The road to research excellence

FABI 20 YEARS

24–25 JANUARY 2018

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

FABI

Forestry and Agricultural
Biotechnology Institute
FUTURE FORESTS and FOOD

CONTENTS

The road to research excellence

FABI 20 years: 24–25 January 2018

WELCOME

On behalf of all of the FABI TEAM members, a very sincere WELCOME to this special symposium organised to mark the 20th Anniversary of the founding of the Forestry and Agricultural Biotechnology Institute (FABI) in 1998. We hope that you will enjoy the programme that we have assembled for you. We would like you to not only be inspired by the presentations and the various other events that have been included, but, more importantly, that the various perspectives and stories told will provide some illustration of the factors that we believe drive research excellence.

The idea to hold this symposium emerged towards the end of 2016; more than a year ago. The 20-year "milestone" seemed a relevant time to look back to FABI's beginning. To reflect not only the achievements of the Institute during these two decades, but also to consider some of the key elements that enabled FABI to grow and flourish.

Within a University environment, FABI might be considered an unusual structure. While very closely linked to academic Departments, the Institute stands alone as a postgraduate research environment. This has made it possible for the FABI TEAM to operate rather differently to academics within Departments and to "experiment" with techniques to drive research accomplishment and excellence. It is against this background that we have chosen the words "THE ROAD TO RESEARCH EXCELLENCE" as the title of this symposium. Here I must hasten to add that we don't in any way suggest that the ultimate level of research excellence has been reached! It is true that FABI has displayed wonderful achievements, but these provide only the foundation of what might be achieved in the future. Thus, at this time, we reflect on the past and we look to achieving much greater goals in the future!

In organising this Symposium, we thought to invite all past M.Sc. students, Ph.D. students and postdoctoral Fellows to join us. While a great idea, it rapidly became obvious that this goal could not reasonably be achieved. By the end of 2017, more than 480 postgraduate students had graduated from FABI. If all of those invited were to join the current team of about 200 members, there would be no facility on the campus to accommodate the participants. And this would be before we invited our many friends and stakeholders from other institutions in South Africa and globally. You will be interested to know that we ultimately invited past Ph.D. students and postdoctoral Fellows and many of them join us here today. We hope that returning to FABI from many different parts of South Africa and the world will allow you to rekindle friendships, to meet the current FABIans and to at least have a glimpse of how FABI has grown and changed over the years.

This 20-year anniversary symposium has been organised to cover two days. The first day is made up mainly of presentations by colleagues and stakeholders that have played important roles in the growth and development of FABI. They were invited to speak on any topic of their choice, which might include their experiences in developing research programmes or elements of the research that they

pursue. The first part of the second day includes a selection of presentations by colleagues from various parts of the world, as well as by some leaders of research programmes in FABI. This is followed by an opportunity for our guests to meet the current FABI TEAM members and to view some of our facilities.

At the time when FABI was established, Prof. Johan van Zyl was the Vice-Chancellor and Principal of the University of Pretoria. Although many people were involved in establishing FABI, it is fair to say that Johan should be considered as our original "architect". It is a great pleasure to welcome Johan to this event and we hope that he will be pleased with what has grown from his original idea! We are also most grateful to Prof. Cheryl de la Rey, our current Vice-Chancellor and Principal for the support that she has given FABI and for joining us today. Likewise, we thank Prof. Jean Lubuma, Dean of the Faculty of Natural and Agricultural Sciences, the Faculty in which FABI resides, for his presence and support.

FABI has grown over the past 20 years with the support of a wide diversity of stakeholders. Academics at the University of Pretoria, at other Universities in South Africa and globally, Government departments in South Africa and elsewhere in the world, South African statutory bodies and our Industry partners. It would be impossible to have representation from all of these organisations at such a gathering. But I thank those that have joined us and especially those that will speak on behalf of their constituencies. I am also most grateful to the numerous past FABI students that have excelled in their careers and that have agreed to share some of their views with us at this symposium. And I apologise to those past students that are attending this symposium that might have made presentations, but could not be accommodated in what has already emerged as a very full programme.

