



**Frank Warren**

*Conference 2019*

Drakensberg - South Africa

**7 – 11 July 2019**

**Alpine Heath**

**Programme Book**



**The South African Chemical Institute**

**Promoting chemistry, chemists, the chemical industry and  
chemical education in South Africa**

**Recognised as a Professional Body by SAQA - PB0000081**

## Welcome Letter

Following its initiation by Frank Warren, the first gathering of local organic chemists took place in the Drakensberg in July 1961. Held approximately every second year since its formation, this concept grew into a formal symposium showcasing South Africa's best organic chemistry talent, and numerous respected guests from around the world.

At a meeting in Pietermaritzburg in 1983, the conference was named after Frank Warren in honour of his seminal contribution to organic chemistry, and his role in elevating the profile and entrenching the discipline in South Africa, a legacy that we as organic chemists continue to enjoy.

Accordingly, the KwaZulu-Natal section of the South African Chemical Institute welcomes you back to the Drakensberg for this, the 15<sup>th</sup> edition of the Frank Warren Organic Chemistry Conference. This year we have teamed up with the green chemistry initiative led by the School of Chemistry at the University of the Witwatersrand and the Institute of Organic Chemistry, Johannes Gutenberg-University, Mainz to make this year's theme Green Chemistry.

This year promises to be a bumper edition highlighting the growth and diversity of organic chemistry in South Africa, in which we welcome delegates with contributions stemming from 22 South African public and private research institutions, as well as institutions in Germany, USA, Poland, Tanzania, Switzerland, Nigeria, Austria, Scotland, Czech Republic, Cameroon, Lesotho, Zimbabwe, and England.

The organising committee would like to congratulate Professor Kelly Chibale from the University of Cape Town for delivering this year's Frank Warren memorial lecture.

Finally, we would like to thank our generous sponsors without whom this conference would not be possible.

We trust you will all enjoy this year's programme, and take advantage of the ethos of this special conference, which perpetuates an environment of collaboration and community, as is the true legacy of Frank Warren.

### Organising Committee

Clint Veale (UKZN) (Co-Chairperson)  
Neal Koorbanally (UKZN) (Co-Chairperson)  
Vineet Jeena (UKZN)  
Rajshekhar Karpoomath (UKZN)  
Gert Kruger (UKZN)  
Tricia Naicker (UKZN)

Xolani Nocanda (Ethikwini Municipality)  
Ross Robinson (UKZN)  
Tishana Singh (UKZN)  
Siphamandla Sithebe (UKZN)  
Fanie van Heerden (UKZN)

# Condensed Programme

	Morning		Afternoon
<b>Sunday - 7th</b>			
		14h00	Registration
		17h00	Conference Welcome and Opening
		17h05	Introduction to Green Chemistry - Charles de Koning, Till Opatz
		17h30	<b>Plenary 1 - Till Opatz</b>
		18h30	Welcome Function
<b>Monday - 8th</b>			
08h00	<i>Coffee</i>		<b>Session Chair - Amanda Rousseau</b>
	<b>Session Chair - Willem van Otterlo</b>	13h50	<b>Plenary 3 - Fernando Albericio</b>
08h30	<b>Plenary 2 - Hans-Joachim Knölker</b>	14h40	<b>Keynote 3 - Susan Bonnet</b>
09h20	<b>Keynote 1 - Benita Barton</b>	15h15	Student Oral - Patience Molefe
09h55	Student Oral - Douglas Kemboi	15h30	Student Oral - Kojo Acquah
10h10	Oral - Richard Beteck	15h45	<i>Refreshments</i>
10h35	<i>Refreshments</i>		<b>Session Chair - Penny Govender</b>
	<b>Session Chair - Tlabo Leboho</b>	16h10	<b>Keynote 4- Rosa Klein</b>
11h00	<b>Keynote 2 - Wilfred Mabusela</b>	16h45	Student Oral - Kerabo Lakgau
11h35	Student Oral - Adetola Adewole	17h00	Student Oral - Ndivhuwo Tshiluka
11h50	Oral - Temitope Olomola	17h15	Oral - Anke Wilhelm
12h15	Student Oral - Jonas Kühnborn		
12h30	<i>Lunch</i>		
<b>Tuesday - 9th</b>			
08h00	<i>Coffee</i>		<b>Session Chair - Siphamandla Sithebe</b>
	<b>Session Chair - Edith Antunes</b>	13h50	<b>Plenary 5 - Frank Gupton</b>
08h30	<b>Plenary 4 - Roger Sheldon</b>	14h40	<b>Keynote 6 - Kennedy Ngwira</b>
09h20	Oral - Moira Bode	15h15	Oral - Rui Krause
09h45	Student Oral - Sbonelo Hlengwa	15h40	<i>Refreshments</i>
10h00	Oral - Neliswa Mama		<b>Session Chair - Xolani Nocanda</b>
10h25	<i>Refreshments</i>	16h05	Oral - Molahlehi Sonopo
	<b>Session Chair - Vineet Jeena</b>	16h30	Student Oral - Oluwatosin Audu
10h50	<b>Keynote 5 - Gareth Arnott</b>	16h45	Oral - Jack Mphahlele
11h25	Student Oral - Doaa Ali	17h10	<i>Poster session</i>
11h40	Oral - Fredrick Peens		
12h05	SAASTA presentation TBC		
12h30	<i>Lunch</i>		

