Confirmed topics for the 2026 NITheCS Internship Programme

Prof Regina Maphanga
1. Hybrid Physics-Informed Neural Network for Predicting the Intrinsic Stability of Perovskite Materials.
2. Generative Design of Metal Hydrides for Hydrogen Storage.
3. Photovoltaic Materials Discovery: Power Conversion Efficiency and Stability Prediction
4. Machine Learning for Electrocatalysts Surface Modelling.

Prof Azwinndini Muronga
1. Relativistic Matter Across Laboratory and Cosmic Scales
2. Quantum Science, Quantum Computing & Intelligent Systems
3. Complex Systems Science
4. Theoretical & Computational Science Across Domains
5. Science Education & Mathematical Sciences Development

Prof Yin-Zhe Ma
1. Can we measure the Fermi constant with astronomical data?
2. Search the signal in the cosmic dawn (early Universe)

Prof Francesco Petruccione
1. Introduction to open quantum systems
2. Introduction to quantum computing

Prof Ruan Veldtman
1. Game theory for modelling tri-trophic interactions built by introducing weed biocontrol agents
2. Citizen science monitoring of invasive insects – WaspApp in the making
3. Sustainable use of Lepidoptera: drone remote sensing and population outbreak mapping
4. Value of taxonomy and collections: museums, digitised records and citizen science

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A/Prof Will Horowitz
1. Brownian Motion of a 5D String
2. Non-holonomic Constraints in Classical and Quantum Mechanics

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Prof Amartya Goswami
1. Rings and related structures

Prof Kingsley Obodo
1. Understanding novel MXenes as anode materials using DFT approach and ML
2. Exploring inverse perovskite for improved solar performance conversion efficiency using DFT and ML
3. Heterostructure studies of novel properties such as catalysis, photovoltaics using DFT method and ML approaches

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Dr Cerene Rathilal
1. Compactifications in Locales
2. Introduction to Topological Data Analysis