The 6th International Conference of the Africa Materials Research Society

December 11– 16, 2011
Victoria Falls, Zimbabwe

AFRICA M·R·S

PROGRAMME

	SUNDAY, 11 DECEMBER 2011 - DELEGATES ARRIVE
14:00 – 18:00	Registration
19:00 – 20:00	Welcome addresses and special messages: Francis Gudyanga, Chair of Local Organizing Committee, Harare, Zimbabwe Josephat Zimba, President of the Africa MRS and Chair of Conference, Salene, SA Eric Garfunkel, Chair of International Advisory Committee, Rutgers University, US
19:00 – 22:00	Cocktail Party - Kalunda
21:00 – 22:00	Planning meeting – Symposium Chairs

MONDAY, 12 DECEMBER 2011			
07.00 – 08.00 Breakfast and Registration			
Time	**Activity**	**Presenter**	**Chairperson**
08.00 – 08.10	Opening - National Anthem - Kalala	Baobab Primary School	Professor Francis Gudyanga, Permanent Secretary of the Ministry of Science and Technology, Zimbabwe
08.10 – 08.20	Welcoming Remarks	Dr. Josephat Zimba, President of Africa MRS	
08.20 – 08.40	Comments from the International Materials Research Societies	Professors B.V.R. Chowdari, IUMRS; Bruce Clemens, MRS; J.R. Morante, E-MRS; Soo Whon Lee, K-MRS	
08.40 – 09.00	Economic Impact of value addition to primary materials	Professor Christopher Chetsanga, Chairman of the Zimbabwe Council for Higher Education	
09.00 – 09.15	Welcome Address	His Worship, Nkosilathi Jiyani, Mayor of Victoria Falls	
09.15 – 10.00	Keynote Address and Official Opening of the 6th AMRS Conference	Professor A.G.O. Mutambara, Deputy Prime Minister	
10.00 – 10.30	TEA BREAK		
10.30 – 11.10	Plenary 1: Nanotechnology and Nanomaterials in an African Context: Impacts on Healthcare and Energy	Professor Paras Prasad	Professor Eric Garfunkel, Chairman of the International Advisory Committee, Rutgers University
11.10 – 11.50	Plenary 2: Fuels from Sunlight, Water and Carbon Dioxide: A Thermochemical Approach	Professor Sossina Haile	
11.50 – 12.30	Plenary 3: Biomaterials: Current Approaches, Challenges and Novel Strategies	Professor Mona Marei	
12.30 – 14:00	LUNCH BREAK		

Symposium	Nanoparticles	Nanobiology	Metallurgy, Foundry and Materials Processing	Photovoltaics	Biomaterials
Venue				**Kalala**	
Session chair	**Tshikhudo**	**Rosei**	**Bhero**	**Teketel**	**Marei**
14:00	Applications of chitosan, ascorbic acid, their mixtures and complexes in the biosynthesis of gold nanoparticles **Akolade, J.**	A multimodal imaging approach to understand the structural origin of the second harmonic generation signal in connective and cartilage tissues **Légaré, François**	Introduction to ausferritic alloys: Possible way how to resolve the bainite paradigm **Navara, Erik**	Feasibility study of Beyond Siemens process for solar silicon from desert sands **Koinuma, Hideomi**	Application of CNSL in Molecularly Imprinted Polymers (MIP) Technology **Philip, Joseph**
14:15	Synthesis and characterization of (NiO-CoO) composite thin film by chemical methods **Ezema, F. and Osuji, R.**				
14:30	Microwave Synthesis and Optical Properties of Core/Alloy Nanostructures **Njoki, Peter**	Multiplexed Capture of Biological Targets, **Andrews, Anne**	Spheroidal Graphite Iron Alloyed with Silicon and Molybdenum for High Temperature Automobile Parts **Varachia, M. Farouk**	Nanomaterials and devices for capturing energy from the sun light: photovoltaics and photoelectrochemistry mechanisms for artificial photosynthesis **Morante, J. R.**	An ATR-FTIR Study of adsorption onto activated carbon prepared from seawater alga **Belhakem, Mastefa**
14:45			Microstructural Characterizations of As-cast and the Heat treated Vanadium-Carbon-Nickel alloys **Ayodeji, Apata**		
15:00	**Tour of Victoria Falls**				
18:00	**Return and dinner**				
19:00	**Poster Session and Board Meeting**				

