

EPC 2013
11-14 AUGUST 2013
PRELIMINARY PROGRAMME

Day	Date	Time	Item	Name					
DAY 0									
Day 0	Sunday 11 August 2013	17:00 - 18:00	Registrations						
		18:00 - 22:00	Welcoming Function (Endorsed by THRIP)						
		Programme Director: Mr Xolisa Vitsha (National Research Foundation)							
		18:00 - 18:10	Message of support from Hosting organisation	Dr. Zebon Vilakazi -MD: iThemba LABS					
		18:10 - 18:40	Keynote address	Dr. Isaac Salagae: Deputy Director - Power					
		18:40 - 19:00	Video –"The Journey's Beginning"	Dr. Rocky Skeef					
		19:00 - 21:00	Networking and Cocktail Function	iThemba LABS					
DAY 1 Session Chair: Dr Rocky Skeef: Executive Director: National Research Foundation									
Day 1	Monday 12 August 2013	08:30 - 09:00	Key Note Address						
		09:00 - 09:30	Speech	Dr. Cordelia Sita-Chief Director Hydrogen & Energy: Department of Science and Technology					
		09:30 - 10:00	Human Capital Imperatives for the Energy Sector in South Africa		Ms. Nelisiwe Magubane -Director-General- Department of Energy				
		10:00 - 10:30	The NRF: A Catalyst for Human Capacity Development and Knowledge Generation		Dr. Rob Adam- President of NIASA & Group Executive at Aveng				
		10:30 - 11:00	Topic TBC		Dr. Gansen Pillay – NRF Deputy CEO				
		11:00 - 11:45	Tea Break Formal Opening of Exhibitions & Energy Experience Centre (Dignatory TBC)			AREVA (TBC)			
		11:45 - 13:00	Nuclear Focussed, Cross-Cutting Energy Focused & Renewable Focussed, Presentations by Post-Graduate Students						
		Breakaway Sessions I (11:45 - 13:00)	11:45 - 12:00	Track: Nuclear Session Chair (Prof Lindsay) Neutronic simulation of the European Pressurised Reactor	Mr. MONTWEDI, Ontlametse	Track: Renewables 2 Session Chair (Prof Madjoe) A literature analysis of barriers and policy opportunities for the growth of renewable energy technologies at the	Mr. TSEHLA, Maloba	Track: Renewables 1 Session Chair (Prof Manyala) Evaluation of six Saccharomyces cerevisiae promoters during growth on xylose	Ms. MANDE, Livhuwani
			12:00 - 12:15	Understanding uranium reduction	Ms. PALM, Sherilee	Inlet and outlet shape-optimization of natural circulation building ventilation system	Mr. SWIEGERS, Cobus	Intensification of methane production at SABMiller Newlands Brewery (SABNB) anaerobic Wastewater Treatment Plant (WTP)	Mr. NKADIMENG, Lefa
			12:15 - 12:30	Measurement of Level Density and Photon Strength Function in 138La	Mr. KHESWA, Bonginkosi	Development of a range of heat pipe heat recovery heat exchangers for the drying industry	Mr. THOMAS, Nathan	Evaluation of the solar irradiance in the selected locations in the Vhembe District of the Limpopo Province of South Africa using different theoretical models.	Ms. MULAUDZI, Sophie
			12:30 - 12:45	Uncertainty and Sensitivity analysis of a Materials Test Reactor with the aid of Flownex	Mr. MODUKANELE, Mogomotsi	Development of a universal bidirectional galvanic isolated switch module for power converter applications	Mr. KOPANO, Mokhalodi	Influence of Canting Mechanism and Facet Profile on Heliostat Field Performance	Mr. LANDMAN, Willem
			12:45 - 13:00	Simulation and control implications of a high temperature modular reactor (HTMR) cogeneration plant nuclear energy for power and coal	Mr. TSHAMALA, Carl	VO2 nanostructures based chemiresistors for low power energy consumption hydrogen sensing	Mrs. SIMO, Aline	Thermochromic nano-coatings for solar radiations heat regulation in small satellites	Ms. MATHEVULA, Langutani
		13:00 - 14:00	Lunch & Visit to Exhibitions						
		14:00 - 15:00	Nuclear Focussed, Cross-Cutting Energy Focused & Renewable Focussed, Presentations by Post-Graduate Students						
		Breakaway Sessions II (14:00 - 15:00)	14:00 - 14:15	Track: Nuclear Session Chair (Dr Lalk) Optimising the placement of fuel	Mr. SCHLÜNZ, Evert B	Track: Renewables 2 Session Chair (Mr Zibi) Theoretical and experimental simulation	Mr. JEGGELS, Dawood	Track: Renewables 1 Session Chair (Dr Mtshali) Simultaneous biogas production and	Mr. APOLLO, Seth
			14:15 - 14:30	Microstructural characterisation and thermal properties of model high temperature reactor graphite composites:	Mr. MAGAMPA, Philemon	Scaling Machines for Renewable Energy IPP Applications	Mr. SOLOMON, Ramzi	Liquefaction of sunflower husks for biochar production	Ms. PIYO, Nontembiso
			14:30 - 14:45	Search low spin states at high excitation energy in 20Ne with the (p, α) reaction	Mr. SWARTZ, Cobus	Geothermal heat recovery and utilisation using heat pipes	Mr. LOUBSER, Karl	A novel approach to reduce ray tracing simulation times by reducing statistical noise	Mr. BODE, Sebastian-James
			14:45 - 15:00	Conservation laws and analytical solutions for a two-dimensional tortuous hydraulic fracture	Ms. KGATLE, Mankabo Rahab	A Legal analysis on the regulation of renewable resources to promote energy efficiency in sustainable building	Ms. VAN DER BANK, Marjone	Gratzel dye solar cells with bixa orellana natural dye extract	Mr. ZONGO, Sidiki