<b>Wednesday - 10th</b>			
08h00	<i>Coffee</i>		
	<b>Session Chair - Charles de Koning</b>		Free Afternoon
08h30	<b>Plenary 6 - Hans-Günther Schmalz</b>		
09h20	Oral - Isaiah Ramaite		
09h55	Student Oral - Mziyanda Mbaba		
10h10	Oral - Mamoalosi Selepe		
10h35	<i>Refreshments</i>		
	<b>Session Chair - Thishana Singh</b>		
11h00	<b>Keynote 7 - Henok Kinfe</b>		
11h35	Oral - Catherine Kaschula		
12h00	Student Oral - Robin Klintworth		
12h15	Student Oral - Sandiso Ngwenya		
12h30	Oral - Urszula Domanska-Zelazna		
12h55	<i>Lunch</i>		<b>Frank Warren Gala Dinner</b>
<b>Thursday - 11th</b>			
08h00	<i>Coffee</i>		
	<b>Session Chair - Paseka Moshapo</b>		
08h30	<b>Frank Warren Lecture - Kelly Chibale</b>		
09h30	Oral - Albert Roberson		
09h55	Student Oral - Lerato Raphoko		
10h10	Oral - Vladimir Azov		
10h35	<i>Refreshments</i>		
	<b>Session Chair - Ross Robinson</b>		
11h00	Oral - Parvesh Singh		
11h25	Student Oral - Eugene Onwu		
11h40	Student Oral - Babatunde Awe		
11h55	Oral - Cedric McClelland		
12h20	Oral - Simon Mnyakeni Moleele		
12h45	Closing		
12h50	<i>Lunch</i>		

# Organic Chemistry / Frank Warren

## Previous Conferences

		Warren Lecturer
1961	Giants Castle	
1964	Sabie River Bungalows	
1968	Sabie River Bungalows	
1970	Gordon's Bay	
1973	Sabie River Bungalows	
1976	Golden Gate	
1978	Hluhluwe	
1981	Stellenbosch	
1983	Pietermaritzburg (1 <sup>st</sup> Frank Warren Conference)	Doug Rivett
1985	Sabie River Bungalows	Joint conference with IUPAC Mycotoxin Symposium
1988	Mpekweni	
1992	Gordon's Bay	Daneel Ferreira
1995	Aventura Aldam	Cedric Holzapfel
1997	Mtunzini	Perry Kaye
2000	Warmbaths	James Bull
2003	Grahamstown	Jo Michael
2006	Cape Town	Cedric McClelland
2008	Kruger National Park	Robert Vleggaar
2010	Pietermaritzburg	Mike Davies-Coleman
2012	Bloemfontein	Fanie van Heerden
2014	Stellenbosch	Roger Hunter
2016	Grahamstown	Charles de Koning
2019	Drakensberg	Kelly Chibale

## Frank Warren Lecture



**Kelly Chibale**  
**University of Cape Town**

Professor Kelly Chibale is currently a Professor of Organic Chemistry at the University of Cape Town, where he holds a prestigious NRF A-rating and a Tier 1 South Africa Research Chair in Drug Discovery. He is member of the Institute of Infectious Disease & Molecular Medicine, a founding director of both the South Africa Medical Research Council Drug Discovery Research Unit and the Drug Discovery and Development Centre (H3D). Most recently, Professor Chibale received the newly established Neville Isdell Chair in African-centric Drug Discovery and Development. Professor Chibale obtained his PhD in Synthetic Organic Chemistry from the University of Cambridge with Stuart Warren (1992). This was followed by postdoctoral stints at the University of Liverpool as a British Ramsay Research Fellow with Nick Greeves (1992-94) and at the Scripps Research Institute as a Wellcome Trust International Prize Research Fellow with K.C. Nicolaou (1994-96). Following his appointment as a lecturer of chemistry at UCT, he served two stints (1998, Cambridge; 1999; Dundee) as a Wellcome Trust Visiting Fellow. In 2002 Professor Chibale was a Sandler Sabbatical Fellow at the University of California San Francisco as well as an invited Professor at the Université des Sciences et Technologies. In 2008 Professor Chibale was a US Fulbright Senior Research Scholar at the University of Pennsylvania School of Medicine and a Visiting Professor at Pfizer UK. Professor Chibale has published in excess of 220 papers and delivered over 80 local and international invited lectures. Amongst his numerous awards, in 2015, Professor Chibale was named by the Royal Society of Chemistry as one of their 175 Faces of Chemistry, and in 2016 he was awarded the South African Medical Research Council Gold Medal. 2018 proved to be a particularly fruitful year in which he was awarded the SACI Gold Medal, Elected Member of the Academy of Science of South Africa and named as one of Fortune Magazine's 50 World's Greatest Leaders for 2018.