	TUESDAY, 13 DECEMBER 2011				
08:15	**Plenary: Paul Weiss - Designing, Measuring, and Controlling Molecular and Supramolecular Devices**				
09:00 - 21:00	**Energy Materials School/Workshop –Rosei, Haile, Alford, Soboyejo, Fanchini, Felser**				
Symposium	**Infrastructure**	**Condensed Matter**	**Sustainable Materials**	**Nanobiology**	**Optics and Thin Films**
Venue					
Session chair:	**Uzoegbo**	**Felser**	**Soboyejo**	**Vetrone**	**Maaza**
09:00	Appraising the Mitigation Strategies of Early Age Thermally Induced Cracking of Concrete Using Supplementary Cementitious Materials **Ballim, Yunus**	Complex Oxide Interfaces – A Laboratory for Generating Novel Quantum States **Habermeier, Hans Ulrich**	Calcium Phosphate for environmental applications **Nzihou, Ange**	Taking inspiration from nature – the potential of spider silk as a biomaterial and biomimetic target **Brown, Cameron**	Pulsed Laser Deposition and Photon-Induced Tunable and Reversible Wettability of W-doped ZnO nanorods **Beye, A.C.**
09:15					
09:30	Effects of Sodium Hydroxide Concentration and Fibre Content on Cement-Bonded Composites from Eucalyptus Veneer Waste **Olorunnisola, Abel**	Doping a semiconductor to create an unconventional metal **Manyala, Ncholu**	Environmental management through the design and use of membrane bioreactor for the treatment of tannery wastewater **Nkhoma, TC**	The Effects of Thiols on Quantum Dot Intermittency Evaluated from Photoluminescence Decays **Nadeau, Jay**	Black Cr/α-Cr_2O_3 nanoparticles based solar absorbers **Khamlich, Saleh**
09:45			Drop weight impact studies of woven fiber reinforced modified polyester composites **Isa, Mohammed Tijani**		
10:00	Properties of concrete made with ordinary Portland cement partly replaced by rice husk ash **Lyatonga Mrema, Alex**	Electrical characterization of MeV alpha-particle irradiated Ni/4H-SiC diodes and their recovery by annealing treatment **Diale, Mmantsae**	Electrospun Thio Functionalized Polyurethane Nanofiber Membrane as a Highly Selective Sorbent For Mercury from Complex Matrices **Adewuyi, S.**	Ln^{3+}-doped Gadolinium Oxide Nanostructures for NIR Bioimaging **Hemmer, Eva**	Effects of high temperature annealing on ZnO and ZnO devices **Mtangi, Wilbert**
10:15		Diffusion of silver in 6H-SiC implanted at room temperature **Hlatshwayo, Thulani**			
10:30	**TEA BREAK**				

11:00	Performance of eco-concrete with blast furnace slag and natural pozzolana **Kenai, Said**	Azobenzene: From electronic structure to molecular switching **Stich, Ivan**	Evaluation Of P-80 And P-188 As Cosurfactants In P90g Modified Sln Containing A Hydro-Lipophilic Drug- Diclofenac Sodium, In A Mixed Lipid Matrix Core **Akpa, Paul Achile**	Engineering atomic-scale motions to modulate protein function: A dynamic perspective of enzyme catalysis **Doucet, Nicolas**	Pulsed laser deposited CNT/metal oxide nano-composite thin films for optically selective solar absorbers **Yalisi, Brian**
11:15			Formulation and characterisation of PEGylated-mucin: A drug delivery approach **Audu Momoh, Mumuni**		Inorganic-Organic Hybrid Nanostructures for White Light Emission **Roushan, Mojgan**
11:30	Sisal fibre pull-out behaviour as a guide to matrix selection for the production of sisal fibre reinforced cement matrix composites **Dlamini, Mandla**	High resolution thermo and photodiffraction studies on molecular magnetic compounds **Lecomte, Claude**	Yam, Coconut and Sisal Fibre-Reinforced Polyester and Polypropylene Composites **Oladele, Isiaka**	Multifunctional Er^{3+} and Yb^{3+} Doped Gd_2O_3 Nanostructures for Opto-Magnetic Bioimaging **Hemmer, Eva**	Thermoluminescence Study of Long Persistent $CaAl_2O_4:Eu^{2+}$, Nd^{3+}/Dy^{3+}. **Halake, Wako Ali**
11:45					
12:00	Dev of cementing properties using local raw materials **Ayodeji, Apata**	Microscopic modeling of resistive switching in memristors and other non-volatile memory devices **Dobrosavljevic, Vladimir**		Application of Ceramic Nanophosphors for OTN-NIR Biomedical Imaging in Cancer Medicine **Soga, Kohei**	
12:15	Fabrication characteristics and mechanical properties of aluminium (6063) particulate composites developed by stir casting **Alaneme, K.**				
12:30	**Lunch**				