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Day	Date	Time	Item	Name					
		15:00 - 15:35	Exhibitions visit (Tea on spot)						
		15:40 - 17:00	Poster Session (Tea on spot) (idem area as Exhibitions)						
DAY 2									
Day 2	Tuesday 13 August 2013	Session Chair: Dr Ncholu Manyala- SARCHI Chair in Carbon Technology and Materials, University of Pretoria, Pretoria & Chairperson of EPC 2013 Oversight Committee							
		08:30 - 09:00	Gender as a Critical Element in Human Capital Development in South Africa	Dr. Margaret Mkhosi President: Women in Nuclear South Africa-WINSA & General Manager at Technology Innovation Agency					
		09:00 - 09:30	The Energy Mix within the SA energy landscape	Dr Don Mingay					
		09:30 - 10:00	Clean Energy Education & Empowerment	Ms. Hlengiwe Sayd Project Manager C3E					
		10:00 - 10:30	International Relations and Cooperation (Topic to be confirmed)	Mr. Michael Nxumalo Director: NRF International Relations & Cooperation					
		10:30 - 11:00	Topic to be confirmed	Dr Jörg Lalk: Coordinator: Energy Institutional Research Theme, Graduate School of Technology Management					
		11:00 - 11:10	SANI or HySA	SANI/ HySa rep (TBC)					
		11:10 - 11:20	M'SONE	Prof. Simon Connell					
		11:20 - 11:30	SOLAR	Prof Wikus van Niekerk					
		11:30 - 12:00	Tea Break & Visit to Exhibitions						
		Nuclear Focussed, Cross-Cutting Energy Focussed and Renewable Focussed, Presentations by Post-Graduate Students							
			12:00 - 12:15	Track: Nuclear Session Chair (Dr Naicker) Examination and improvement of SHEM multigroup energy structures	Dr. NGELEKA, Tholakele	Track: Renewables 2 Session Chair (Prof Maaza) Theoretical modeling and experimental verification of a passive downdraught evaporative cooling tower	Mr. DU PREEZ, Jacques	Track: Renewables 1 Session Chair (D Kotsedi) Photovoltaic module characterisation using Electroluminescence	Ms. CROZIER, Jacqui
			12:15 - 12:30	Real options valuation for South African nuclear waste management using a fuzzy mathematical approach	Mr. MONTSHO, Obakeng	Thermochromic doped vanadium dioxide coatings for smart windows	Ms. PHILANDER, Ghouwaa	Thermal storage in packed beds: pressure drop and heat transfer characteristics	Mr. ALLEN, Kenneth
			12:30 - 12:45	Characterization of the 2+ excitation of Hoyle state in 12C	Mr. NEMULODI, Fhumulani	Nano-satellites as energy efficiency facilitators in Africa	Mr. TADADJEU SOKENG, Ifriky	High temperature thermal energy storage and heat transfer using eutectic metals in concentrating solar power	Mr. KOTZÉ, Johannes
			12:45 - 13:00	Exact solutions and conservation laws of the generalized double sinh-Gordon equation	Mr. MAGALAKWE, Gabriel	Design of a subcritical and transcritical carbon dioxide refrigeration system	Ms. FOURIE, Marna	Thermodynamic stability of VO2 in contact with thin metal films	Ms. THABEZHE, Nokwethemba
