

CATSA 2023 CONFERENCE PROGRAM

Sunday, 5 NOVEMBER

15h00 - 18h00	REGISTRATION
16h30 - 18h00	STUDENT CHALLENGE
18h00	ICEBREAKER & PUB QUIZ

Monday, 6 NOVEMBER

07h00 - 08h30	Breakfast	
07h00 - 12h00	Late Registration	
08h30 - 08h40	WELCOME / CONFERENCE OPENING - Conference and CATSA chair: Prof. Eric van Steen	
08h40 - 09h25	PL: Prof. Nora de Leeuw University of Leeds, England	Computer-aided design of sulfide nano-catalysts for sustainable energy applications
Venue	Main Hall (Paro Dias)	
Venue	Session 1: Heterogeneous Catalysis Main Hall (Paro Dias)	Session 2: Homogeneous Catalysis Strandloper
Chair:	Thys Botha	Frederick Malan
09h30 - 09h50	OP-01: Development and enhancement of iron-based catalysts to boost the conversion of CO₂ via Fischer-Tropsch synthesis <i>Florian Mai and Andreas Jess</i>	OP-04: Hydrogen production from formic acid catalyzed by novel ruthenium pyridyl-formamidine compounds <i>Juliana M. Edor, Hermanus C.M. Vosloo, Johan Jordaan and Andrew J. Swarts</i>
09h50 - 10h10	OP-02: Potassium-promoted LaAl_{0.8}Mn_{0.2}O_{3-δ} empowered supports for the iron-based Fischer-Tropsch synthesis <i>Oaitse Percy Ketlogetswe, Motlokoa Khasu, Michael Claeys and Nico Fischer</i>	OP-05: Characteristics and reactivity of chelating ONO Ru and Cu complexes in the oxidation of alkanes <i>Nijal K. Singh, L. Soobramoney, Mzamo L. Shoji and Holger B. Friedrich</i>
10h10 - 10h30	OP-03: Tuning the active sites of supported cobalt catalysts to enhance efficiency for hard wax production <i>Jairus Lamola, Jana Potgieter, Prabashini Moodley, Denzil Moodley, Thys Botha, Michael Claeys, Eric van Steen</i>	OP-06: Polymetallic Ir(III) photosensitisers for photoredox catalysed carboxylation reactions of ketimines utilising CO₂ <i>Tara Davids and Gregory Smith</i>
10h30 - 11h00	TEA / COFFEE BREAK	
Venue	Session 3: Heterogeneous Catalysis Main Hall (Paro Dias)	Session 4: Electrocatalysis Strandloper
Chair	Holger Friedrich	Anzel Falch
11h00 - 11h20	OP-07: Pyrolysis and CO₂-assisted gasification of polystyrene using spent fluid catalytic cracking catalyst. <i>Athi-enkosi Mavukwana, Fath Aktas, Kiran G. Burra, Celestin Sempuga and Ashwani K. Gupta</i>	OP-11: Developing commercially relevant rechargeable zinc-air batteries: Electrocatalysis and beyond <i>Kenneth I. Ozoemena and Aderemi B. Haruna</i>
11h20 - 11h40	OP-08: Comparison of catalytic thermal conversion of waste polypropylene and polyethylene to carbon nanotubes over Fe-Co-Mo/MgO catalyst. <i>Matthew Adah Onu, Olusola Olaitan Ayeleru and Peter Apata Olubambi</i>	OP-12: Improving the ORR activity of the Pt-Ta₂O₅/C nanocomposite by nitrogen doping <i>Athule Nggalakwezi, Gary Patrik & Thelma Ngwenya</i>
11h40 - 12h00	OP-09: Mo₂C catalyst screening for the intensification of the reverse water-gas shift reaction <i>Lindokuhle B. Ngema, Wijnand Marquart, Michael Claeys and Nico Fischer</i>	OP-13: High performing Ni-Fe nitride electrocatalyst in alkaline exchange membrane fuel cells <i>Joesene Soto, Qihao Li, Schuyler Li, Andrés Molina, David Muller and Héctor Abruña</i>
12h00 - 12h20	OP-10: Conversion of DME to gLFG over a Pd/Beta zeolite catalyst <i>Candace P. Eslick, Jack C. Q. Fletcher and Stephen J. Roberts</i>	OP-14: Electronic interactions in oxide-supported iridium oxide catalysts for the oxygen evolution reaction <i>Ziba S. H. S. Rajan, Tobias Binner, Dominique Gouveia, Mark Blumenthal, Darija Susac, and Rhiyaad Mohamed</i>
12h20 - 13h20	LUNCH	