## Plenary Speakers



**Till Opatz**

**Johannes Gutenberg-University Mainz**

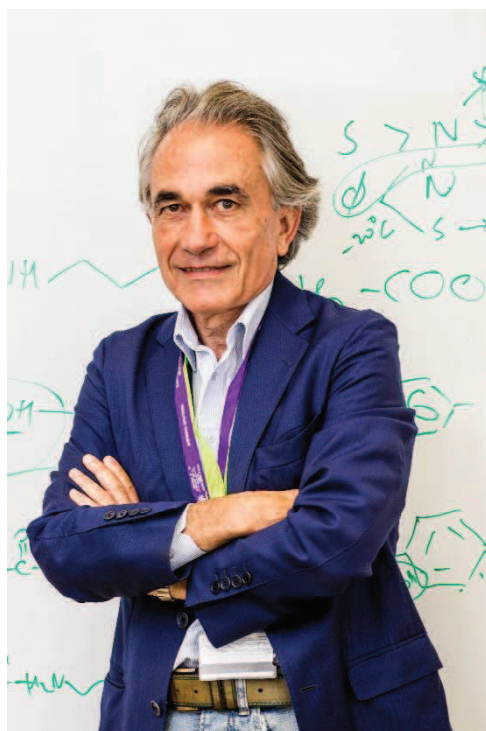
Professor Dr Till Opatz completed his PhD at the University of Mainz, under Professor Kunz, followed by a post-doctoral fellowship at the University of Utrecht with Professor Liskamp. After completing his habilitation at his *Alma mater*, he was appointed as Professor of Organic Chemistry at the University of Hamburg until 2010, where he returned to the University of Mainz as the Professor of Organic Chemistry as well as accepting the post as head of the Rhineland-Palatinate Centre for Natural Product Research. Highlights amongst his accolades include being awarded the Fellowship of the *Studienstiftung des Deutschen Volkes* (1992), Kekulé-Fellowship of the *Fonds der Chemischen Industrie* (1997) and a Marie Curie-Fellowship of the European Commission (2001). Furthermore, he has been the recipient of the *Emil und Paul Müller-Gedächtnisstiftung* and the Thieme Journal award (2003). Professor Opatz, has served on the editorial boards of *ARKIVOC*, *Current Opinion in Green and Sustainable Chemistry* and *Zeitschrift für Naturforschung C*. He has supervised 46 PhD students, and authored in excess of 2000 scientific works.



**Hans-Joachim Knölker**  
**Technische Universität Dresden**

Professor Dr Hans-Joachim Knölker is the Professor of Organic Chemistry at the Technical University of Dresden. After graduating with a PhD from the University of Hannover under Prof. Dr. E. Winterfeldt (1985), he completed a post-doctoral fellowship at the University of California, Berkeley with Prof. K. P. C. Vollhardt (1985-86) followed by a habilitation at his *Alma mater*. Between 1991 and 2001 he was a Full professor of Organic Chemistry at the University of Karlsruhe, before assuming his current position. His numerous awards include the ADUC award of the German Chemical Society (1989), the Lecturer award of the Fund of German Chemical Industry (1990) and the Gerhard-Hess award of the Deutsche Forschungsgemeinschaft (DFG, 1991). Professor Knölker is a member of the the Saxon Academy of Sciences, where he has served as a member of the Presidium, a Fellow of the Royal Society of Chemistry, Editor-in-Chief of *The Alkaloids* and a member of the Editorial Board of *Current Organic Chemistry* and *Current Organic Synthesis*. Furthermore, he has authored over 280 scientific articles, reviews and patents.