			13:00 - 13:15	Flow regime recognition in two-phase thermosiphon loops using pressure pulse analyses:	Mr. RUPPERSBERG, Coenraad	Production of nanofibers for technological application by electrospinning of polymer-graphene solution	Mr. MANABILE, Segaula Isaac	An investigation into the synergistic action of exo-type and endo-type cellulases on the hydrolysis of complex substrates	Ms. THORESEN, Mariska
			13:15 - 13:30	A study of crack formation and its effective internal surface area using X-ray Micro-Tomography (XMT)	Ms. SEAKAMELA, Teffo	Hybrid position sensorless control of a RSM in the entire speed range	Mr. BARNARD, Francois	Building of a free piston Stirling demonstrator engine	Mr. DEETLEFS, Ivan
			13:30 - 13:45	The development of a converter target for the production of radioactive beams at iThema LABS	Mr. NGCOBO, Zipho	Split permanent magnet wind turbine generator topology comparison using optimisation	Mr. STANDER, Johan	Pt-Al2O3 ceramic nano-composites for high temperature solar absorbers applications	Mrs. NURU, Zebib Yenus
			13:45 - 14:15	Lunch & Visit to Exhibitions					
			14:15 - 14:30	Track: Nuclear Session Chair (Dr Ntshangase) Polynomial interpolation of the few group homogenized cross sections of a mixed oxide fuel assembly	Mr. CHIFAMBA, Saymore	Track: Renewables 2 Session Chair (Dr Otto) Thermodynamically driven gravity assisted water pump based on novelty dipping bird	Mr. CRAIG, Rob	Track: Renewables 1 Session Chair (Prof Chikwembani) Impact of inhibitors associated with lignocellulose hydrolysates on the expression level and activity of recombinant cellulolytic enzymes	Mr. MHLONGO, Sizwe I
			14:30 - 14:45	Reduction of uranium-(vi) under microaerobic conditions using an indigenous mine consortium	Ms. CHABALALA, Simphiwe	Synthesis of hematite nanorods for the study of its optical properties for the possible use in hydrogen production	Mr. NDLANGAMANDLA, Cebo	Chemical synthesis of graphene for dye solar cells electrodes.	Mr. THEMA, Force Tefo
			14:45 - 15:00	Exploring the spectroscopy of vibrational levels in the transitional rare earth region	Mr. MAJOLA, Siyabonga	Resource Assessment of the Agulhas Current to determine Feasibility for Marine Energy Extraction	Ms. MEYER, Imke	A hybrid dephlegmator for incorporation into an air-cooled steam condenser	Mr. OWEN, Michael
			15:00 - 15:15	Analysis of flow through cylindrical packed beds with small cylinder diameter to particle diameter ratios	Mr. VAN DER MERWE, Wian	Comparison of Differential Evolution and Genetic Algorithm in the design of permanent magnet Generators	Mr. LILLA, Daleel	Design, optimisation and construction of a solar reflector dish	Mr. MEYER, Rohan
			15:15 - 15:30	Simulation of an inherently-safe system for	Mr. LOUBSER, Karl	The effect of climate change on wind	Ms. HERBST, Lynette	Design & construction of a self-	Mr. PRINSLOO, Gerro

