An application to insurance claim data
15:00 - 15:20	van Wyk de Ridder	Construction and investigation of a skew normal model for spherical data
15:20 - 15:40	Pillay	Bayesian analysis for a graphical t-model
15:40 - 16:00	Abdulsalaam	Phase recovery from masked antenna measurements
	Venue: Conference 1	<i>Session Chair: Yibeltal Terefe</i>
14:40 - 15:00	Dumani	Modelling bacteria colonies under environmental stress
15:00 - 15:20	Mahlakwana	Modelling, analysis and simulation of a mechanobiochemical model for 2D and 3D cell migration
15:20 - 15:40	Banda H	Pattern formation in the Holling-Tanner predator-prey model with predator-taxis
15:40 - 16:00	Osinuga	A class of Dai-Liao conjugate gradient methods for unconstrained optimization
	Venue: Conference 2	<i>Session Chair: Sandile Motsa</i>
14:40 - 15:00	Mkhatshwa	Solving singular nonlinear hyperbolic PDEs using domain-decomposition spectral collocation approach
15:00 - 15:20	Agbolade	Laplace-Based Cryptography Through Linear Combination of Functions
15:20 - 15:40	Mothebe	Sieve methods and the twin prime conjecture
15:40 - 16:00	Khumalo	Weak and M-Topologies on $C(X)$

16:00 - 16:30	Tea/Coffee	
	Venue: Auditorium	<i>Session Chair: Bridgette Simelane</i>
16:30 - 16:50	Matsuokwane	A Comparative Evaluation of Gene Selection Methods in Microarray Data Analysis
16:50 - 17:10	Farne	Covariance matrix and factor model estimation by composite minimization
17:10 - 17:30	Singini	Prediction of Disease Incidence using Bayesian Hierarchical Smooth Transition Autoregressive Models
17:30 - 17:50	De klerk	Accessibility determination as fuzzy lattice data
	Venue: Conference 1	<i>Session Chair: Phindile Dumani</i>
16:30 - 16:50	Dumont	Impact of conditional vector preferences in the spatial spread of infectious diseases
16:50 - 17:10	van Wyk	Dynamics and Optimal Control of the Growth of the Gut Microbiome with Varying Nutrient
17:10 - 17:30	Stapelberg	Earthquake induced oscillations of high-rise structures
17:30 - 17:50	Lokoto	Commuting Exponentials in Banach Algebras
	Venue: Conference 2	<i>Session Chair: Winfrida Mwigilwa</i>
16:30 - 16:50	Adams	Boundedness Results for Solutions of Some Second Order Non-Autonomous Ordinary Differential Equations
16:50 - 17:10	Kirenga	Modelling asthma development in a population with genetic risk and polluted environment
17:10 - 17:30	Nuugulu	Robust numerical method for pricing double barrier options under a fractal stochastic process
17:30 - 17:50	Mwakilama	Analytic Solutions to the Two-Dimensional Solute Advection-Dispersion Equation coupled with Heat Diffusion Equation in a Vertical Aquifer Section
17:50 – 18:30	Plenary 7: Prof. A Chukwu	Numbers in Life: Illuminating the Path from Statistics and Data Science to Health Impacts in Communities in Africa
19:00 - 21:00	Conference Dinner	