**Fernando Albericio**  
**University of KwaZulu-Natal**

Fernando Albericio is Research Professor at the University of KwaZulu-Natal (UKZN) in Durban, South Africa & Honorary Full Professor of Organic Chemistry at the University of Barcelona. His dedication to technological advancement has seen Professor Albericio hold the position as the inaugural Rector of Yachay Tech in Ecuador, which was established as a hub for technological innovation, the first of its kind in Latin-American. Furthermore, Professor Albericio was the founder and General Director of the Barcelona Science Park (PCB). To date, he has published over 900 papers, filed more than 60 patents, and has co-authored four books. He is currently the Editor-in-Chief of several scientific journal and has acted on the editorial board of several others. His major research interests cover practically all aspects of peptide synthesis (new reactions, building blocks, coupling reagents, solid phase supports, protecting groups, and linkers) and combinatorial chemistry methodologies, as well as synthesis of peptides and small molecules with therapeutic activities (cancer and infectious diseases). Furthermore, his group is also involved in developing new systems for drug delivery and strategies for diagnostics. Finally, Professor Albericio is working on the development of multicomponent platforms for the preparation of bioconjugates, involving peptides, foldamers, oligonucleotides, and monoclonal antibodies, among others. Special attention has been paid to the linkers responsible of binding the molecules. Those are based in “click” chemistry, thiol chemistry, Diels-Alder, and Pd chemistry. Finally, his group is working on the introduction of green chemistry concepts in solid-phase synthesis.



**Roger Sheldon**  
**University of the Witwatersrand**

Roger Sheldon is currently Professor of Biocatalysis Engineering at the University of the Witwatersrand, where his research interests are in green chemistry, biocatalysis and the bio-based economy. He has a PhD from Leicester University and has previously held the positions of Professor of Biocatalysis & Organic Chemistry at Delft University of Technology (1991-2007), CEO of the biotech company CLEA Technologies (2006-2015), VP R&D at DSM-Andeno (1980-1990) and researcher with Shell Research Amsterdam (1969-1980). Professor Sheldon is a recognised authority on Green Chemistry and widely known for his E factor concept for assessing the environmental impact of chemical processes. He is the author of several books on catalysis, over 480 papers and 56 granted patents, which has resulted in an H-index of 101. He was Co-Chair of the 1999 Gordon Research Conference on Green Chemistry and founder and 1<sup>st</sup> Chairman of the Editorial Board of the RSC journal, *Green Chemistry*. He received the RSC 2010 Green Chemistry Award “in recognition of the role that he has played, as a founding father of green chemistry, in *the development of clean, catalytic technologies for waste minimisation and elimination of toxic/hazardous materials in chemicals manufacture*” and the Biocat2010 Lifetime Achievement Award for important and lasting contributions to biocatalysis. He was elected a Fellow of the Royal Society in 2015 and an Honorary Fellow of the RSC in 2019.



**B. Frank Gupton**  
**Virginia Commonwealth University**

Dr Frank Gupton is a professor at Virginia Commonwealth University and holds joint appointments in the Departments of Chemistry and the Department of Chemical and Life Science Engineering. He also serves as Department Chair of the Chemical and Life Science Engineering Department. His thirty-year industrial career has centred on the development and commercialization of chemical processes for pharmaceutical applications. Dr Gupton's research group is currently focused on the development of continuous processing technology to facilitate the discovery, development and commercialization of drug products. Prior to joining the faculty at Virginia Commonwealth University, Dr Gupton served as the Executive Director of North American Process Development for Boehringer Ingelheim Pharmaceuticals and led the commercialization of the widely prescribed HIV drug nevirapine. Dr Gupton received his Bachelors of Science degree in chemistry from the University of Richmond and graduate degrees in organic chemistry from Georgia Tech and Virginia Commonwealth University. Dr Gupton's research efforts have focused on streamlining pharmaceutical processes, particularly in the area of active ingredients, by employing the principles of process intensification, which include the use of innovative chemistry, novel continuous manufacturing platforms, and new and more efficient catalysts for pharmaceutical applications. The research group's efforts are guided and driven based on both financial and economic impact that can be derived from this effort. Dr Gupton is the recipient of the 2018 American Chemical Society Award for Affordable Green Chemistry, and in the same year, he received the Presidential Award for Green Chemistry. Both of these awards were associated with Professor Gupton's work on the development of a highly efficient process to produce nevirapine, a first-line treatment in HIV therapy.



**Hans-Günther Schmalz**  
**University of Cologne**

Prior to his appointment as Professor of Organic Chemistry at the University of Cologne, Professor Dr Hagga Schmalz, completed his PhD at the University of Frankfurt under Professor Quinkert in 1985, followed by a Liebig Postdoctoral Fellowship to work with Professor Semmelhack at Princeton University (1986 – 1988). Professor Schmalz, returned to Frankfurt in 1988 as a junior research group leader at Goethe University, until his appointment as Professor of Organic Chemistry at the Technical University of Berlin between 1994 and 1999. In addition to a glittering research career which has spawned over 230 scientific works, Professor Schmalz, as a board member of the German Chemical Society served as both the Chair of the Berlin (1998 – 1999) and Chemical Education (2016 – 2018) sections. Furthermore, he has coordinated and chaired committees responsible for the ESOC conference (2017), the ORCHEM conference (2006) and *SusChemSus* (2012 – present) as well as his duties as president of the Europ. Chem. Thematic Network Association (2005 – 2007) and a member of the Forster Committee of the A. v. Humboldt Foundation (2003 – 2012). Finally, Professor Schmalz dedication to the academic project is reflected in him twice being awarded Albertus-Magnus Teaching Award (2006, 2016) at the University of Cologne as well as being named teaching champion at Technical University of Berlin (1998).