13h20 - 14h05	CATSA ANNUAL GENERAL MEETING		
Venue	Main Hall		
14h10 - 14h40	KL-01: Prof. Dean Brady	University of Witwatersrand	Cyclic economy: Biocatalysis as a key technology for sustainability
Venue	Main Hall (Paro Dias)		
Chair	Martie Smit		
Venue	Session 5: Heterogeneous Catalysis	Session 6: Biocatalysis	
Chair	Nico Fischer	Strandloper	
		Martie Smit	
14h45 - 15h05	OP-15: Zirconia-based catalysts for the (bio)alcohols-mediated valorisation of platform molecules derived from lignocellulose <i>Nicola Scotti, F. Zaccaria, F. Bossola, C. Evangelisti, L. Ardemani, V. Dal Santo, A. Irimescu, S. S. Merola, R. Psaro and N. Ravasio</i>	OP-18: H₂O₂ driven biocatalytic oxyfunctionalization reactions <i>Dirk J. Opperman and Martie S. Smit</i>	
15h05 - 15h25	OP-16: Modified basicity of Mg-Fe mixed metal oxides catalysts for glycerol conversion to form glycidol and glycerol carbonate via transesterification <i>Sakhile Dube, Lindelani Qwabe and Holger Friedrich</i>	OP-19: Nanocatalysts for ROS generation and disease diagnosis <i>Philani Mashazi, S. Mvango, S. Sicwetsha, O. Adeniyi and R. Chavalala</i>	
15h25 - 15h45	OP-17: Synthesis of zeolite-based catalyst from blast furnace slag for the thermochemical conversion of biomass <i>Nhlanhla Nyembe and Yusuf Isa</i>	OP-20: Investigating functionally relevant residues in cytochrome P450 monooxygenases using a 3D class specific molecular information system <i>Marko Marinkov, Ana C. Ebrecht, Diederik J. Opperman, and Martha S. Smit</i>	
15h45 - 16h15	TEA / COFFEE BREAK		
Venue	Flash Presentations	Flash Presentations	
Chair	Main Hall (Paro Dias)	Strandloper	
	Lebohang Macheli	Shaine Raseale	
16h20 - 16h25	FP-01: Melamine based Covalent Organic Frameworks/ Nitrogen Doped Reduced Graphene Oxide Composite for Battery-type supercapacitor application. <i>Daniel M. Tefu, Edwin Makhado, Katlego Makgopa and Kwena D. Modibane</i>	FP-05: Studying the effect of different alumina support modifiers on the Fischer-Tropsch synthesis activity and selectivity of Ru catalysts <i>Sanele Molo, Thulani M. Nyathi, Nico Fischer and Michael Claeys</i>	
16h25 - 16h30	FP-02: Supported liquid metal catalysts on hierarchical SiO₂ supra particles for propane dehydrogenation – effects of support pore size <i>Nnamdi Madubuko, Umair Sultan, Daniel Lehmann, Nicola Taccardi, Marco Haumann, Nicolas Vogel and Peter Wasserscheid</i>	FP-06: Phosphonium-functionalized N-heterocyclic carbene (NHC) complexes of Rhodium(III). As highly polar catalysts for hydrosilylation <i>Estefan van Vuuren, Frederick P. Malan and Marilé Landman</i>	
16h30 - 16h35	FP-03: Crystallite size dependent oxidation of Ni catalysts revealed via in situ magnetometry <i>Dominic de Oliveira, Nico Fischer, Michael Higham, C. Richard A. Catlow and Michael Claeys</i>	FP-07: Catalytic Oxidation Desulfurization of Dibenzothiophene by Triethylamine-based Bronsted-Lewis Acid Ionic Liquids <i>Ran Liu, Yali Yao, Xinying Liu and Fatang Li</i>	
16h35 - 16h40	FP-04: Co/N-doped Hollow Porous Carbon Spheres for Efficient Oxygen Reduction Reaction <i>Shuang Zong, Aibing Chen, Xinying Liu</i>	FP-08: Modification of titanium dioxide nanotubes using metal and non-metals to reduce the band gap for visible light photocatalytic degradation of phenol in industrial wastewater effluent <i>Athule Nqgalakwezia, Mpfunzeni Raphulua and Thembisile Khumalo</i>	
16h45 - 18h00	Technical Session: Poster Session 1		
18h00 - 19h00	PORETECH CHALLENGE		
19h00 - late	BRAAI		