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			a nuclear reactor energy source	resources in South Africa
		15:30 - 16:00	Tea Break & Visit to Exhibitions	
		16:00 - 17:00	Poster Session (in same area as Exhibitions)	

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Day	Date	Time	Item	Name					
DAY 3									
Day 3	Wednesday 14 August 2013	Session Chair: Dr Aldo Stroebe: Executive Director – International Cooperation & Relation							
		08:30 - 09:00	Future Perspectives for the Energy Industry in South Africa	Mr. Phumzile Tshelane: SANHARP programme architect, CEO Necsa					
		09:00 - 09:30	Energy Policy	Honourable Sisa Njikelana: Chairperson: Parliamentary Energy Portfolio Committee on Energy					
		09:30 - 10:00	SANEDI / RECORD (Renewable Energy in South Africa)	Mr Kanedi Nassiep: CEO, SANEDI					
		10:00 - 10:10	MANUS & MATSCI	Prof Robert Lindsay					
		10:10 - 10:20	CRSES	Prof Alan Brent					
		10:20 - 10:30	SANHARP Success Story (Topic to be confirmed)	Mr Monnamme Tlolleng					
		10:30 - 11:00	Tea Break & Visit to Exhibitions						
		Nuclear Focussed, Cross-Cutting Energy Focussed, Renewable Focussed Presentations by Post-Graduate Students (Specialised Topics-TBC)							
			11:00 – 11:15	Track: Nuclear Session Chair : (Ms Nwokedi) Assembly discontinuity factor calculation for use in the nodal expansion method	Mr. SCHOLTZ, Graham	Track: Renewables 2 Session Chair: (Prof Sankaran) Micro-utilities using battery based distribution for rural electrification in South Africa	Mr. VAN DER WALT, James	Track: Renewables 1 Session Chair: (Dr Maluta) Potential of using Organic Fraction of Solid Municipal Waste (OFSMW) for biohydrogen production in South Africa	Mr. SEKOAI, Patrick Thabang
			11:15 – 11:30	Production of Sn-117m with a high specific activity by recoil	Ms. THOANE, Kefilwe Thato	The development of a segmented variable pitch small-scale horizontal axis wind turbine with active pitch control	Mr. POOLE, Sean	Factors influencing the conversion efficiency of a PV module	Mr. OZEMOYA, Augustine
			11:30 – 11:45	Monte Carlo study to determine the neutron flux spectrum for a water phantom: preliminary results	Mr. MAKHUBELA, Mathews	The development of recombinant fungal enzyme cocktails for the hydrolysis of cellulosic waste products	Ms. DOBSON, Rosemary	Low temperature deposition of silicon nitride thin films by hot-wire CVD	Mr. ADAMS, Abdulghaalq
			11:45 – 12:00	Bayes theorem in failure mode and effects analysis	Mr. BLAINE, Peter	Pressure rigidised wind turbine blades - a novelty	Mr. STANDER, Johan	Scenarios for a South African peaking CSP system in the short term	Mr. SILINGA, Cebo
			12:00 – 12:15	Development of a very high-temperature heat pipe heat exchanger	Mr. LAUBSCHER, Ryno	Techno-economic analysis of an off-grid micro-hydrokinetic river system for remote rural electrification	Mr. KUSAKANA, Kanzumba	Evaluating yeast hybridization to improve hydrolytic enzyme secretion for second generation bio-fuel production.	Ms. SIBANDA, Ntsako
			12:15 – 12:30	Characterization by x-ray diffraction of polycrystalline diamond samples from different origins	Ms. MOIPOLAI, Tshogofatso	Development of platinum-iridium/ruthenium telluride nanoalloy electrode systems for high performance ammonia fuel cell	Mrs. MAYEDWA, Noluthando	The evaluation of macro-algae as a feedstock for bio-energy production within the South African context	Ms. NEFDI, Taryn
	12:30 – 12:45	Preliminary results of a Monte Carlo study of neutron beam production at iThemba LABS	Mr. MULAUDI, Immanuel	Thermally driven natural circulation water pump	Mr. HOBBS, Kyle	The bio-energy potential of the South African sugarcane industry and its expected influence on sustainable development.	Mr. MULLER, Christopher		
	12:45- 14:00	Lunch & Visit to Exhibitions							
	Wednesday 14 August 2013	14:00 - 14:15	Track: Nuclear Session Chair: (Prof Rousseau / Prof Connell) Thermal Hydraulic Simulation of a Supercritical-Water-Cooled Reactor Core using Flownex	Ms. MNGOMEZULU, Fikile	Track: Renewables 2 Session Chair (Prof Dobson) Design and performance analysis of renewable energy powered electric TUK-TUK battery charging stations in South Africa	Mr. KUSAKANA, Kanzumba	Track: Renewables 1 Session Chair (Dr Adonis) Exploring a systems approach for the economic assessment of small-scale anaerobic biogasifiers for rural areas	Mr. SMITH, Michael Trevor	

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Day	Date	Time	Item	Name
DAY 3				
		14:15 - 14:30	Study of fast neutron irradiation-induced damage on graphite and Zircaloy-4	Mr. MAHAFA, Tshepo
		14:30 - 14:45	Simulating the position sensitivity of the iThemba LABS segmented clover detector	Mr. NONCOLELA, Sive
		14:45 - 15:00	Evaluation of a rate form of the equation of state for use in transient homogeneous two-phase flow simulation models	Mr. FICK, Lambert
		15:00 - 15:15	Transient and unsteady behaviour and simulation in multi-channel natural circulation loops	Ms. SANGWENI, Lucy
		15:15 - 15:30	Study of octupole vibrations in nearly spherical nuclei	Ms. KHUMALO, Nontobeko
		15:30 - 15:45	The analytical study of radon concentration in soil and river water in Gauteng, South Africa using RAD7	Mr. MASEVHE, Livhuwani
		15:45 - 16:15	Tea Break Poster Session	
		16:15 - 17:00	Plenary Feedback, recommendations & Official Closure Session	