## Keynote Speakers



**Benita Barton**  
Nelson Mandela University



**Wilfred Mabusela**  
University of the Western  
Cape



**Susan Bonnet**  
University of the Free-State



**Rosa Klein**  
Rhodes University



**Gareth Arnott**  
University of Stellenbosch



**Kennedy Ngwira**  
University of the  
Witwatersrand



**Henok Kinfe**  
University of Johannesburg

# Programme\*

## Sunday, 7 July 2019

- 14h00-17h00 Registration
- 17h00-17h10 Conference Welcome and Opening
- 17h10- 17h30 Introduction to Green Chemistry  
*Prof Charles de Koning (University of the Witwatersrand), Prof Till Opatz (Johannes Gutenberg-University)*
- 17h30 – 18h30 **PL01:** Xylochemistry and Photochemistry with Heterocycles – Towards a Greener Synthesis  
*Prof Till Opatz, Johannes Gutenberg-University, Germany*
- 18h30 Welcome Function

## Monday, 8 July 2019

### **Session Chair: Prof Willem van Otterlo (Stellenbosch University)**

- 08h30 – 09h20 **PL02** Recent Applications of Iron Catalysis  
*Prof Hans-Joachim Knölker, Technical University of Dresden, Germany*
- 09h20-09h55 **KL01** Is the Grass Greener on the Other Side? Successful Host Systems and their Potential Beneficial Chemical Applications  
*Prof Benita Barton, Nelson Mandela University*
- 09h55-10h10 **SL01** Phytochemistry of *Euphorbia grandicomita*  
*Douglas Kemboi, Tshwane University of Technology*
- 10h10-10h35 **OL01** Synthesis and In Vitro Biological Evaluation of Highly Integrated Polypharmacophoric Ligands  
*Dr Richard Beteck, North-West University*
- 10h35-11h00 Refreshments**
- Session Chair: Tlabo Leboho (University of Limpopo)**
- 11h00-11h35 **KL02** Phytochemical Studies of Selected South African Medicinal Plants  
*Prof Wilfred Mabusela, University of the Western Cape*
- 11h35-11h50 **SL02** Isolation and Identification of Cytotoxic Compounds from a *Tephrosia* Species  
*Adetola Adewole, University of Pretoria*
- 11h50-12h15 **OL02** Synthesis of Furanoflavanone Derivatives from Halogenated 2,4-Dihydroxyacetophenone  
*Dr Temitope Olomola, University of South Africa*

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\* PL = Plenary lecture, KL = Keynote lecture, OL = Ordinary lecture, SL = Student lecture

- 12h15-12h30      **SL03** Valorization of Biomass Derived Starting Materials for Organic Synthesis  
*Jonas Kühlbörn, Johannes Gutenberg-University, Germany*
- 12h30-13h50**      **Lunch**  
***Session Chair – Dr Amanda Rousseau (University of the Witwatersrand)***
- 13h50-14h40      **PL03** Bi- and Tri-Orthogonal Linkers for Bioconjugation  
*Prof Fernando Albericio, University of KwaZulu-Natal*
- 14h40-15h15      **KL03** Sixty Years of Flavonoid Chemistry at the University of the Free State: Past and Contemporary Research  
*Dr Susan Bonnet, University of the Free State*
- 15h15-15h30      **SL04** Base-free Suzuki Acylation Reactions of Sodium (aryl trihydroxyborate) Salts: A Novel Synthesis of Substituted Aryl Ketones  
*Patience Molefe, University of KwaZulu-Natal*
- 15h30-15h45      **SL05** Isolation and Antimycobacterial Activity of New Secondary Metabolites from a South African Marine *Streptomyces* Species Muiz4y  
*Kojo Acquah, University of Cape Town*
- 15h45-16h10**      **Refreshments**  
***Session Chair – Dr Penny Govender (University of Johannesburg)***
- 16h10-16h45      **KL04** Green Chemistry as a Guiding Principle in Medicinal Chemistry: a Case Study  
*Prof Rosa Klein (Rhodes University)*
- 16h45-17h00      **SL06** Design and Synthesis of Quinoxaline Derivatives for Medicinal Application against Breast Cancer Cells  
*Karabo Lekgau, University of Limpopo*
- 17h00              **SL07** Synthesis and Biological Evaluation of Novel Anti-Diabetic Drugs  
*Ndivhuwo Tshiluka, University of Venda*
- 17h15              **OL03** HPLC-Based Activity Profiling for GABA<sub>A</sub> Receptor Modulators in *Murraya exotica*  
*Dr Anke Wilhelm, University of the Free State*
- Tuesday, 9 July 2019**  
***Session Chair – Prof Edith Antunes (University of the Western Cape)***
- 08h30 – 09h20      **PL04** Engineering Sustainable Organic Synthesis with Green Chemistry and Biocatalysis  
*Prof Roger Sheldon, University of the Witwatersrand*
- 09h20-09h45      **OL04** Preparation of Enantiopure Morita-Baylis-Hillman Adducts and their Diastereoselective Conjugate Addition Reactions  
*Prof Moira Bode, University of the Witwatersrand*