Symposium	Electrochemistry	Optics and Thin Films	Carbon	Nanobiology	Metallurgy, Foundry and Materials Processing
Session chair:	**Ozoemena**	**Beye**	**Alford**	**Andrews**	**Navara**
14:00	Composite thin film electrodes comprising Tin oxide and Ruthenium oxide for electrochemical supercapacitor **Pusawale, Swati Narayan**	Photonic Tunability & Multifunctionality in Selected Nano-Structured Oxides: Case of Mott's Type Oxide VO_2 **Maaza, Malik**	Synthesis and Application of Novel Functionalized Nanostructured Membranes Incorporating N-doped CNT Supported Metal Nanoparticles in Water Treatment **Mhlanga, Sabelo**	Nanoparticles, droplets and bubbles: A route towards new multifunctional contrast agents for medical imaging and therapy **Matsuura, Naomi**	A study of the Pt-Al Phase Diagram **Cornish, A. Lesley**
14:15					
14:30	Nanocrystalline $NiFe_2O_4$ thin film: Synthesis, charactrization and supercapacitive application **Lokhande, CD Jamadade, Vinayak**	Nanostructured Tungsten Trioxide thin films by Aqueous Chemical Growth: Structural, Optical and Hydrogen sensing characteristics **Sone, Bertrand**	Nitrogen doped carbon nanotubes in bulk heterojunction polymer - fullerene solar cells **Chiguvare, Zivayi**	Multi-Photon Excited Nanoparticles as Multi-Modal Bioprobes **Vetrone, Fiorenzo**	Cyclic deformation of ultrafine grain nickel under fully reversed tension-compression tests **Batane, Robert**
14:45	Non-fluorinated membranes for polymer electrolyte fuel cells **Vaivars, Guntars**				Solidification projection surface for the Ni-Ru-Zr ternary system **Chipise, Liberty**
15:00	Synthesis and electrochemical properties of sulphur and aluminium doped $LiAl_yMn_{2-y}O_{4-x}S_x$ cathode materials for Li-ion battery **Kebede, Mesfin**	Effective Hamiltonians and Clebsch Coefficients for Cubic Wide Band Gap ZnO **Machatine, Augusto**	How Do You Make The Perfect Catalyst For Carbon Fiber Synthesis? **Maubane, Manoko**	Adapting Nature's Tricks to Engineer Better Biosensors, **Vallée-Bélisle, Alexis**	Laser surface alloying of Al with Cu and Mo powders **Pityana, Sisa**
15:15		Depth profiling and elemental quantification of thin film materials using Heavy Ion - Elastic Recoil Detection **Msimanga, Mandla**	Graphene based nano-coatings: Synthesis & physical-chemical investigations **Nyangiwe, Nangamso**		A Study of the Ni-Pt-Ru and Co-Pt-Ru Systems **Cornish, A Lesley**