**SPONSORED EVENING ENGAGEMENTS
STELLENBOSCH LODGE
ENTRY FREE - SUPPER SERVED PRIOR TO START**

Day	Date	Time	Item	Name
EVENING DAY 1				
Evening Day 1	Monday 12 August 2013	Programme Director: Prof Malik Maaza: iThemba LABS		
		19:00 - 20:00	Head to Head Debate: This is equivalent to the roundtable discussions with the Minister of Energy (13 June 2013 in Cape to determine the level of enthusiasm of the youth i.e. the workforce of tomorrow for the national plan in the 9.6GW nuclear build programme	Mr. Jeetesh Keshaw: Director: Nuclear Technology , Ms Judy Nwokedi, Prof Wikus Van Niekerk & Dr Thandi Mgwebi
		20:00 - 21:00	1 hour questions/responses between participants and expert in the field. The subject would be "The energy mix within the SA energy landscape"	Dr. Don Mingay: Physicist

SPONSORED EVENING ENGAGEMENTS STELLENBOSCH LODGE ENTRY FREE – SUPPER SERVED PRIOR TO START EVENING DAY 2 (THRIP)				
Evening Day 2	Tuesday 13 August 2013	Programme Director: Dr Zolani Dyosi: Director, Applied Research & Innovation		
		19:00 - 20:00	Idem previous Debate: Head to Head Debate (1 hour questions/responses between participants and expert in the field. The subject would be "The role of Women and Youth in the energy sector within the SA energy landscape")	Mr. Gaopalelwe Santswere: Nuclear Physicist Eskom & Executive Chairperson SYNAPS
		20:00 - 21:00	Science Communication and Engagement	Mr. Lorenzo Raynard : Lorenzo Raynard, Manager, Science Communication Unit, SAASTA

EPC 2013 AWARDS EVENING & GALA DINNER SPONSORED BY NECSA 14 AUGUST 2013 NOOITGEDACHT ESTATE STELLENBOSCH WINELANDS			
Day & Date	Time	Time	Name
Evening Day 3 14 August 2013	Programme Director: Dr Gillian Arendse (iThemba LABS)		
	18:30 - 19:00	Arrival & Plated Starter	
	19:00 - 19:05	Introduction of NRF CEO	Dr Gillian Arendse
	19:05 - 19:20	Keynote Address	Dr Albert van Jaarsveld (Chief Executive Officer: National Research Foundation)
	19:20 - 19:30	Video "The Journey's End?"	
	19:30 - 19:45	Post-Graduate Excellence Awards	Prof Ncholu Manyala & Prof Simon Connell
	19:45 - 19:55	Best Poster & Best Presenter Awards	
	19:55 - 20:00	Special Recognition Certificates & Gifts	Dr Rocky Skeef & Dr Albert van Jaarsveld
	20:00 - 21:30	Main Course & Entertainment	NRF
	21:30 - 21:40	Vote of Thanks	

ACKNOWLEDGEMENTS

The NRF would like to acknowledge the following Sponsors:

- The Department of Science & Technology
- The Department of Energy
- NECSA
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- SANEDI
- iThemba LABS
- UP Graduate School of Technology Management
- Cape Town University of Technology
- SAASTA
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Participating Academic Institutions

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Wits University
Cape University of Technology
University of Cape Town
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This event was made possible by the support of the following:

EPC2013 Oversight Committee Members



Name & Surname	Picture	Institution	
Prof. Ncholu Manyala	Submitted	UP	
Ms. Judi Nwokedi	Submitted	Nuclear Sector	
Mr Jeetesh Keshaw	Submitted	DOE	
Dr. Carol Nonkwelo		UP	
Dr. Rocky Skeef		NRF	
Dr. Isaac Salagae	Submitted	DST	
Prof. Robert Lindsay		UWC	
Prof Malik Maaza	Submitted	iThemba LABS	
Dr Gillian Arendse		iThemba LABS	
Dr Van Zyl de Villiers		NECSA	





This event was made possible by the support of the following:

EPC2013 Researcher Forum Members

Name & Surname	Picture	Institution	Logo
Prof. Simon Connell	Submitted	UJ	
Mr Paul Gauche	Submitted	Nuclear Sector	
Prof Malik Maaza	Submitted	DOE	
Prof Vaith Sankaran	Submitted	UP	
Mr Zukile Zibi		TIA	
Prof Ernest van Dyk		NMMU	
Dr Karen SurrIDGE-Talbot	Submitted	SANEDI	
Prof Redgie Madjoe		UWC	

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