09h45-10h00	<b>SL08</b> Novel terpenoids Isolated from <i>Euphorbia cooperi</i> N.E.Br. ex A.Berger <i>Sbonelo Hlengwa, University of KwaZulu-Natal</i>
10h00-10h25	<b>OL05</b> Synthesis and Applications of Fluorescent Chemosensors for Metal Ion Detection <i>Dr Neliswa Mama, Nelson Mandela University</i>
<b>10h25-10h50</b>	<b>Refreshments</b>  <b>Session Chair – Dr Vineet Jeena (University of KwaZulu-Natal)</b>
10h50-11h25	<b>KL05</b> Those Crazy Calixarenes! From Inherent Chirality to Selective Derivatization <i>Prof Gareth Arnott, Stellenbosch University</i>
11h25-11h40	<b>SL09</b> Efficient Synthesis Methodology and Investigation of Unsymmetrical Organotrithiulfides as Novel Garlic Related-Anticancer Agents <i>Doaa Ali, University of Cape Town</i>
11h40-12h05	<b>OL06</b> Detective and Preventative Units of a Pharmaceutical Laboratory <i>Dr Fredrick Peens, Wildlife Pharmaceuticals South Africa</i>
12h05-12h30	SAASTA presentation
<b>12h30-13h50</b>	<b>Lunch</b>  <b>Session Chair – Dr Siphamandla Sithebe (University of KwaZulu-Natal)</b>
13h50-14h40	<b>PL05</b> Medicines for All Institute: Increasing Global Access to Essential Drugs through Process Intensification <i>Prof Frank Gupton, Virginia Commonwealth University, USA</i>
14h40-15h15	<b>KL06</b> Valorisation of Biomass in the Synthesis of Aromatic Compounds <i>Dr Kennedy Ngwira, University of the Witwatersrand</i>
15h15-15h40	<b>OL07</b> Molecular Social Networking and Mass Spectrometry Tools for Natural Products Drug Discovery <i>Prof Rui Krause, Rhodes University</i>
<b>15h40-16h05</b>	<b>Refreshments</b>  <b>Session Chair – Dr Xolani Nocanda (eThekweni Municipality)</b>
16h05-16h30	<b>OL08</b> Carbon-14 Isotope as a Tool to Radiolabel Bioactive Compounds under Investigation for ADME Determination <i>Dr Molahlehi Sonopo, NECSA</i>
16h30-16h45	<b>SL10</b> In-Silico design, Chemical Synthesis and Biological Screening of Novel 4-(1 <i>H</i> )-pyridone Based Antimalarial Agent <i>Oluwatosin Audu, University of Pretoria</i>



16h45-17h10 **OL09** Synthesis, Biological Evaluation and Molecular Docking Studies of Small Heterocyclic Molecules with Potential Anticancer Properties  
*Prof Jack Mphahlele, University of South Africa*

**17h10** **Poster session and cocktail function**

**Wednesday, 10 July 2019**

***Session Chair – Prof Charles de Koning (University of the Witwatersrand)***

08h30 – 09h20 **PL06** Some Recent Adventures in the Catalytic-Enantioselective Synthesis of Bioactive Natural Products and Analogs  
*Prof Hans-Günther Schmalz, University of Cologne*

09h20-09h55 **OL10** Synthesis and Biological Evaluation of Chromone-3-carbaldehydes  
*Prof Isaiah Ramaite, University of Venda*

09h55-10h10 **SL11** Ferrocenyl 1,3-Benzoxazines Possessing In Vitro Efficacy against Cancer, Malaria and Trypanosomiasis  
*Mziyanda Mbaba, Rhodes University*

10h10-10h35 **OL11** The Unexpected Conversion of Benzoylbenzofurans into Isoflavones  
*Dr Mamoalosi Selepe, University of Pretoria*

**10h35-11h00** **Refreshments**

***Session Chair – Prof Thishana Singh (University of KwaZulu-Natal)***

11h00-11h35 **KL07** Glycals as Indispensable Building Blocks for the Synthesis of Complex Bioactive Organic Molecules  
*Prof Henok Kinfe, University of Johannesburg*

11h35-12h00 **OL12** The Chemistry of Garlic: Insights into its Cancer Preventative Activity  
*Dr Catherine Kaschula, Stellenbosch University*

