

45th SACI national convention: Chemistry: A window for change

FINAL



30 November 2025 - Sunday	
12h00-18h00	Registration <i>Venue: Foyer Humphrey Raikes Building</i>
14h00-16h00	Entrepreneurship Event O6 - David Fine - Everyone can innovate Panel Discussion chaired by Sabelo <i>Venue : SHB5</i> Chair: Alexandra Flusk
16h00-16h15	Move to opening ceremony at the <i>Great Hall</i>
16h15-17h00	Opening Ceremony LOC: Manoko Maubane-Nkadimeng (10 min) WITS VC: Zebulon Vilakazi (10 min) IUPAC President: Ehud Keinan (5 min) RSC President: Robert Mokaya (5 min) CRSI Vice-President: Narayanaswamy Jayaraman (5 min) SACI President: Nikoletta Bathori (5 min) Chair: Caren Billing
17h00-17h50	O18 - SACI Gold Medal 2023: Roger Hunter Organic synthesis in South Africa: For business or pleasure?
17h50-18h40	O19 - SACI Gold Medal 2024: Kenneth Ozoemena Electrifying Chemistry for clean and affordable energy in Africa
18h40-20h30	Ice breaker <i>Venue: Solomon Mahlangu Concourse</i>

Legend:

<i>Plenary (no Q&A)</i>	<i>60 mins</i>
<i>Keynote Speakers (incl. Q&A)</i>	<i>50 min</i>
<i>SACI GOLD Medal Awardees (incl. Q&A)</i>	<i>45 min</i>
<i>SACI Raikes and Education Awardees (incl. Q&A)</i>	<i>30min</i>
<i>Invited (incl. Q&A)</i>	<i>30 min</i>
<i>Standard talk (incl. Q&A)</i>	<i>20 mins</i>
<i>Activities</i>	

01-December 2025 - Monday				
	Parallel A	Parallel B	Parallel C	Parallel D
08h00-08h50	REGISTRATION			
08h50 PLENARY SESSION (WSS2)	O1 - Amanda Bryant-Friedrich Posttranscriptional modifications in RNA: Where and why? (O4) Chair: Nicoletta Bathori			
10h00	TEA (Flower Hall) and move to sessions			
Chair Venue	Patricia Forbes WSS2	Memory Zimuwandeyi WSS3	Andrew Swarts WSS4	Nikoletta Bathori WSS5
10h30	O38 - Midhun George Development of a novel instrument for long-term measurements of OH reactivity)	O47 - Remofilwe Manye Investigating the pharmacological potential of ferrocenylbenzimidazole complexes as antimalarial and anticancer agents	O56 - Robert Carroll Electron nano-analysis of MOF glasses	SPECIAL SESSION (Elsevier): AI-Driven Innovations in Chemistry with Reaxys: Future Perspectives and Digital Transformation (Includes a discussion about how to support young chemists))
10h50	O39 - Maki Mahlangu Quantification and treatment of problematic odour-causing compounds in drinking water within Magalies Water Treatment systems and interrelated catchments	O48 - Faith Akwi A modular continuous flow synthesis of primaquine diphosphate an anti-malarial drug	O57 - Tracy Lau Topochemical postulates in action: comparative analysis of solid-state Diels-Alder reactions between similar charge transfer co-crystals	
11h10	O40 - Ramasehle Moswane Assessment of selected potential toxic elements and risk associated during seasonal variation at Hennops River, South Africa	O49 - Pathy Lokole Eco-friendly extraction of saponins from the leaves of <i>Musa paradisiaca</i> and their formulation into micelles for the co-encapsulation of antimalarial drugs	O58 - Daniella Recchia Extremely effective separations of pyridine/picoline mixtures through supramolecular chemistry employing TADDOL6 as the host compound	
11h30	O41 - Sabetha Mapetla Investigating the occurrence of pharmaceutical residues in urban estuarine water using grab and passive sampling approaches with UHPLC Q-Orbitrap MS analysis – A case of Durban Marina, South Africa	O50 - John Mack The photodynamic antimicrobial and anticancer activity properties of porphyrin, corrole, chlorin and N-confused porphyrin complexes	O59 - Dave Billing Crystallographic characterization of solid oxide electrolytes	