Thursday, November 23

	Venue: Auditorium	<i>Session Chair: Inger Fabris-Rotelli</i>
08:00 - 08:40	Prof Loyiso Nongxa	Lessons learnt: my term as Vice President of the International Mathematical Union
	Venue: Auditorium	<i>Session Chair: Inger Fabris-Rotelli</i>
08:40 - 09:00	Abbas	Rainfall Forecast Model Based On Dynamic Linear Modeling Approach
09:00 - 09:20	Frances	An interactive R shiny applications for learning multivariate data analysis and time series modelling
09:20 - 09:40	Makoni	A time series intervention model for assessing the impact and recovery of South Africa's manufacturing sales from the COVID-19 Pandemic
09:40 - 10:00	Abbasi	Evolutionary support vector regression for monitoring Poisson profiles
10:00 - 10:20	Chirwa	Hedging crop yields using temperature derivatives
	Venue: Conference 1	<i>Session Chair: Mokhwetha Mabula</i>
08:40 - 09:00	Mchunu	Personalized Screening Intervals for HIV Biomarkers using Extended Joint Models
09:00 - 09:20	Bolarin	Mathematical Modeling and Analysis of Coronavirus Disease (COVID-19) with Asymptomatic Infectiousness and Partial Recovery
09:20 - 09:40	Oyamakin	Association Studies of Sequenced COVID-19 data for Inference in Haplotyping
09:40 - 10:00	Atiah	Analysis of Correlates of Birth Weight in the Kassena-Nankana Municipal, Upper East-Ghana
10:00 - 10:20	Bii	Analytical Solution of Fokker-Planck Equation Using Laplace-Adomian Decomposition Method
	Venue: Conference 2	<i>Session Chair: Lesedi Mabitsela</i>
08:40 - 09:00	Sitoe	Deep learning in diagnosing covid-19 in lung x-ray images
09:00 - 09:20	Shoko	A simple Spatial Coupled Climate Economy Biosphere (SCOCEB) Model for climate change
09:20 - 09:40	Nkomo	The New Topp-Leone-Heavy-Tailed-G Family of Distributions: Properties, Actuarial Measures, and Applications to Censored and Uncensored Data
09:40 - 10:00	Namundijebo	Modelling of Customer Attrition in Banking using Machine Learning
10:00 - 10:20	Ayogu	Comparative Analysis of Machine Learning Algorithms for the Classification of Twitter Bots
10:20 - 10:50	Tea/Coffee	
	Venue: Auditorium	<i>Session Chair: Mapundi Banda</i>
10:50 - 11:30	Plenary 8: Prof Labuschagne	Quantum Fokker-Planck dynamics

	Venue: Auditorium	<i>Session Chair: Michael Chapwanya</i>
11:30 - 11:50	Motsa	Leveraging Generative Artificial Intelligence for the Development and Optimization of Block Hybrid Methods in Solving Initial Value Problems
11:50 - 12:10	Rundora	Hydrodynamic Stability Analysis for MHD Casson Fluid Flow Through a Restricted Channel
12:10 - 12:30	Ayano	Numerical investigation of convective hybrid nanofluids flow by way of variable viscosity and thermal conductivity
12:30 - 12:50	Ali	On a block hybrid method for equations of nonlinear double-diffusive convection in an anisotropic porous layer under time-dependent rotation with internal heating and Soret effect
	Venue: Conference 2	<i>Session Chair: Bridgette Simelane</i>
11:30 - 11:50	Kotanmi	Estimating average treatment effect on exposed units from unbalanced clustered data with binary outcomes
11:50 - 12:10	Taukobong	Image Segmentation of Irregular Overlapping Particles in X-Ray Transmission Images: Exploration of Classical Techniques
12:10 - 12:30	Masizana	Towards Data-Driven Design of Computer Science Curriculum
12:30 - 12:50	Chipumuro	Forecasting Tourism Demand Volatility: A Comparative Analysis of Single Models and Combinations
	Venue: Conference 2	<i>Session Chair: Paul van Staden</i>
11:30 - 11:50	Dzupire	Constructing Malawian Ordinary Actuarial Tables: Reflection of the COVID-19 era
11:50 - 12:10	Ibrahim	Mathematical Model of the Immune Response to Hepatitis C Virus (HCV) Disease
12:10 - 12:30	Charumbira	The Gamma Type II Exponentiated Half Logistic-Topp-Leone-G Family of Distributions: Properties and Applications
12:30 - 12:50	Chamunorwa	Extension of the Heavy Tailed Distribution with Applications in Medical Sciences
12:50 - 14:00	Lunch	
14:00 - 16:00	MATLAB Workshop	<i>Session Chair: Inger Fabris-Rotelli</i>
15:00 - 17:00	STEM Workshop	<i>Session Chair: Inger Fabris-Rotelli</i>
14:00 - 18:00	Excursion/Networking	