Tuesday, 7 NOVEMBER			
07h00 - 08h30	Breakfast		
08h30 - 08h35	Daily admin		
08h35 - 09h05	KL-02: Holger Friedrich	University of KwaZulu-Natal	An Introduction to Heterogeneous Catalysis with examples of novel catalysts towards sustainable chemistry
Venue	Main Hall (Paro Dias)		
Chair	Zeni Tshentu		
Venue	Session 7: Heterogeneous Catalysis		Session 8: Heterogeneous Catalysis
Chair	Main Hall (Paro Dias)		Strandloper
	John Moma		Reijnout Meijboom
09h10 - 09h30	OP-21: An exploration into novel approaches for tuneable supports for supported catalytically active liquid metal solution catalysts <i>Aaron L Folkard, N. Madubuko, N. Taccardi, M. Haumann, H.B Friedrich and P. Wasserscheid</i>		OP-24: Efficient and selective oxidative transformation of aminophenols on Ru-Au and Ru-Pd nanocatalysts supported on titanium oxide <i>Thandiwe Mntambo, Mabuatsela Maphoru, Lethogonolo Mabena and Mzamo Shoji</i>
09h30 - 09h50	OP-22: Using Ru-based SILP for low temperature water gas shift reaction <i>Ferdinand Fischer and Andreas Jess</i>		OP-25: Catalytic oxidative-transformation of phenolic compounds over noble metal-based catalysts supported on SiO₂ <i>Tumisang Lekgetho, Mabuatsela Maphoru, Lethogonolo Mabena and Matshawandile Tukulula</i>
09h50 - 10h10	OP-23: A new use of indium as stability enhancer in steam reforming reactions for the hydrogen production. <i>Filippo Bossola, Mauro Coduri, Thantip Roongcharoen, Martina Fracchia, Soroosh Saeedi, Xuan Trung Nguyen, Claudio Evangelisti, Dragos Stoian, Luca Sementa, Alessandro Fortunelli and Vladimiro Dal Santo</i>		OP-26: Magnetic reinforcement of high entropy nano-electrocatalysts for ORR and OER, and application in rechargeable zinc-air batteries (RZAB) <i>Ernst Hechter, Aderemi Haruna, Dean Barrett, Xiao-Yu Yang, Kenneth Ozoemena</i>
10h10 - 10h40	TEA / COFFEE BREAK		
10h40 - 11h10	KL-03: Banothile Makhubela	University of Johannesburg	Valorization of plant biomass using molecular and surface molecular catalysts
Venue	Main Hall (Paro Dias)		
Chair	Manie Vosloo		
Venue	Session 9: Homogeneous Catalysis		Session 10: Electrocatalysis
Chair	Main Hall (Paro Dias)		Strandloper
	Selwyn Mapolie		Kenneth Ozoemena
11h15 - 11h35	OP-27: N-heterocyclic carbene complexes of Ru(II), Rh(III), and Ir(III) – Parallels and Deviations <i>Frederick P. Malan, Estefan van Vuuren, Babatunde Awe and Marilé Landman</i>		OP-31: Application of platinum-alloy nanoframes to enhance electrocatalytic activity of oxygen reduction reaction in PEMFCs. <i>Siphelo Ngqoloda, and Thelma Ngwenya</i>
11h35 - 11h55	OP-28: Negishi Pd-catalyzed cross-coupling reaction in the synthesis of unnatural amino acids <i>Vladimir A. Azov, Francois De Beer and Akho Ntsila</i>		OP-32: Metal-Free Polyaniline Copolymers: An Efficient and Stable Electrocatalyst for Clean Hydrogen in Acidic Media <i>Kabelo E. Ramohlola, Edwin Makhado, Shaine Raseale, Mpitloane J. Hato, Emmanuel I. Iwouha, Katlego Makgopa, Kwena D. Modibane</i>
11h55 - 12h15	OP-29: Heteroleptic dirhodium(II,II) complexes as catalyst precursors toward the hydroformylation and hydroaminomethylation of alkenes <i>Stephen de Doncker, Gregory Smith and Siyabonga Ngubane</i>		OP-33: Carbon nanofibers as the favourable support for Mn₃O₄ catalyst for oxygen reactions in rechargeable zinc-air battery <i>Augustus K. Lebechi, Thapelo P. Mofokeng and Kenneth I. Ozoemena</i>
12h15 - 12h35	OP-30: Novel triazole rhodium complexes as pre-catalysts for the biphasic hydroaminomethylation of olefins <i>Lydia Christoph and Selwyn Mapolie</i>		OP-34: Well-defined conjugated reticular oligomer and conducting polymer constructing "muscle"-biomimetic electrocatalysts for water electrolysis <i>Boying Zhang, Phathutshedzo Khangale, Xinying Liu</i>
12h40 - 13h40	LUNCH		