11h50	O42 - Vhodaho Nevondo Understanding the environmental impact of SCCPs: detection in consumer products, landfill leachate, and sediments from Gauteng	O51 - Stacey Roman Polymeric encapsulation of artemisinin-ferrocene hybrids as a route towards enhanced antimalarial delivery	O60 - Nabanita Chatterjee Substantial impact of ligated solvents on the degree of interpenetration controlling CO ₂ and water sorption hysteresis in isorecticular MOFs	
12h10 (WSS2)	O21 - SACI Raikes Medal 2025: Malik Dilshad Khan Molecular precursor strategies for solid solutions and high-entropy materials in electrocatalysis Chair: Jan Weigand			
12h45-14h00	Lunch RSC lunch (invitation only)			
Chair Venue	Sheldon Sookai WSS2	Andrew Swarts WSS3	Grace Ngubeni WSS4	Jan Weigand WSS5
14h00	O7 - Annegret Stark Sugarcane-derived lignin valorisation in material production for South Africa	O27 - Robert Mokaya Rational routes to porous carbons for sustainable energy applications (30min)	O8 - Priscilla Baker Signalling and measurement of small organic molecules in the context of health monitoring and well-being	O9 - Cornie van Sittert Modelling a sustainable energy future: NWU's computational approach
14h55	O43 - Akinshola Akinola Magnetically-derived pecan nutshells for the removal of cadmium: artificial neural network modelling and photodegradation of sulfamethoxazole.	O52 - Henrietta Langmi Synthesis and evaluation of waste-derived metal-organic frameworks for hydrogen storage	O61 - Anati Vitshima Application of BSA-conjugated AgInS/ZnS QDs for electrochemical sensing of vascular endothelial growth factor	O64 - Matthew Quesne Computation for a green future: exploring the catalytic conversion of methane
15h15	O44 - Jonathan Mukanya Bioprospecting phytochemicals from banana plant wastes mediating green synthesis of metallic nanoparticles	O53 - Carol Langa Green synthesis of cerium/carbon-modified nis nanoparticles using <i>Sutherlandia frutescens</i> for photocatalytic dye degradation	O62 - Clever Ng'andu Calixarene-conjugated carbon dots for selective fluorometric detection of targeted pharmaceutical compounds in water	O65 - Menezi Tshaka Computational study of azobenzenes as cholesterol lowering drugs
15h35-16h00	TEA (Flower Hall)			
16h00	O45 - Thabang Lebepe Household microwave-assisted green synthesis of biocompatible gold nanostructures using <i>Aloe Africana</i> for biomedical applications	O54 - Oluchi Nkwachukwu Synthesis route matters: Interrogating the structural, morphological, optical, surface, photoelectrochemical and photocatalytic properties of lanthanum ferrite perovskite	O63 - Benneth Iwuoha Microwave-assisted synthesis of MOF-NiNPs@C for the electrochemical detection of Tramadol	O66 - Morad El-Hendway Computer-aided catalyst design: organic catalysts for CO ₂ conversion into urea
16h20	O46 - Bavuyile Magqira Harnessing raw and the magnetised fly ash as low-cost adsorbents for the removal of pharmaceuticals from wastewater: Isotherms and Kinetics	O55 - Galilee Byamungu Synthesis and evaluation of dosimetrics features of silica nanoparticles derived from <i>Musa paradisiaca</i> pseudostem		O67 - Ngonidzas Ruwizhi Half-sandwich pyrazolyl-functionalized Ru(II)-NHC complexes: synthesis, characterization, antibacterial and DFT studies
16h40-17h50	Poster session (Flower Hall)			
18h00-22h30	Braai @ Sci Bono			

2-December 2025 - Tuesday				
	Parallel A	Parallel B	Parallel C	Parallel D
08h00-08h50	REGISTRATION			
08h20	poster time - evaluation			
08h50 PLENARY SESSION (WSS2)	O2 - Peter Wasserscheid Catalysis for chemical hydrogen storage – status, challenges, and opportunities Chair: Neil Coville			