This anniversary meeting provided the opportunity to share some of the experiences that have underpinned the growth and development of FABI. It was suggested to me that I consider presenting the so-called "FABI STORY" at the start of the symposium. It did not take long for me to realise that it would be impossible to capture even a small portion of the "story" in a short verbal presentation. I resolved to write a condensed version presenting my perspectives of how FABI was "born" and how the Institute has grown during the course of the past two decades. You will find a copy of the document in this programme booklet. I must hasten to add that this presents my own perspective, which might be somewhat biased and present some parts in more detail than others.

The FABI TEAM has been planning this symposium for close on one year. The team has endured many meetings and debates. I thank them all for their suggestions, for their patience and to many that have worked tirelessly to make all necessary arrangements. We hope that you will enjoy the meeting and thank you for joining us!

Mike Wingfield and the FABI TEAM

FABI TEAM

This photograph includes those members of the team available on 23 January 2017. Our apologies to those not included and who could not be captured photographically.

PROGRAMME

WEDNESDAY 24TH AND THURSDAY 25TH JANUARY 2018

WEDNESDAY 24TH JANUARY 2018, AULA THEATRE

07:30-08:00 COFFEE AND TEA

08:00-08:15 Welcome - **Prof. Mike Wingfield**

08:15-08:30 Welcome to the University of Pretoria - **Prof. Cheryl de la Rey, Vice-Chancellor and Principal, University of Pretoria**

08:30-08:50 Establishing FABI - **Dr Johan van Zyl, Chief Executive Officer, African Rainbow Capital, South Africa**

08:50-09:05 FABI in the Faculty of Natural and Agricultural Sciences - **Prof. Jean Lubuma, Dean: Faculty of Natural and Agricultural Sciences (NAS), University of Pretoria**

09:05-09:25 FABI 20 years: The road to research excellence - **Prof. Mike Wingfield, Founding Director: Forestry and Agricultural Biotechnology Institute (FABI), University of Pretoria**

09:25-09:45 A National Research Foundation perspective - **Prof. Molapo Qhobela, Chief Executive Officer, National Research Foundation (NRF), South Africa**

09:45-10:05 Science policy, budgets and Ph.D. studies: Why they matter - **Dr Ntsane Moleleki, Senior Specialist: Policy Investigations, The National Advisory Council on Innovation (NACI), South Africa**

10:05-10:30 **Musical interlude: organ recital – Prof. Wim Viljoen, Head of the Department of Music (2008-2016), University of Pretoria**

10:30-11:00 COFFEE AND TEA

11:00-11:20 Connecting the dots – The importance of global collaboration - **Mr Alexander Buck, Executive Director, International Union of Forest Research Organizations (IUFRO), Vienna, Austria**

11:20-11:40 *Fabius defensoris:* A taxonomic history - **Mr Michael Peter, Executive Director, Forestry South Africa**

11:40-12:00 The tough and rewarding journey of academic leadership - **Prof. Corli Witthuhn, Vice-Rector: Research, University of the Free State, South Africa**

12:00-12:20 The future of Science - An evolution of theory - **Dr Len van Zyl, Chief Executive Officer, ArrayXpress Inc., North Carolina, USA**

12:20-12:40 Laurel wilt: An evolving pathosystem - **Prof. Randy Ploetz, Professor of Plant Pathology, University of Florida, USA**

12:40-13:40 LUNCH (Aula Theatre)

13:40-14:00 Touring the digital zoo: Taxonomy in public sequence databases - **Dr Conrad Schoch, Team Lead and Fungal Curator, NCBI Taxonomy, National Center for Biotechnology Information (NCBI), Bethesda, USA**

14:00-14:20 Stepping out of the comfort zone; from an academic environment to business - **Dr Oliver Preisig, Executive Director, Inqaba Biotechnical Industries (Pty) Ltd., South Africa**

14:20-14:40 No space, no money = foliar diseases - **Prof. Pedro Crous, Director: Westerdijk Fungal Biodiversity Institute, Utrecht, the Netherlands**

14:40-15:00 FABI-China: Good friendships, great achievements and a bright future! - **Prof. ShuaiFei Chen, Associate Professor, Research Leader of the Forest Protection Group, China Eucalypt Research Centre, Chinese Academy of Forestry, China; Extra-ordinary Lecturer, Forestry and Agricultural Biotechnology Institute (FABI), University of Pretoria**