13h45 - 14h15	KL-04: Priscilla Baker Venue Main Hall (Paro Dias) Chair Thelma Ngwenya	University of the Western Cape	Highly porous, low conductivity emulsion polymers – where to from here?
	Session 11: Electrocatalysis Venue Main Hall (Paro Dias) Chair Thelma Ngwenya		Session 12: Heterogeneous catalysis Strandloper Bernard Owaga
14h20 - 14h40	OP-35: Microwave-assisted synthesis of triplite, Mn₂(PO₄)F, composites for use in an asymmetric supercapacitor <i>Ryan O'Connor, Thapelo Mofokeng, Aderemi Haruna, Dean Barrett, Kenneth Ozoemena</i>		OP-39: Novel heterostructure catalytic materials for removal of organic pollutants in water <i>John Moma, Menelisi Dlamini, Manoko Maubane-Nkadimeng, Lethula Excellent Mofokeng and Jeffrey Baloyi</i>
14h40 - 15h00	OP-36: Electrocatalysis of water splitting: the application of Electrochemical Impedance Spectroscopy <i>Artem Pushkarev, Irina Pushkareva and Dmitri Bessarabov</i>		OP-40: Effect of electron distribution and oxygen vacancies in perovskite-catalysed reactions <i>Ndzondelelo Bingwa</i>
15h00 - 15h20	OP-37: Nanostructured cobalt-iron oxygen evolution reaction catalysts obtained by urea hydrolysis. <i>Soroosh Saeedi, Claudio Evangelisti, Filippo Bossola, Marcello Marelli, Mauro Coduri, Gebrehiwet Abrham Gebreslase, David Sebastián, María Jesús Lázaro, and Vladimiro Dal Santo</i>		OP-41: Selective photocatalytic reduction of CO₂ to CH₄ over Pd-modified TiO₂ nanocatalyst <i>Xiao Tian, Xin-ying Liu, Diane Hildebrandt, Fa-tang Li and Xiao-jing Wang</i>
15h20 - 15h40	OP-38: α and β polymorphs of MnO₂ precursors control the structure-performance relationship in high-energy layered Li_{1,2}Mn_{0,54}Ni_{0,13}Co_{0,13}O₂ cathodes for lithium-ion batteries <i>Tebogo R. Tsekeli, Aderemi B. Haruna and Kenneth I. Ozoemena</i>		OP-42: Photocatalytic water splitting for green hydrogen production using PGM modified TiO₂ <i>Naomi Harrisankar de Oliveira, Eric van Steen</i>
15h40 - 16h10	TEA / COFFEE BREAK		
	Flash Presentations Venue Main Hall (Paro Dias) Chair Thulani Nyathi		Flash Presentations Strandloper Tayyibah Tahier
16h15 - 16h20	FP-09: Improving the selectivity to Liquefied Petroleum Gas by combining Fischer-Tropsch synthesis with zeolite cracking <i>Andreas Jess and Nicolas Oppmann</i>		FP-13: Ammonia decomposition using Supported Catalytically Active Liquid Metal Solutions (SCALMS) <i>P. Rothgangel, A.L Folkard, N. Taccardi, M. Haumann, P. Wasserscheid</i>
16h20 - 16h25	FP-10: Hybrid FeCo-Fe₂CoO₄/C bifunctional electrocatalysts for robust rechargeable zinc-air batteries <i>Agnes M. Mongwe, Augustus K. Lebechi, Aderemi B. Haruna and Kenneth I. Ozoemena</i>		FP-14: Salicylaldimine copper(II) complexes for efficient and selective alcohol oxidation <i>Siyasanga Boovsen, Martin O. Onani and Nandipha L. Botha</i>
16h25 - 16h30	FP-11: The Development of Anion Exchange Ionomer for Electrocatalysts in Application of Anion Exchange Membrane Fuel Cells <i>Thandiwe. R Maumau, Nobanathi. W Maxakato, Phumlani. F Msomi</i>		FP-15: From Biomass to value-added chemicals (furfural, lactic acid, levulinic acid), bio-based monomers, and bio-based polymers <i>Raynold Techie-Menson, James Darkwa, and Banothile C. E. Makhubela</i>
16h30 - 16h35	FP-12: Photocatalytic degradation of organochlorines using MOFs decorated with SnO₂ nanoparticles. <i>Boipelo L.O Poho, Kwena D. Modibane, Abdoulaye Thiam and Katlego Makgopa</i>		FP-16: Catalytic effect of modified micro-graphite particles on biodenitrification <i>Zhaozhou Peng, Xinying Liu, Phathutshendzo Khangale, Diane Hildebrandt, Junzhang Li, Shouxin Liu</i>
16h40 - 18h00	Technical Session : Poster session 2		
18h00 - 19h00	At leisure		
19h00 - late	CATSA BANQUET		