10h00	TEA (Flower Hall) AND MOVE TO SESSIONS			
Chair Venue	Charles de Koning WSS2	Dave Billing WSS3	Cornie van Sittert WSS4	Nikoletta Bathori and Bice Martincigh WSS5
10h30	O68 - Viola Okechikwu Room temperature detection of aspergillus flavus volatile organic compounds under simulated conditions using GO and SnO2 NRs	O77 - Wing Fu Lai Development of multifunctional polymeric materials for controlled release in food and pharmaceutical applications	O87 - Werner van Zyl Exploring orthogonal ligand scaffolds for selective metal coordination	SPECIAL SESSION (SACI CDI Panel Discussion): Breaking barriers: Critical questions for the future of chemistry Ale Palermo, FRSC: Innovating Chemistry: Designing Labs for Disability Inclusion
10h50	O69 - Mahleba Masivuye Selective - recovery of palladium(II) using dithiol- and benzimidazolylthio-functionalized merrifield resins	O78 - Mahmood Patel Critical differences in analytical techniques for the analysis of mercury in waste for landfill disposal assessment	O88 - Nejat Habib Metal-organic frameworks from environmentally benign synthesis for hydrogen and carbon dioxide storage	
11h10	O70 - Mpelegeng Bvumbi Photoisomerization, rotameric conformational behavior, computational insights, and antiplasmodial activity of cinnamoyl–chloroquine hybrids	O79 - Pradish Rampersadh Development of the multi-purpose reactor and the associated beamline facilities at the South African Nuclear Energy Corporation	O89 - Monika Nowakowska Salicylaldehyde cobalt–Schiff base complexes: balancing cytotoxicity and albumin pharmacodynamics for next-generation therapeutics	
11h30	O71 - George Bepete Solution-processed low-dimensional carbon materials via reductive dissolution	O80 - Boitumelo Makume The role of analytical chemistry in a decarbonising petrochemical industry	O90 - Paula Maseko From waste to catalyst: structural and catalytic evaluation of coordination polymers synthesized from PET via one-pot mechanochemistry for efficient dye removal from water	
11h50	O72 - Lisa Myburgh Design and synthesis of thiocarbonyl analogues of coumarin-based chemosensors with colourimetric properties: switching the selectivity from Fe ²⁺ /Fe ³⁺ to Hg(II) and Cu(II) ions	O81 - Nikisha Sewpersad Nanosilane-modified bitumen-stabilized base materials: mechanisms and moisture durability	O91 - Andrew Swarts Ligand design strategies to optimize hydrogen production via Ru-catalysed formic acid dehydrogenation	
12h10-12h30	O25 - Jan Weigand Molecularly tuned 4-phosphoryl pyrazolones for lithium recovery and selective rare earth extraction (30 min)	O82 - Nestor van Eeden Key aspects of pressurised water reactor (PWR) chemistry for safe and reliable operation	O26 - Michael Nolan Atomistic simulation of atomic level processing chemistries for materials deposition and etch (30 min)	
12h45-14h00	Group Photo Lunch (& Council Lunch)			
Chair Venue	Pierre Mubiayi WSS2	Dave Billing WSS3	Bice Martincigh WSS4	Görkem Mergen and Sacha Devillers WSS5
14h00	O10 - Martin Brits Quantitation of micro and nanoplastics in human blood by pyrolysis-gas chromatography–mass spectrometry	O11 - Xolani Nocanda Detection, quantification and removal efficiencies of pharmaceutical contaminants in selected wastewater treatment plants at eThekwini Municipality	O28 - Narayanaswamy Jayaraman Remote activation route to access glycosyl cation – the case of 3-thiocresyl-prop-1-enyl (TCP) glycosides (30 min)	SPECIAL SESSION (ACS Presentation): Have you considered using CAS SciFinder® to support your job search or explore graduate programs?