<table>
<tr><td>15:30 – 18:00</td><td colspan="5">ZAMBEZI RIVER CRUISE</td></tr>
<tr><td>18:00 – 19:30</td><td colspan="5">Dinner</td></tr>
<tr><td>19:30</td><td rowspan="2">Pt deposition on Carbon paper and Ti-mesh substrates by surface limited redox replacement
Modibedi, Mmalewane</td><td>RF Sputtered ITO Films for Transparent Conducting Applications
Sathiaraj, T. Stephen</td><td rowspan="2">Carbon Nucleation on Icosahedral Fe Nanoclusters
Mochena, Mogus</td><td rowspan="2">Spatio-temporal Characteristics of THz Emission via Optical Rectification at the Subwavelength Scale
Morandotti, Roberto</td><td rowspan="2">Recrystallization and Dopant Activation by Susceptor-Assisted Microwave Anneal of Arsenic Implanted Silicon
Alford, Terry</td></tr>
<tr><td>19:45</td><td>Electro-Optical Properties Of Metal Organic Chemical Vapour Deposited (MOCVD) LiMoS2 Thin- Films
Lasisi, Abdul-Rahaman</td></tr>
<tr><td>20:00</td><td>The Role of Surface Topography in Drop Detachment and Motion on Fuel Cell Gas Diffusion Materials
Gauthier, Eric</td><td rowspan="2">Chemical synthesis and characterisation of nanosized semiconducting structures of Bi_2Se_3
Muiva, Cosmas</td><td rowspan="2">Preparation of TNT - Graphene composite by microwave and sonochemistry method
Lee, Soo Wohn</td><td rowspan="2">Strategies for controlled assembly and patterning at the nanoscale
Rosei, F.</td><td>On the mechanism of hardening by annealing in SUS304 stainless steel processed by High Pressure Torsion
Shuro, Innocent</td></tr>
<tr><td>20:15</td><td>Development of nano-composite membranes to improve alkaline fuel cell performance
Nonjola, Shakes</td><td>Swelling Restriction As Result Of Peculiarities Of Void Evolution
Selyshchev, Pavel</td></tr>
<tr><td>20:30</td><td rowspan="2">Effect of aluminium-doping on the performance of $Li[Li_{0.2}Mn_{0.54}Ni_{0.13}Co_{0.13}]O_2$ cathode material for lithium ion battery
Jafta, Charl</td><td rowspan="2">Panel Discussion</td><td colspan="2" rowspan="2">Biological applications of large area graphene thin films,
Fanchini, G</td><td>Coal Fly Ash as alternative source of smelter grade alumina: A comparison of aluminium extraction techniques
Sibanda, Vusumuzi/ Shemi, Alan</td></tr>
<tr><td>20:45</td><td>Structural Stability and Phonon Dispersion of Pt-Cr Binary Alloys
Tibane, Malebo</td></tr>
</table>

	WEDNESDAY, 14 DECEMBER			
8:00	**Plenary - Anthony Giuseppi-Elie - Biotechnology applications of electroconductive hydrogels: Biosensors, bionics and electrorelease devices**			
9:15am - 5pm	**Crystallography Workshop – El Jazouli, Le Comte, Pechev (Pagota)**			
Symposium	**Photovoltaics**	**Nanoparticles**	**Sustainable Materials, Polymers, Biocomp**	**Infrastructure**
Venue	**Kalala**	**Matetsi**	**Gwayi**	**Kazuma**
Session Chair	**Dusastre**	**Osuji**	**Philip**	**Ballim**
9:00	Thin Film and Nanostructured Materials for Photovoltaic and Hydrogen Storage Applications **Clemens, Bruce M.**	Effect of Supercritical Ethanol Drying on the Properties of Zinc Oxide Nanoparticles **Egbuchunam, Theresa**	Metallization Of Waste Agro Material Based Substrate–A "Semi-Green" Printed Circuit Board (PCB) Initiative **Obinna, Ofoegbu**	Properties Of Soil-Cement Blocks And Influence On Masonry Design **Uzoegbo, Herbert**
9:15		Synthesis and characterization of CuS nanoparticles using the chemical bath deposition method **Dejene, F. B.**	Micromechanical Modeling Of Tensile Properties Of Starch/ Poly(ε - Caprolactone) (PCL) Composites And Blends **Salifu, Tahir**	
9:30	Conducting Polymer Based Photoelectrochemical Solar Energy Conversion **Teketel, Yohannes**	Synthesis and Characterization of Y_2O_2S:Eu Nanophosphors Using Sol-combustion **Ali, A. G.**		The effect of precipitated silica on the mechanical behaviour of a cured cement blend matrix **Mkhabela, Kenneth**
9:45		Temperature-dependent growth mode of W-doped ZnO nanostructures **Ngom, Balla Diop**	Production Of Green Nano Composite "CeMOSPE" From Waste Baggase And Polyethylene Materials **Obinna, Ofoegbu**	
10:00	Improving solar energy conversion with nanoscale materials **Bent, Stacey**	Water soluble metal chalcogenide nanoparticles using sugar molecules and their derivatives **Moloto, M. J.**	Quantitative Synthesis of High Purity Nanoporous Silica from Waste Products of the Phosphate Fertilizer Industry **Gideon, Elineema**	Understanding the Thermal Stress Development in Concrete at early Ages **Olajumoke, A. M.**
10:15		Wet Chemical Synthesis and Characterization of Manganese Sulfide Nanoparticles **Jiten, Tailor**	Recent Applications Of Textile Materials In Medicine And Surgery **Giwa, A**	