Wednesday, 8 NOVEMBER			
07h00 - 08h30	Breakfast		
08h30 - 08h35	Daily admin		
08h35 - 09h05	KL-05: Cornie van Sittert	North-West University	Computational Chemistry in Catalysis: Enhancing Understanding and Design
	Venue	Main Hall (Paro Dias)	
	Chair	Thobani Gambu	
	Venue	Session 13: Theoretical catalysis	Session 14: Electrocatalysis
	Chair	Main Hall (Paro Dias)	Strandloper
		Tishana Singh	Rhiyaad Mohamed
09h10 - 09h30	OP-43: Monometallic nanoparticles as catalysts for HER – A DFT study <i>Monique van den Berg, JI du Toit, and CGCE van Sittert</i>		OP-46: Manganese fluorophosphate (Mn₂(PO₄)F) as bifunctional electrocatalysts for oxygen reduction and evolution reactions. <i>Ndebele Nobuhle, Lebechi Kelechi, Haruna Aderemi and Ozoemena Kenneth</i>
09h30 - 09h50	OP-44: Role of titania in cobalt-based FT catalysts—An inverse catalyst model <i>Ragoo, Eric van Steen, Melissa Petersen, Thobani Gambu, Hellen Chuma</i>	<i>Yatheshth</i>	OP-47: Novel approach synthesis of platinum-based ternary alloys as electrocatalysts for polymer electrolyte membrane fuel cells <i>Zicabangele Mseleku, K.P. Tshehla, T. Ngwenya</i>
09h50 - 10h10	OP-45: A molecular dynamics (MD) study on the effect of cyclic conducting moieties on poly (2,6-dimethyl-1,4-phenylene oxide) (PPO) anion exchange membranes (AEMs) <i>T. Letsau, Takuya Mabuchi and Phumlani F. Msomi</i>	<i>Thabakgolo</i>	OP-48: Development of a viable metal electrocatalyst to produce green hydrogen from water electrolysis <i>Sabelo A. Jeza, Amir H. Mohammadi, David Lokhat, Cornelia G.C.E van Sittert</i>
10h10 - 10h40	TEA / COFFEE BREAK		
	Venue	Session 15: General	
	Chair	Main Hall (Paro Dias)	
		Patricia Kooyman	
10h45 - 11h05	OP-49: 3D hybrid zebra materials for sorption enhanced DME synthesis from direct CO₂ hydrogenation <i>Giuseppe Bonura, S. Todaro, G. Giacoppo, A. Mezzapica, A. Cajumi, C. Cannilla, F. Frusteri</i>		
11h05 - 11h25	OP-50: Carbon dioxide reduction via the reverse Water Gas Shift reaction over iron-nickel alloy-based catalysts: Alloy composition and support effects. <i>Shaine Raseale, Karina De Kock, Michael Claeys and Nico Fischer</i>		
11h25 - 11h45	OP-51: Addressing sustainability challenges in the preparation of cobalt Fischer-Tropsch catalysts <i>Jez Cloete, Jana Potgieter, Denzil Moodley, Kobus Visagie, Thys Botha</i>		
11h45 - 12h05	OP-52: Catalysis using gold and gold alloys <i>Graham J. Hutchings</i>		
12h05 - 12h25	OP-53: Near Ambient Pressure (NAP)-XPS: Applications and Instrumentation <i>Liana Socaciu-Siebert</i>		
12h25 - 13h00	Closing Remarks / Announcement for CATSA 2024		
13h00	CONFERENCE ENDS / LUNCH		