



# 63<sup>rd</sup> ANNUAL CONFERENCE OF THE SA INSTITUTE OF PHYSICS

## Tuesday 26 June 2018

### Physics of Condensed Matter and Materials (10:00-11:00)

-Conveners: peace prince mkhonto

time	[id] title	presenter
10:00	[8] Beyond Li-ion: Computational Modelling Studies on Stability of Li-S-Se System	Mr MASEDI, Clifton
10:20	[25] Effect of Li <sup>+</sup> ion on the structural, morphological and luminescent properties of Y <sub>2</sub> O <sub>3</sub> :Tm <sup>3+</sup> nanophosphor	Dr N J, Shivaramu
10:40	[48] Influence of Mn doping on the Room Temperature Gas Sensing Characteristics of TiO <sub>2</sub> nanostructures	Ms TSHABALALA, zamaswazi portia

### Physics of Condensed Matter and Materials: Parallel Session (10:00-11:00)

-Conveners: Setumo Victor Motloung

time	[id] title	presenter
10:00	[14] Bandgap tuned Co <sup>2+</sup> -doped ZnO for the photocatalysis of Methylene Blue and Rhodamine B	Dr MENON, Samvit
10:20	[13] Highly capable non-rare earth doped LiMgBO <sub>3</sub> phosphor for light emitting diodes	Dr BEDYAL, Ankush Kumar
10:40	[7] Size and shape impact on thermal expansion coefficient of nanowires	Prof. SINGH, Madan

### Physics of Condensed Matter and Materials (11:20-13:00)

-Conveners: Bertrand SONE

time	[id] title	presenter
11:20	[21] Characterisation of Y <sub>2</sub> O <sub>3</sub> co-doped Bi <sup>3+</sup> and Yb <sup>3+</sup> thin films synthesised using pulsed laser deposition and spin coating.	Mr LEE, Edward
11:40	[40] Growth and electronic structure characterization of 2D germanene/Pt(111)	Mr DANSOU, Carmel
12:00	[54] Effects of pore size on the electrochemical properties of Li-Mn-O nanoporous cathode material	Ms SHIBIRI, Beauty
12:20	[73] The thermal quenching process of the La <sub>2</sub> O <sub>2</sub> S:Eu(III) phosphor material	Mr ERASMUS, Lucas
12:40	[78] Computational modelling of binary titanium-based shape memory alloys	Mr BALOYI, Mphamela Enos

### Physics of Condensed Matter and Materials: Parallel Session (11:20-13:00)

-Conveners: Mart-Mari Duvenhage

time	[id] title	presenter
------	------------	-----------

11:20	[31] Ab-Initio Study of Stability of Discharge Products in Li/Na-Air Batteries	Mr RAMOGAYANA, Brian
11:40	[41] Development of a Quantification Software/Programme for Li-Mn-O Composite Nanoarchitectures	Mr HLUNGWANI, DONALD
12:00	[90] Computational modelling of graphene mediated sodium air batteries	Ms MORUKULADI, Mogahabo
12:20	[166] ATOMISTIC SIMULATION STUDY OF SODIUM INTERCALATION IN TITANIUM DIOXIDE NANOSTRUCTURES	Ms MALIBE, Tshidi
12:40	[17] Effects of annealing time on the structure and photoluminescence properties of Sr <sub>3</sub> Al <sub>2</sub> O <sub>6</sub> :1% Ce <sup>3+</sup> nanophosphor synthesized via sol-gel method	Dr MOTLOUNG, Setumo Victor

## Wednesday 27 June 2018

### Physics of Condensed Matter and Materials (10:00-11:00)

-Conveners: Madan Singh

time	[id] title	presenter
10:00	[98] ZnO nanoparticles doped with cobalt and indium mechano-chemically for methane gas sensing application	Ms MANAMELA, Mahlatse
10:20	[132] A numerical study of heterogeneous annealing in a finite one-dimensional geometry	Mr LETHOBA, Jeremiah
10:40	[180] Quantification of Ag in Ag doped glass based metamaterials using XPS analysis.	Ms MAKOLE, Rethabile

### Physics of Condensed Matter and Materials (11:20-13:00)

-Conveners: Deon Marais

time	[id] title	presenter
11:20	[51] Cation distribution and mixing thermodynamics in $\text{Li}(\text{Mn}_{1-x}\text{Ni}_x)\text{O}_4$ spinel via tuning of the Ni concentration	Mr MALATJI, Kemeridge Tumelo
11:40	[86] Fluence enhanced optical response of ion implanted stripper foil carbon thin films	Mr ISMAILA, Abdulsalam
12:00	[100] Analysis of $\text{Nd}^{3+}$ concentration on the structure, morphology and photoluminescence of sol-gel $\text{Sr}_3\text{ZnAl}_2\text{O}_7$ nanophosphor	Mrs MHLONGO, Motlalepula Rebecca
12:20	[182] $\text{La}^{3+}$ doped ZnO nanofibers obtained through electrospinning: Influence of $\text{La}^{3+}$ doping concentration on the structural, optical and gas sensing properties	Ms SHINGANGE, Katekani
12:40	[219] Colloidal Synthesis of Molybdenum Diselenide Nanomaterials for Supercapacitor Applications	Mr NDALA, Zakhele