14h55	O73 - Christina Kannigadu Untangling complexity in cola beverages: a non-targeted GC-TOFMS approach to volatile profiling and unexpected contaminant detection	O83 - Adam Shnier Rietveld refinement automation for process feedstock quality control (AUTO-INP) and other odd projects	O92 - Simon Mnyakeni Synthesis of sulfonylthioureas as potential antidiabetic drugs	
15h15	O74 - Malesole Bucibo Determination of heavy and polycyclic aromatic hydrocarbons in soil samples Witbank, South Africa	O84 - Ryan Walmsley Production of sustainable aviation fuel from Fischer-Tropsch wax - understanding the interplay between product properties and product yield	O93 - Bridget Mtetwa Development of norbornane-based compounds as MAO-B inhibitors for the treatment of Parkinson’s disease	
15h35-16h00	TEA (Flower Hall)			
16h00	O75 - Samukelisiwe Nhlapho Non-targeted profiling of volatile compounds for the authentication of honey origin	O85 - Andrew Venter Beam line facilities at Necsa and their progression into the new multi-purpose reactor for material’s analysis	O94 - Temitope Olalekan Synthesis, characterization and cytotoxicity of aminothiazole Schiff base and metal complexes	
16h20	O76 - Mathew Khumalo Development and application of “selective capture” derivatizing protocol for alcohols	O86 - Izak Kotze Silica-anchored acylthiourea and amine adsorbents for the selective recovery of platinum and palladium from aqueous media	O95 - Vitalis Mbayo Leveraging quantum mechanical and machine learning technologies for predictive modelling of Soursop (<i>Annona muricata</i> Linn.) phytochemical extracts against breast cancer	
16h40-17h50	Poster session (Flower Hall)			
18h00-22h30	Periodic Pursuits (Science Stadium)			

3-December 2025 - Wednesday				
	Parallel A	Parallel B	Parallel C	Parallel D
08h00-08h50	REGISTRATION Science stadium			
08h20	poster time - evaluation			
08h50 PLENARY SESSION (WSS2)	O3 - Greg Scholes From coherence in photosynthesis to chemical quantum information science Chair: Andrew Forbes			
10h00	TEA (Flower Hall) AND MOVE TO SESSIONS			
Chair Venue	Songeziwe Ntsimango WSS2	Izak Kotze WSS3	Pierre Mubiayi WSS4	Chair: Andrew Forbes WSS5
10h30	O96 - Thrineshen Moodley The formulation of a novel chloroquinoline derivative in an amorphous solid dispersion and the determination of its thermal and solubility parameters	O101 - Masego Ramonyai The role of dipicolinic acid in enabling the simultaneous voltammetric analysis of copper and bismuth.	O106 - Nomaswazi Madonsela Effect of pyrolysis temperature of <i>Kigelia africana</i> biochar for the adsorption of lead(II) ions from aqueous solution	SPECIAL SESSION Chemistry and Quantum Science Tjaart Kruger: Manipulating individual light-harvesting complexes with light Thomas Konrad: TOPIC SAQuTI Panel Discussion
10h50	O97 - Sarah Wright Nucleophilic reactions of cyclobutenones	O102 - Indiphile Nompetsheeni CQD-TiO ₂ composite as a potential crypto-electrode modifier for high-performance aptasensing with ultra-low detection limit	O107 - Cresten Moodley Investigating the efficiency of transition and lanthanide-metal based coordination polymers for methylene blue adsorption	
11h10	O98 - Marwaan Rylands In search of the resurrection plant metabolite 3,4,5-tri-O-galloylquinic	O103 - Kabelo Banda Synthesis and characterization of mono, bi and tri composite of Ag, ZnO and MWCNT modified SPC electrode	O108 - Dipuo Kgabi Organobentonite–Ag/TiO ₂ composite for Cr(VI) removal and bacterial disinfection	
11h30	O99 - Aviwe May Effects of structural modification on established BODIPY dye properties for modern applications	O104 - Racheal Ijimdiya Ukachi A comparative material-performance study of sulphur-and phosphorous-doped reduced graphene oxides for electrochemical biosensing of organophosphorus pesticides	O109 - Sifiso Nsibande Quantum dot-based sensors: synthesis, characterization and application for the detection of organic pollutants in environmental samples	