Friday, November 24

	Venue: Auditorium	<i>Session Chair: Inger Fabris-Rotelli</i>
08:00 - 08:40	Plenary 9: Prof D Lin	Ghost data
	Venue: Auditorium	<i>Session Chair: Mokhwetha Mabula</i>
08:40 - 09:00	Ndumba	On mid (p, r) -compact operators
09:00 - 09:20	Mennen	Nearest Integer Continued Fractions: A road map to rational complex approximations in hyperbolic space
09:20 - 09:40	Horn	Optimal linear-Vizing Inequalities
09:40 - 10:00	Mbambo	Properties of Bishop - Phelps cone in a Banach Space
10:00 - 10:20	Ngoc Anh	Leavitt algebras as localization of free algebras
	Venue: Conference 1	<i>Session Chair: Lesedi Mabitsela</i>
08:40 - 09:00	Gatabazi	Cryptocurrencies and Tokens Lifetime Analysis from 2009 to 2021
09:00 - 09:20	Chikore	A mathematical model on economic growth and the symbiotic contradictions of capitalism
09:20 - 09:40	Mwareya	Optimal Uncertain Random Differential Game Strategies in Insurance and Finance
09:40 - 10:00	Mukomole	Quantification of Spatio-Temporal Variability of Solar Energy Availability in a Short Measurement Scale
10:00 - 10:20	Ogbuisi	Relaxed Single Projection Methods for Solving Bilevel Variational Inequality Problems in Hilbert Spaces
	Venue: Conference 2	<i>Session Chair: Lazarus Rundora</i>
08:40 - 09:00	Salihu Chimo	An semi-analytical solution fractional oscillating maxwell fluid with sinusoidal pressure waveform
09:00 - 09:20	Abdulhameed	Analytical solutions of non-Newtonian fluid flow and heat transfer over an oscillating capillary tube at sinusoidal pressure waveforms
09:20 - 09:40	Ahmedai	A Hybrid Block Method with Equally Spaced Grid Points for Solving Third-Order Initial Value Problems
09:40 - 10:00	Alexandrov	Mathematical Modeling of Two-Step Nucleation Phenomenon in Metastable Liquids: An Analytical Solution of the Integrodifferential Model
10:00 - 10:20	Thosago	Numerical evaluation of heat irreversibility in porous medium combustion of third-grade fluid subjected to Newtonian cooling
10:20 - 10:50	Tea/Coffee	
	Venue: Auditorium	<i>Session Chair: Mark Glickmann</i>
10:50 - 11:10	van Staden	An adjustive rating system for rugby union based on margin of victory
11:10 - 11:30	Bonnini	A permutation test for GLM in the presence of count data
11:30 - 11:50	Chandiwana	Application of Archimedean copulas within a Gaussian regression model for predicting Global horizontal irradiance.
11:50 - 12:10	Chinofunga	Different Estimation Methods for the new Topp-Leone Marshall-Olkin Gompertz-G Family of Distributions: Properties and Applications

	Venue: Conference 1	<i>Session Chair: Emel Savku</i>
10:50 - 11:10	Keganneng	Nash equilibrium portfolio game between two pension funds under the jump diffusion model
11:10 - 11:30	Chikodza	Regular and impulse Control of Exchange Rate in Fuzzy-Stochastic Markets
11:30 - 11:50	Jere	Portfolio management problem with stochastic wage income and inflation-adjusted wealth
11:50 - 12:10	Ogbaji	Stochastic matrix for stock markets model
	Venue: Conference 2	<i>Session Chair: Jamie Wannenburg</i>
10:50 - 11:10	Vera villagran	Strong stabilization for a Piezo electric beam equation with kind damping
11:10 - 11:30	Maphane	Evaluation subgroups of a map and the rationalized G-sequence
11:30 - 11:50	Tomno	The Sign Symmetric P + 0,1 -Matrix Completion Problem
11:50 - 12:10	Ugwunnadi	Inertial split projection and contraction method for pseudomonotone variational inequality problem in Banach spaces
	Venue: Auditorium	<i>Session Chair: Samuel Manda</i>
12:10 - 12:50	Plenary 10: Prof Glickmann	Rating competitors in games with strength-dependent tie probabilities
12:50 - 13:05	Closing	
13:05 - 14:05	Lunch	

Posters

18:30 - 20:00	Venue: The HUB
<i>Akoth</i>	<i>Genome-wide association testing in malaria studies in the presence of overdominance</i>
Chilimtsidya	Applying Social network analysis to examine the social participation of students with disabilities
Marufu	Mining and Measuring of Air Quality Data using Principal Component Analysis
<i>Mucomole</i>	<i>Characterization of solar energy behavior under intermediate-sky conditions in Mozambique</i>
Mundia	Survival Regression Model Allowing for Interactions of Exposure and Mediator
Okelo	Spectral analysis of unitized norm-attainable C*-algebras
<i>Sithole</i>	<i>Geo-additive Modeling of the Prevalence and Factors Associated with Condom Use Among Women in Rwanda: Evidence from 2019/20 Rwanda Demographic and Health Survey</i>