### Physics of Condensed Matter and Materials (14:00-15:20)

-Conveners: Rapela Maphanga

time	[id] title	presenter
14:00	[199] Sol-gel combustion synthesis and stability of $\text{La}_2\text{O}_3\text{:Bi}^{3+}$ powder phosphor	Mr JAFFAR, Babiker
14:20	[252] Modeling of a Resonant Tunneling Transistor under Uniaxial Strain	Mr AKBARI, Mahmood
14:40	[256] Cryogenic ion implantation of polyethylene terephthalate (PET) thin films: structural and electrical properties	Ms MOTAUNG, Gaopalelwe
15:00	[299] Diffusion study of metal precursor layers for CZTS solar cell	Mr FOURIE, Antonie

### Physics of Condensed Matter and Materials (15:40-17:00)

-Conveners: Mmantsae Diale

time	[id] title	presenter
15:40	[220] The Dependence of Raman Signal Enhancements on Chain-lengths of Alkanethiols functionalized on gold nanoparticles	Mr SHUMBULA, Ndivhuwo

16:00	[232] The synthesis, characterization and application of different morphologies of ZnO in the photocatalytic degradation of Rhodamine B	Mr NKABINDE, Siyabonga
16:20	[276] First principle study of structural, magnetic, electronic and mechanical properties of A <sub>15</sub> X <sub>3</sub> Ru alloys	Mr MNISI, BHILA OLIVER
16:40	[327] Magnetic and physical properties of new hexagonal PrPt <sub>4</sub> X ( <i>X</i> = Ag, Au) compounds	Mr OGUNBUNMI, Michael

# Thursday 28 June 2018

## Physics of Condensed Matter and Materials (10:00-11:00)

-Conveners: Ganga Babu Geetha

time	[id] title	presenter
10:00	[329] Synthesis and characterization of Halide Perovskite Materials for Photovoltaic Application	Mr OLALERU, Akin
10:20	[369] Structure and dynamics of noble gas temperature control on Ti metal clusters	Mr PHAAHLA, Tshegofatso Michael
10:40	[377] Sampling of P91 base metal for in-situ neutron powder diffraction and dilatometer evaluation / characterisation	Ms SENTSHO, zeldah

## Physics of Condensed Matter and Materials (11:20-13:00)

-Conveners: Raesibe Sylvia Ledwaba

time	[id] title	presenter
11:20	[18] Effect of substrate temperature on photoluminescence properties of Eu <sup>3+</sup> doped BaZrO <sub>3</sub> thin films deposited by PLD	Dr KUNTI, ARUP
11:40	[55] Searching for Majorana Zero Modes Using Model-free Reinforcement Learning	Dr SENEKANE, Makhamisa
12:00	[315] Magnetic properties studies of Fe-substituted La <sub>0.67</sub> Sr <sub>0.33</sub> MnO <sub>3</sub>	Mr EZEKIEL, Itegbeyogene
12:20	[111] Effect of Hf and Cu on the cubic B2 TiPt shape memory alloys	Dr MODIBA, Rosinah
12:40	[413] DPCMM Meeting	Dr ERASMUS, Rudolph

# Friday 29 June 2018

## Physics of Condensed Matter and Materials (10:00-11:00)

-Conveners: Odireleng Ntwaeaborwa

time	[id] title	presenter
10:00	[175] Atomic and electronic structure investigation of germanene grown on Al <sub>2</sub> O <sub>3</sub> (0001)	Dr BABU GEETHA, Ganga
10:20	[389] AES study of surface segregation in Ni-Cu alloy thin films	Dr YAN, Xin Liang
10:40	[235] Crystal Growth and Agglomeration of Heterostructured Layered-Spinel Li-Mn-O Primary Particles	Dr LEDWABA, Raesibe Sylvia

## Physics of Condensed Matter and Materials (11:20-13:00)

-Conveners: Mofuti Mehlahe

time	[id] title	presenter
11:20	[255] Computational and experimental studies on heats of adsorption of heterocyclic collectors onto pyrite mineral surface	Dr MKHONTO, Peace
11:40	[321] Attenuation correction for position resolved neutron powder diffraction studies	Dr MARAIS, Deon
12:00	[366] Surface modified ZIF-67 and NH <sub>2</sub> -MIL(101)Fe Metal Organic Frameworks for Photocatalysis and Supercapacitor Applications	Dr SONE, Bertrand
12:20	[224] Luminescence properties of Bi <sup>3+</sup> doped YPO <sub>4</sub> powder produced using combustion synthesis	Mr BERIAMA, M M I
12:40	[231] Rust: The unusual candidate for hydrogen production	Dr DIALE, Mmantsae