10:30	**TEA BREAK**			
11:00	Chemical Etching on Removing of Secondar Phase of Cu_2ZnSnS_4 Solar Absorber Layer Prepared by Sputtering and Sulfurization **Lee, Seong Heon**	Synthesis of nanosized ZnO hexagonal pillars by hydrothermal method for gas sensor applications **Jain, Gotan**	Regulatory Perspectives for Risk Assessment **Guiseppi-Elie, Annette**	Advances in the Potential Uses of Cassava Starch in Concrete **Akindehinde, A**
11:15		Biosynthesis of Gold Nanoparticles **Odusanya. O.S.**		
11:30	Addressing Photovoltaic Silicon Manufacturing Needs within an Industry/University/ Government Consortium **Rozgonyi, G.**	Biosynthesis of Magnetite nanoparticles **Soboyejo, W.**	Synthesis of poly(acrylamide-co-2-acrylamido-2-methyl propanesulfonic acid) hydrogel-silver nanocomposites and investigation of their antimicrobial activity **Ravindra, Sakey**	Strength characteristics of compressed soil-cement blocks **Ipinge, Iyambo**
11:45			Synthesis, Spectroscopic Characterization and Antimicrobial Screening of N-(thiazol-2-yl)-4-chlorobenzensulphonamide and its nickel (II) and cobalt (II) complexes **Obasi, Nmamdi Lawrence**	
12:00	Fabrication of Hybrid Solar Cells using Poly (2,5-dimethoxyaniline) Hexagonal Structures and Zinc Oxide Nanostructures **Mavundla, Sipho**	**Panel Discussion**	Technological Advances in the Potential Uses of Cassava **Akindahunsi, Akindehinde**	Using Permeability As The Key Parameter For Service Life Modelling Of Concrete – A Review **Alhassan, Yunusa**
12:15	A High Molar Extinction Coefficient Bisterpyridyl Homoleptic Ru(II) complex with trans-2-methyl-2-butenoic acid functionality Potential Dye for Dye-Sensitized Solar Cells **Adeloye, Adewale**		Molecular Imprinting and Sugar for your Tea **Philip, Joseph**	
12:30	**LUNCH**			

Symposium	Electrochemistry	Optics and Thin Films	Education	Carbon
Venue	Kalala	Kazuma	Matetsi	Gwayi
Session chair	MM Modibedi	Gutierrez	Cornish	Fanchini
14:00	Materials electrochemistry in energy storage and conversion **Ozoemena, Kenneth**	Optical and structural properties of TeO_2-Li_2O-Nb_2O_5 glass system **Yukimitu, Keizo**	The Importance of Science Education for Economic Prosperity in Developing and Emerging Countries **Habermeier, H.U.**	Spintronics with Graphene Nanoribbons: a Theoretical Exploration **Feng, Yuan Ping**
14:15				
14:30	High Performance Nanomaterials for Electrodes in Lithium Ion Batteries **Chowdari, B.V.R.**	Optimization of ITO rf sputtering process parameters for low temperature applications and under low vacuum deposition conditions **Zebaze Kana, M. G.**	Bridging the Nano Divide through the ICPC Nanonet Project - with a focus on Africa **Tobin, Lesley**	Computational insights into nanotribology: Antimony on HOPG **Stich, Ivan**
14:45		Optimizing Silicate Glass for Active Optical Waveguides **Mika, Martin**		
15:00	Characterization of polymer thin films by vector-contrast acoustic microscopy: applications in fuel cell components **Kamanyi, Albert**	Surface Plasmon and Photonic Mode Propagation in Gold Nanotubes with Varying Wall Thickness **Kohl, Jesse**	An Overview of Office of Naval Research Global and some Materials S&T Interests **Wells, Joe**	Nanoscience at Silicon Carbide and Epitaxial Graphene Surfaces/Interfaces **Soukiassian, Patrick**
15:15		Energy transfer by ZnO to SiO2:Ce3+ matrix **Ali, A.G.**		
15:30	**TEA BREAK**			