11h50 - 12h10	O100 - Memory Zimuwandeyi Towards the synthesis of hydroxylated polyamines	O105 - Funmilola Adesanya Carbonization of hemp-derived carbons: a comparative study of activation routes	O110 - Sifelani Dube Reduced graphene oxide–ion imprinted polymer (RGO nanocomposite sensor: tackling cadmium pollution in water	
12h30 (WSS2)	O20 - SACI Gold Medal 2025: Egmont Rohwer The joy of research in separation science Chair: Patricia Forbes			
13h20	Lunch and Excursion			

4-December 2025 - Thursday				
	Parallel A	Parallel B	Parallel C	Parallel D
08h00-08h50	REGISTRATION			
08h20	poster time - evaluation			
08h50	O4 -Margaret Blackie			
PLENARY SESSION (WSS2)	How we think about what we do matters: Developing a model to underpin chemistry education Chair: Caren Billing			
10h00	TEA (Flower Hall) AND MOVE TO SESSIONS			
Chair Venue	Grace Ngubeni WSS2	Zenixole Tshenu WSS3	Vincent Nyamori WSS4	Marietjie Potgieter WSS5
10h30	O111 - Mothusi Molebatsi MOF-functionalized nanocellulose from <i>Agave Sisalana</i> plant for efficient copper removal from treated wastewater	O119 - Oluwatoyi Akerele Analysis of the structural and energetic properties of carbofuran and its polymorphs	O127 - Adeniyi Ogunlaja Catalytic performance of nanostructured Fe _x –Mo _{0.1} /TiO ₂ –Al ₂ O ₃ Systems in dibenzothiophene hydrodesulfurization	O135 - Comfort Nkambule From undergraduate organic chemistry to functionalized heterocycles
10h50	O112 - Lelethu Kontile Exploration of plant <i>Eucalyptus cinerea</i> essential oil as a green, affordable, and sustainable adsorbent for the removal of antibiotics from wastewater	O120 - Andreas Lemmerer A tale of two polymorphic pharmaceuticals: the solid state organic chemistry of persedon and propylphenazone	O128 - Abongile Gingqi Sustainable conversion of waste cooking oil to biodiesel using bifunctional metal-supported MOF-based heterogeneous catalysts	O136 - Lynne Pilcher Systems thinking for sustainability in chemistry education using green chemistry metrics and life cycle inventories of aspirin synthesis
11h10	O113 - Sello Moloi Fluoride removal from water by the application of bone char prepared from wild animal and bird bones	O121 - Jarryd Vorgers Peroxides as host compounds: an investigation of the host ability and selectivity of di-(9-(p-trifluoromethylphenyl)xanthen-9-yl peroxide in mixed anisole/methylanisoles	O129 - Sheldon Sookai Biophysical studies of metal chelate binding by HSA: towards an understanding of metallodrug transport	O137 - Shaeen Chetty Beyond the Curve: unpacking molar absorptivity in HPLC
11h30	O114 - Eric Danso-Boateng Adsorbents derived from invasive weeds for pollutant control	O122 - Babatope Ojo Integrated Z-scheme BiOCl/NiTiO ₃ heterostructured photoanode and its photoelectrocatalytic application in ciprofloxacin degradation	O130 - Wilson Seleka Advancing electrocatalysis: a comprehensive review of metal (Cu, Co, Ni, etc) nitrides, sulphides, and phosphides for nitrate reduction reaction (NO ₃ RR) to ammonia an alternative energy carrier	O138 - Winifred Esiefa Innovative teaching strategies for sustainable chemical education
11h50	O115 - Naom Momanyi Magnetic carbon nanosheets derived from PET plastic waste for the preconcentration and adsorptive removal of selected trace metals in water	O123 - Atiyyah Salajee Polymorphism In ternary complexes	O131 - Pierre Mubiayi Nanocrystalline perovskite: the last man standing	O139 - Marissa Rollnick Understanding the long-term development of high school teachers' insights into their PCK of chemical bonding
12h10 (WSS2)	O24 - Merck Medal: Lawrence Madikizela Pharmaceuticals as chemicals of emerging concern in East London major estuaries and seawater			
12h45 (WSS2)	O23 - SACI Education Medal 2024: Liliana Mammino Chemistry as an ideal central area for sustainability-related multidisciplinary Chair: Helen Drummond			
13h20-14h00	Lunch			
Chair Venue	Willem van Otterlo WSS2	Monika Nowakowska WSS3	Songeziwe Ntsimango WSS4	Megan Matthews WSS5
14h00	O12 - Ron Heeren Mass spectrometry in Spatial Biology: Imaging, single cells and translational life sciences		O13 - Vladimir Azov Expanding peptide chemical space: functional non-canonical amino acids for smart soft materials	O14 - Marietjie Potgieter Embedding Relevance, Values and Identity in Chemistry Education
