



**SAIP2022****Monday 04 July 2022****Applied Physics - Zoom Platform (11:30-13:00)****-Conveners: phil ferrer**

| time  | [id] title   | presenter             |
|-------|--|-----------------------|
| 11:30 | [35] High order stabilized finite elements for gas dynamics.   | Mr KHULU, Musawenkosi |
| 11:45 | [105] Unmasking phase with ghost imaging   | Ms SEPHTON, Bereneice |
| 12:00 | [108] An Internet Of Things (IoT) pilot project as a primer for the future development of IoT technology for particle physics detector data acquisition systems. | MCKENZIE, Ryan        |
| 12:15 | [115] Threading a Laser Through the Eye of a Needle: Multimode Fibre Coupling in Turbulence  | Mr IGA, Fortune       |
| 12:30 | [122] The Vacuum Arc Ion Thruster  | Mr STANSELL, Paul     |
| 12:45 | [128] Fast, cheap, variable sensitivity wavefront sensor for applications in communication to microscopy and beyond  | SINGH, Keshaan        |

**Applied Physics - Zoom Platform (15:00-16:30)****-Conveners: Freddie Vorster**

| time  | [id] title   | presenter                 |
|-------|--|---------------------------|
| 15:00 | [343] Non Specialist Lecture: Synchrotron-enabled macromolecular crystallography in Brazil: From plant biomass hydrolysis to biomedical applications | POLIKARPOV , Igor         |
| 15:30 | [139] Reconstructing a quantum ghost image without a camera  | MOODLEY, Chané Simone     |
| 15:45 | [144] Simulation Modelling the Conductivity of Metal Oxide Gas Sensors from the First Principles   | Mr NHLOZI, Blessing Mvana |
| 16:00 | [148] Tailoring Noise Invariant Light for Robust Optical Communication   | PETERS, Cade Ribeiro      |
| 16:15 | [149] Modal Description of Optical Elements  | ORNELAS, Pedro            |

## Tuesday 05 July 2022

### Applied Physics - Zoom Platform (11:30-13:00)

-Conveners: Ernest van Dyk

| time  | [id] title  | presenter                    |
|-------|---|------------------------------|
| 11:30 | [232] Forecasting Short-term Power Consumption Using Deep Learning and Boosting Machine Learning Techniques   | SENEKANE, Makhamisa          |
| 11:45 | [256] Density functional theory study of Nax (TiyZnzMnw)O <sub>2</sub> as a cathode material  | RANWAHA, Tshifhiwa Steven    |
| 12:00 | [132] Computational Fluid Dynamics in the ATLAS Detector  | CONNELL, Matthew             |
| 12:15 | [282] Optimised mathematical library for Atmel microcontrollers.  | Dr MARIOLA, Marco            |
| 12:30 | [295] Serendipitous p- to n-type response switching in $\beta$ -Ga <sub>2</sub> O <sub>3</sub> needles: A potential application to selective CO and CH <sub>4</sub> gas sensors | Ms GATSI, Nyepudzai Charline |
| 12:45 | [340] Direct-couple PVWPS sizing using borehole hydraulic parameters  | MASEVHE, Livhuwani           |

### Applied Physics - Zoom Platform (15:00-16:30)

-Conveners: Trevor Derry

| time  | [id] title  | presenter                  |
|-------|---|----------------------------|
| 15:00 | [125] Comparison between the empirical, machine and deep learning techniques to predict global solar irradiance for Mutale area in Limpopo Province, South Africa | MURIDA, Thalukanyo Whitney |
| 15:15 | [141] Construction of the Solar trough Cavity receiver  | FERRER, Phil               |
| 15:30 | [291] Development of a luminescence imaging system for the characterization of PV cells   | ROODT, Roelof              |
| 15:45 | [292] Analysis of degradation of Perovskite PV devices using injection dependent Photoluminescence imaging.   | Dr DIX-PEEK, Ross          |
| 16:00 | [305] Outdoor current-voltage testing of bifacial photovoltaic modules to determine bifaciality coefficients and gain   | Mr NDZONDA, Siyabonga      |

# Thursday 07 July 2022

## Applied Physics - Zoom Platform (11:30-13:00)

-Conveners: Thulani Hlatshwayo

| time  | [id] title  | presenter                       |
|-------|---|---------------------------------|
| 11:30 | [50] A Nonlinear Logistic Regression Model for the Measurement of Drug Potency in Photodynamic Therapy  | CHIZENGA, Elvin                 |
| 11:45 | [226] Developing an Infectiousness model for droplet transmission   | RALIJAONA, Mbolahasina          |
| 12:00 | [28] BLENDING AND THERMAL STABILTY STUDIES OF A COMPOSITE BIOPOLYMERIC MATERIAL FOR THE REMOVAL OF TOXIC POLLUTANTS IN PHARMACEUTICAL EFFLUENTS | Ms SIMELANE, Nontobeko Precious |
| 12:15 | [269] Physics-Informed Neural Networks  | MATTHEWS, Alan                  |
| 12:30 | [154] Analysis of bulk materials using fast neutron transmission analysis   | Mr MHLONGO, Sizwe               |
| 12:45 | [155] Validation of the Monte Carlo Detector Effects model for the UCT POLARIS Compton camera   | Mr SMUTS, Frank                 |

## Applied Physics - Zoom Platform (15:00-16:30)

-Conveners: Aletta Karsten

| time  | [id] title   | presenter             |
|-------|--|-----------------------|
| 15:00 | [64] ATLAS Tile Calorimeter Phase-II upgrade low-voltage power supply production and testing             | NKADIMENG, Edward     |
| 15:15 | [173] MicroPEPT: A step towards hybrid PEPT detectors  | VAN DER MERWE, Robert |
| 15:30 | [260] Developing a Nuclear Orientation Thermometer for the UCT Dilution Refrigerator                     | Mr NTOLOSI, Yanga     |
| 15:45 | [267] Measurement of fast neutron removal cross sections for the elemental analysis of concrete          | SEGALE, Nalesi        |
| 16:00 | [263] Positron Emission Particle Tracking (PEPT): Data analysis techniques for tracking multiphase flows | SITOBOLI, Rorisang    |

# Friday 08 July 2022

Applied Physics - Zoom Platform (11:30-13:00)