Symposium:	Electrochemistry	Optics and Thin Films	Education	Infrastructure
Venue:	**Kalala**	**Kazuma**	**Matetsi**	**Gwayi**
16:00	Electrochemical impendence analysis (EIS) of hydrous ruthenium oxide ($RuO_2.nH_2O$) thin films prepared by chemically modified method **Deshmukh, Prashant**	Structural and Optical Properties of Yttrium-Doped ZnO Nanowires **Alford, Terry**	Nanoscience Undergraduate Education: Lessons Learned From Experiences in the US and South Africa **Augustine, Brian**	Modeling of Compressive Strength of Sodium Silicate Bonded South Western Nigeria Kaolinite Clay **Bodede, O.**
16:15				
16:30		Synthesis and characterization of Cu_2ZnSnS_4 (CZTS) thin films **Madhukar, Shinde Nanasaheb**	Climate Change Debate and opportunities for Science and Technology Innovations: Materials Research Science from COP 17 **Karimanzari, Rungano**	**Adewoye**
16:45		Synthesis of ZnO nanorods by spray pyrolysis for H_2S gas sensor **Wagh, V. G.**		
17:00	Structure sensitivity and kinetics of selective oxidation of sugars over gold catalysts **Kusema, Bright**	Thermoluminescence Study of Long Persistent CaAl2O4:Eu2+, Nd3+/Dy3+ **Wako, Ali**	**Panel Discussion**	**Panel discussion**
17:15		Spectral selectivity of Pt-Al_20_3 nanocoatings for high temperature applications **Nuru, Zebib**		
18:00	**Poster session**			
19:00	**Banquet** **Professor H.A.M. Dzinotyiweyi, Minister of Science and Technology Development, Zimbabwe** **Wole Soboyejo - Nelson Mandela Institutions and ARIST Initiatives**			

	THURSDAY , 15 DECEMBER				
8:15am	**Plenary – Stuart Parkin, The Spin on Electronics! - Science and Technology of spin currents in nano-materials and nano-devices**				
Symposium	**Condensed Matter**	**Photovoltaics**	**Metallurgy, Foundry and Materials Processing**	**Energy and Sustainability**	**Nanobiology**
Chair:	**Habermeier**	**Teketel**	**Kuipa**	**Dusastre**	**Matsuura**
Venue:	**Matetsi**	**Kazuma**		**Kalala**	**Gwayi**
9:00	Unveiling the intrinsic origin of the anomalous Hall effect **Jin, X.F.**	Improved efficiency of photovoltaic devices based on strongly correlated oxide materials **Dobrosavljevic, V.**	Analysis of materials used in the modern nuclear industry **Malherbe, Johan**	CO_2 capture and separation, **Li, Jing**	Applications of Nanomaterials in Medical Diagnostics **Tshikhudo, R.T.**
9:15		Photoelectrochemistry of Metallo octacarboxyphthalocyanines for Dye Solar Cells **Mphahlele, Nonhlanhla**			
9:30	A study of antiferromagnetic and ferromagnetic systems using x rays **Qiu, Z.Q.**	Solution-processed Metal Selenide Quantum Dots Photovoltaics **Moloto, Nosipho**	Elastic Constants of Platinum group Alloys (Rh_3Zr and Rh_3Nb) Using Surface Brillouin Scattering **Sumanya, Clemence**	Strategies and activities of the IAEA in the field of Ion Beam Applications **Simon, Aliz**	Luminescent Indium Phosphide-based Semiconductor Nanocrystals as Imaging Tools in Biology **Mushonga, Paul**
9:45			Structure and magnetism of clean and impurity-decorated grain boundaries in nickel from first principles **Sob, Mojmir**		The Use Of Nanoparticles In Breast Cancer Treatment **Obikwelu, Daniel**
10:00	Fabrication and Structural properties of PZT/BFO multilayer thin films **Jo, Seo-Hyeon**	Sythensis And Characterization Of ITO/CdS/CuS/, ITO/CdS/Sb2S3 And ITO/CdS/Tl2S Multilayers **Ogbu, M. P.**		The impact of metal oxide photocatalysis on environmental conservation and clean energy production **Tong, David**	Pulsed-laser thin films for photonic applications and near-infrared emitting quantum dots for imaging **Chaker, Mohamed**
10:15	Possible High Temperature Superconductivity above 100K without Copper **Isikaku-Ironkwe, O.**	Adhesion and Lamination of Organic Electronic Structures, **Jain, Gautam**	Heat Treatment of Direct Metal Laser Sintered Ti6Al4V to Improve Ductility **Lesejane, G**		