12h00-12h15 **SL12** Concise and Efficient Syntheses of the Trimethyl Ethers of Lamellarins D and G  
*Robin Klintworth, University of the Witwatersrand*

12h15-12h30 **SL13** Continuous Flow Synthesis of Trimethoprim  
*Sandiso Ngwenya, Nelson Mandela University*

12h30-12h55 **OL13** Selectivity in Petrochemical and Biochemical Separation Processes Using Ionic Liquid  
*Prof Urszula Domanska-Zelazna, Warsaw University of Technology*

**12h55** **Lunch**

**Free Afternoon**

**19h00** **Conference Dinner**

**Thursday, 11 July 2019**

**Session Chair – Dr Paseka Moshapo (University of Johannesburg)**

- 08h30 – 09h20 **Frank Warren Lecture:** From Synthetic Organic Chemistry to Integrated Drug Discovery  
*Prof Kelly Chibale, University of Cape Town*
- 09h30-09h55 **OL14** Fine Chemical Product Development Strategy  
*Albert Roberson, KoeGer Science*
- 09h55-10h10 **SL14** Synthesis of Quinoxaline Alkynyl Derivatives and their Medicinal Properties against *Mycobacterium tuberculosis* (H37RV strain)  
*Lerato Raphoko, University of Limpopo*
- 10h10-11h35 **OL15** Tetrathiafulvalene-Based Molecular Receptors for Recognition of Electron Deficient Guests  
*Prof Vladimir Azov, University of the Free State*
- 10h35-11h00 Refreshments**
- Session Chair – Prof Ross Robinson (University of KwaZulu-Natal)**
- 11h00-11h25 **OL16** Diastereoselective Synthesis of  $\beta$ -Lactam-Isatin Conjugates  
*Dr Parvesh Singh, University of KwaZulu-Natal*
- 11h25-11h40 **SL15** Synthesis of Polysubstituted Pyrrolo[3,2,1-ij]quinolin-6-ones Based on the 6-Bromo-8-iodo-4-oxo-1,4-dihydro-quinoline-3-carbaldehyde as a Substrate  
*Eugene Onwu, University of South Africa*
- 11h40-11h55 **SL16** Design, Synthesis and Catalytic Evaluation of Novel O<sup>N</sup>^S and O<sup>N</sup>^O Palladium Pincer Complexes for Their Application in Cross-Coupling Reactions  
*Babatunde Awe, University of Johannesburg*
- 11h55-12h20 **OL17** A DFT Comparative Study of Substituent Effects in Radicals, Cations and Radical Cations  
*Prof Cedric McClelland, Nelson Mandela University*
- 12h20-12h45 **OL18** Synthesis of Triazine-based Antituberculosis Drugs  
*Dr Simon Mnyakeni Moleele, University of Venda*
- 12h45-12h50 **Closing**
- 12h50 Lunch**

## Poster Presentations

### Green Chemistry

- P001 Facilitating Organic Transformations Through Semiconductor Mediated Photocatalysis  
*T. Underwood, University of KwaZulu-Natal*
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*Adrian Sevenich, Johannes Gutenberg University, Germany*
- P003 Investigations on the Usefulness of Nitrogen-centered Radicals in the Synthesis of the Phenanthridine Nucleus  
*Songeziwe Ntsimango, University of the Witwatersrand*
- P004 Application of Laccase Enzymes in Organic Synthesis  
*Mudzuli Maphupha, University of the Witwatersrand*
- P005 The Use of a Brown Marine Algae *Ecklonia radiata* Aqueous Extract, a Supporting Matrix for a Palladium Nanoparticle Catalyst Used in Various Organic Reactions  
*Edith Atunes, University of the Western Cape*
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*Nompumelelo Mathebula, University of the Witwatersrand*
- P007 Substrate profiling of the nitrile hydratase from *Rhodococcus rhodochrous* ATCC BAA 87  
*Adelaide Mashweu, University of the Witwatersrand*
- P008 Design, Synthesis and Catalytic evaluation of of Novel NNN Palladium(II) Pincer Complexes  
*Robert Yafele, University of Johannesburg*
- P009 Novel Green Synthetic Methods for the Assembly of Angucyclines and Xanthones  
*Fatema Jagot, University of the Witwatersrand*
- P010 Physicochemical and thermodynamic properties of the {1-alkyl-1-methylpiperidinium bromide [C<sub>1</sub>C<sub>n=2,4</sub>PIP][Br], or 1-butylpyridinium bromide, [C<sub>4</sub>Py][Br], or tri(ethyl)-butylammonium bromide [N<sub>2,2,2,4</sub>] [Br] + water} binary systems  
*Marek Królikowski, Warsaw University of Technology, Poland*
- P011 Extractive desulfurization of model fuels with ionic liquids. Ternary liquid-liquid phase equilibrium data and NRTL correlation.  
*M. Więckowski, Warsaw University of Technology, Poland*
- P012 Separation of sulfur compounds from model fuel using glycols and Deep Eutectic Solvents  
*Marek Królikowski, Warsaw University of Technology*