14h55	O116 - Mufaro Mugari Gas chromatography for decision-grade evidence in cannabis labelling and human pesticide exposure	O124 - Cyprian Moyo Python-based quantum chemistry software in the era of quantum computing: educational tools, platforms, and research integration	O132 - Chakes Mashaba Design and synthesis of 8-quinoline-1,3,4-oxadiazole-thio-acetamide and ethanone derivatives as potential anti-HIV agents	SPECIAL SESSION (Chemistry Education Panel Discussion): Shaping the future of education in Analytical Chemistry
15h15	O117 - Lethabo Masemola Phytochemical investigation and biopharmaceutical profiling of secondary metabolites from <i>Pappea capensis</i> for anticancer properties	O125 - Jurgens de Langa Molecular-wide chemical bond theory: bridging the gap between atomistic chemistry and holistic physics	O133 - Blesant Maluleke Synthesis and biological evaluation of quinoxaline derivatives as potential anti-tuberculosis agents	
15h35 – 15h55	O118 - Ntsieni Molaudzi Photodegradation Kinetics of Amoxicillin, Carbamazepine and Diclofenac Under Simulated Solar Light: Fluorescence EEMs Deconvolution Insights	O126 - Divya Pant Impacts of aromatic bridges on electronic and nonlinear optical properties of Reichardt's types of zwitterionic molecules: a computational study	O134 - Lebogang Mabatamela Design and synthesis of pyrazolopyrimidine, pyrazolopyridine pyrrolopyridine, and pyrrolopyrimidine derivatives as potential anti-malaria agents	
16h00-16h30	TEA (Flower Hall)			
16h30-17h05 (WSS2)	O29 - Ehud Keinan Humanity faces a bright future, and so Chemistry (30 mins) Chair: Bice Martincigh			
18h00-23h00	Travel and Gala Dinner (Thabo Eco Hotel) – Casual			

5-December 2025 - Friday			
	Parallel A	Parallel B	Parallel C
08h50 PLENARY SESSION (WSS2)	O5 - Christian Klampfl Reclaimed waters for irrigation: how plants interact with drug residues Chair: Ale Palermo Venue: WSS2		
10h00 Chair Venue	TEA (Flower Hall) AND MOVE TO SESSIONS		
	Izak Kotze WSS2	Sheldon Sookai WSS3	Monika Nowakowska WSS4
10h30	O15 - Vincent Nyamori Carbon-based nanocomposites for fourth - generation solar cells	O16 - Perdita Barran Weighing molecules to treat and diagnose disease, from viruses to skin swab	O17 - Moniek Tromp The quest for sustainable and circular battery technologies - operando x-ray techniques probing dynamic processes in batteries
11h25	O140 - Sense Mametja Construction of oxygen deficient NiAl-LDH-nanocomposites for enhanced photocatalytic hydrogen evolution via water splitting	O143 - Nare Mojela Moringa oleifera and Marula derived platforms for bioanalytical and biomedical applications	O145 - Gwibaka Feleni Innovative inner transition metal-MXene anodes for high performance sodium-ion batteries
11h45	O141 - Mbali Moreki Exploring morphology-dependent photocatalysis of ZnO nanoparticles towards rhodamine 6g degradation under UV light	O144 - Tatenda Machakaire From leaves to leads: Uncovering potential COX-2/5-LOX dual inhibitors from South African medicinal plants	O146 - Augustus Lebechi Hybrid bifunctional FeCo-Fe ₂ CoO ₄ electrocatalyst supported on carbon conducting agent For high areal discharge energy rechargeable zinc-air battery
12h05	O142 - Samantha Ndlovu Enhancing dye-sensitized solar cell performance by introducing Fe/Co into the B-site of Sr _{0.7} Sm _{0.3} BO _{2.89} perovskite photoanodes		O147 - Aderemi Haruna Investigation of high entropy manganese-based fluorophosphate electrocatalysts for electrocatalytic and energy storage applications
12h25 (WSS2)	O22 - SACI Raikes Medal 2024: Maya Makatini From molecular adventures to wellness: Translating peptidomimetics and mass spectrometry into therapeutic and diagnostic innovations Chair: Charles de Koning		
13h00	Prize giving/Closing WITS Science Faculty Dean: Nithaya Chetty (10 min) FASC rep: Vincent Nyamori (5 min) Comm Chem rep: Ale Palmero (5 min) ACS rep: Charles de Koning (5 min) SACI EXCO: Caren Billing (5 min) Chair: Manoko Maubane-Nkadimeng		
Lunch, (packed lunch) End of conference/Travel			