10:30	TEA BREAK				
Venue:	**Matetsi**	**Kazuma**		**Kalala**	**Gwayi**
11:00	Heusler compounds: From semiconductors to spintronics **Felser, Claudia**	The optical and structural properties of polycrystalline Cu(In,Ga)(Se,S)2 absorber thin films **Dejene, F. B.**	MIM feedstock for Ti-based alloys: Binder and Feedstock Development **Chikwanda, Hilda**		Designing of rapid gold nanoparticle diagnostic test to give an early alarm of gastric carcinoma cause by Helicobacter pylori **Mohammed, Aymen**
11:15				The Li-Induced Conversion Reaction of Ultra-Thin FeF_2 Films: Photoemission Spectroscopy Measurements of Battery Materials **Thorpe, Ryan**	Dosimetric response of synthetic diamond crystals of various types to diagnostic mammography X-rays and electron therapy beams **Ade, Nicholas**
11:30	Current-voltage-temperature (I–V–T) characteristics of an O_2 annealed Ni/Au Schottky contact on HVPE $Al_{0.18}Ga_{0.82}N$ **Legodi, Matshisa**	Fabrication of a polycrystalline silicon P-layer grown using the Direct Aluminium Induced Crystallization and Doping Process for solar cell application **Kotsedi, Lebogang**	Metal Injection molding as a possible processing route for porous and full density prosthetic devices **Bhero, Shepherd**	Capacitors, batteries, and optical coatings **Gutierrez, Sam**	Electrochemical, impedance and spectroscopic study of doped Poly(Phenazine 2,3-diimino(pyrrole-2-yl) immobilized at Pt electrode as redox stimulated actuator for application as a controlled drug release **Iftikhar, Faiza**
11:45	Semiconductor Sources of Terahertz Radiation: Principles, History and Trends **Kagan, Miron**	Solar Cells based on the Sensitization of Oxide Semiconductors with Indoline **Onwona-Agyeman, B.**			
12:00	**Panel Discussion**	**Panel Discussion**	**Panel Discussion**	Information Technology: power density, bandwidth, memory, and improving system efficiency, **Ritter, Mark**	**Panel Discussion**
12:30	**LUNCH**				