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*Kim Steyn, Stellenbosch University*
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*Nasir Tajuddeen, University of KwaZulu-Natal*
- P015 Mining for Bioactive Compounds from Marine Sponges using lc-ms/ms  
*Gervase Makoni, Rhodes University*
- P016 Investigating activity of *Elephantorrhiza burkei* against *Mycobacterium tuberculosis* and isolation of active compounds  
*Martha Mashilo, University of Limpopo*
- P017 Antiplasmodial and antitrypanosomal activities of extracts, fractions and compounds from some Camerounian *Beilschmiedia* spp  
*Ndjakou Lenta, University of Yaoundé*
- P018 Phytochemical investigation and GABAA inhibition of *Bolusanthus speciosus*  
*Kirsten Ehlers, University of the Free State*
- P019 Isolation and characterization of *Drimia delagoensis* (umahlanganisa) phytochemicals and their application in diabetic foot ulcer treatment  
*Nokuthula Ndaba, University of Johannesburg*
- P020 Search for Alternative Medicine: Psychoactive compounds from *Cussonia paniculata*  
*Mohale Mabaleha, University of the Free State*
- P021 Repurposing of Medicinal Plants: Nematocidal Activity of Plant Extracts  
*Odwa Gonyela, University of KwaZulu-Natal*
- P022 Isolation and characterization of five compounds isolated from *Aptosimum elongatum*  
*Tsebo Molahloe, University of the Free State*
- P023 Isolation of three compounds from Rubiaceae plants  
*Prince Moyo, University of KwaZulu-Natal*
- P024 Profiling of *Croton gratissimus* and *Leonotis leonurus* extracts for their activity against *Mycobacterium tuberculosis* and isolation and characterisation of the active compounds  
*Bochilo Maifo, University of Limpopo*
- P025 Phytochemistry of *Dais cotinifolia* L.  
*Busisiwe Danca, University of KwaZulu-Natal*
- P026 Phytochemical investigation and GABAergic activity of *Gardenia resiniflua*  
*Andrea Davies, University of the Free State*
- P027 Identification and Isolation of Potential Bioactive Compounds from *Hypoetes* genus  
*Tshifhiwa Ramabulana, University of Pretoria*

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*Grace Obi, University of KwaZulu-Natal*
- P029 Enantioselective Synthesis of Ulopterol and Meranzin Hydrate Natural Plant Products from *Coleonema album* and *Murraya paniculata*  
*Tumisang Motsoahae, University of Johannesburg*
- P030 The Design and Synthesis of Anti-Tuberculosis Peptidomimetics Focusing on Lassomycin Derivatives  
*Ntombizanele Ngqinayo, University of the Witwatersrand*
- P031 Synthesis of Coumarin Hybrids as Potential Antidiabetic Compounds  
*Nomandla Ngcoya, University of KwaZulu-Natal*
- P032 Synthesis of New Phthalocyanine and Porphyrins and Application in a Cytochrome P450 Biomimetic Model  
*Franklin De Bruin, University of the Western Cape*
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*Jaco van Rooyen, University of the Free State*
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*Mpheleki Lupiwana, University of Pretoria*
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*Jackie Mabasa, University of Johannesburg*
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*Rajshekhar Karpoormath, University of KwaZulu-Natal*

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*Hogantharanni Govender, University of KwaZulu-Natal*
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*Mbongeni Shungube, University of KwaZulu-Natal*
- P043 Synthesis and characterization of novel short antimicrobial peptides with wound healing Properties  
*Khanani Machumele, University of the Witwatersrand*
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*Pious Shuro, University of the Witwatersrand*
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*Chris Joubert, KoeGer Science, Wildlife Pharmaceuticals SA Ltd*
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*Leo Kirsten, KoeGer Science, Wildlife Pharmaceuticals SA Ltd*
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*Neha Manhas, University of KwaZulu-Natal*
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*Ayanda Zulu, Rhodes University*
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*Gciniwe Mathenjwa, University of KwaZulu-Natal*
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*Mxolisi Majola, University of KwaZulu-Natal*
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*Tommy Mabasa, University of Johannesburg*
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*Nisar Sayyad, University of KwaZulu-Natal*
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*Jan Paternoga, Johannes Gutenberg-University, Mainz, Germany*
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*Nontlantla Maseko, University of Venda*
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*Mpelegeng Bvumbi, University of Venda*
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*Thalia Naidoo, University of KwaZulu-Natal*
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*Memory Zimuwandeyi, University of the Witwatersrand*
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*Nomvula Kokozela, University of the Free State*

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*Thandokuhle Ntombela, University of KwaZulu-Natal*
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## NOTES