Symposium	Electrochemistry	Optics, Thin Film, Cond Matt and PV	Metallurgy, Foundry and Materials Processing	Sustainable Materials	Education and Collaboration
Session chair	**CD Lockhande**		**Simbi**		**Lesley Tobin**
Venue	**Kazuma**	**Matetsi**			**Kalala**
14:00	Electro-synthesis of cobalt hydroxide [Co(OH)2] thin film electrode and their supercapacitive performance **Jagadale, D.**	Solar Energy and OLEDs **Soboyejo, Wole**	Stable mode for non-isothermal dendrite growth in a ternary system **Alexandrov, Dmitri**	Functionally graded composites: from structural to biological applications **Jose da Costa Velhinho, Alexandre**	Quality materials science education for sustainable development through distance learning: the case for Nigeria and Zimbabwe **Kabanda, Gabriel**
14:15					
14:30	Nanocrystalline $NiFe_2O_4$ thin film: Synthesis, charactrization and supercapacitive application **Jamadade, Vinayak**	Dye-Sensitized Solar cell sensitized with Carica papaya-Leaf extract **Zebaze Kana, M. G.**	Development of metal matrix composites for hard-wearing surfaces of mining applications **Madzivhandila, Takalani,**	The Use of Cassava Waste in the Removal of Co (II), Cr (III) and V(III) from Effluents Streams **Ndlovu, Sehliselo**	Basic research in materials and nanotechnology for Air Force Applications **Pollak, Randall 'Ty'**
14:45	Synthesis of $Li_4Ti_5O_{12}$ and its electrochemical properties **Luo, Hongze**			Borassus fruit fiber-reinforced high-density polyethylene composite **Obi Reddy, Kanchireddy**	
15:00	FeCo@Pd Core Shell Nanocatalysts for Direct Alcohol Alkaline Fuel Cell (DAAFC) Applications **Fashedemi, Omobosede**	Benchtop photolithography **Teri Odom**	Selection Of Coals For Making High Quality Metallurgical Coke For Blast Furnace Used At The Ajaokuta Steel Company Limited **Ocheri, Cyril**	Dispersion of nanomaterials into Nafion membranes for proton exchange membrane fuel cell applications **Cele, Nonhlanhla Precious**	Science and Technology Education curriculum Reforms for Nanoscience and Technology (NST) Revolution **Mupa, M.**
15:15			Investigation Of The Bonding Characteristics Of Termite Hills For Use In Foundries **Ogu, Mojisola**	Materials Characterization and Failure Analysis of Porous Ceramic Water Filters **Soboyejo, Wole**	
15:30	**TEA BREAK**				

16:00	Proton exchange membranes based on Poly (2, 5benzimidazole) (ABPBI) polymer for fuel cells at high temperature **Zheng, Haitao**	Hard X-ray Micro-Optics for Materials Characterization **Evans-Lutterodt, K.**	Surface Brillouin and Raman scattering studies of argon ion bombarded GaAs during isochronal annealing **Jakata, Kudakwashe**	Mathematical Modeling and Simulation of a Diffusion Process in the Bloodstream in the Human Body **Ike, Innocent**	The Advantages of Network-Based Research Activities in Developing and Emerging Countries **Habermeier, H-U**
16:15	Ionic Conducting Membranes of DNA-CTMA for Electrochemical Devices **Quintero, D. E.**		Some nano-mechanical properties of boron suboxide **Machaka, Ronald**	Rheological behaviour and thermal properties of pitch-PVC blends **Hlatshwayo, S. R.**	
16:30	Computational study of rutile tin-oxide (SnO_2) **Mosuang, Thuto**	Inter and Intra-facial Adhesion in Hybrid Organic/Inorganic Solar Cells and Light Emitting Devices **Tong, Tiffany**	Microstructural Characterization of Laser Deposited Titanium and Zirconium Base Metal Matrix Composites **Ochonogor, Onyeka**		Low-cost universal signal generation and detection technology for educational and high resolution monitoring applications **Kamanyi, Albert**
16:45	Structural Evaluation and Ionic Conductivity Studies of MoO_3 Dispersed Mixed Halide Matrix $(KCl)_{1-x}$–$(NaCl)_x$ **Tajudeen, Ahmed**	Adhesion and Failure Phenomena in Organic LEDs and Hybrid Organic-Inorganic Light Emitting Devices **Momodu, Damilola**	Ion implantation of Iodine and Cesium in 6H-SiC, damage production and diffusion behavior **Kuhudzai, R. J.**		
17:00	**Panel Discussion**	Resonant tunneling in Si/SiGe/Si structure with a single quantum well **Kagan, Miron**	Use Of Raman Spectroscopy To Study Fatigue Type Processes In Polycrystalline Diamond (PCD) **Vhareta, Maxwell**	**Panel discussion**	Materials Engineering Education In African Universities For What, For Whom And Why? **Obikwelu, Daniel**
17:15			Raw Materials Beneficiation And Mineral Processing **Nassingwa, Ruth**		
18:30	**Dinner**				
20:00	**Open Meeting to Discuss Future of the Africa MRS Panel: Zimba, Beye, Soboyejo, Habermeier**				