15:00-15:20 Change - adjustment - resilience - endurance - convergence - future - innovation - **Dr Lehan Stemmet, Associate Dean: Faculty of Business and Information Technology, Manukau Institute of Technology, Auckland, New Zealand**

15:20-15:50 **Speed presentations (FABI students)**

Postgraduate confessions: A love affair with *Fusarium* - **Darryl Herron, Ph.D. candidate, Forestry and Agricultural Biotechnology Institute (FABI), University of Pretoria**

Inspiring a new generation of plant health specialists in Africa - **Joey Hulbert, Ph.D. candidate, Forestry and Agricultural Biotechnology Institute (FABI), University of Pretoria**

Evolution and development of wood in the land plants - **Danielle Roodt, Ph.D. candidate, Forestry and Agricultural Biotechnology Institute (FABI), University of Pretoria**

Characterising variation in the *Sirex-Amylostereum-Deladenus* symbioses - **Osmond Mlonyeni, Ph.D. candidate, Forestry and Agricultural Biotechnology Institute (FABI), University of Pretoria**

Sex: How the fungi do it - **Andi Wilson, Ph.D. candidate, Forestry and Agricultural Biotechnology Institute (FABI), University of Pretoria**

Polygalacturonase: the "breakthrough" pathogenicity stars of *Phytophthora cinannmomi* - **Tsakani Miyambo, M.Sc. student, Forestry and Agricultural Biotechnology Institute (FABI), University of Pretoria**

15:50-16:20 TEA (Aula Theatre)

16:20-16:40 Adaptation and symbiosis – Using nature's toolkit to excel in Science (and everything else) - **Prof. Diana Six, Professor of Forest Entomology/Pathology, WA Franke College of Forestry and Conservation, Department of Ecosystem and Conservation Sciences, The University of Montana, USA**

16:40-17:00 The making of a career; a chance meeting that has led to 20 years of research collaboration and friendship - **Prof. Treena Burgess, Professor, School of Veterinary and Life Sciences, Murdoch University, Perth, Australia**

17:00-17:20 FABI: Looking forward - **Prof. Bernard Slippers, Director: Forestry and Agricultural Biotechnology Institute (FABI), University of Pretoria**

17:20-17:50 **Tree planting ceremony**

18:30 **Gala dinner**
Guest speaker: **Prof. Dr Ir. André Drenth, Theme Leader: Horticultural Crop Protection, Queensland Alliance for Agriculture and Food Innovation, Centre for Plant Science, The University of Queensland, Australia**

THURSDAY 25TH JANUARY 2018, AULA THEATRE

Science Reseach Symposium

07:45-08:15 COFFEE AND TEA

08:15-08:30 Welcome and introduction - **Prof. Brenda Wingfield, SARChI Chair in Fungal Genomics, Forestry and Agricultural Biotechnology Institute (FABI), University of Pretoria**

08:30-08:50 Novel insights into symbiotic paths to sustainable insect fungiculture - **Dr Michael Thomas-Poulsen, Associate Professor, Department of Biology, Section for Ecology and Evolution, University of Copenhagen, Denmark**

08:50-09:10 Reading, editing and writing forest tree genomes - **Prof. Zander Myburg, Chair in Forest Genomics and Biotechnology, Department of Genetics, Forestry and Agricultural Biotechnology Institute (FABI), University of Pretoria**

09:10-09:30 Unraveling intricate multi-organism interactions in a global biodiversity hotspot - **Dr Francois Roets, Department of Conservation Ecology and Entomology, Stellenbosch University, South Africa**

09:30-09:50 The Chemistry of defensive symbiosis - the tale of two natural product discoveries! - **Dr Christine Beemelmanns, Junior Research Group Leader, Chemical Biology of Microbe-Host Interactions, Leibniz Institute for Natural Product Research and Infection Biology e.V., Hans-Knöll-Institute (HKI), Germany**

09:50-10:10	Genomes of host and pathogen in the globally important grey leaf spot disease of maize - **Prof. Dave Berger, Department of Plant and Soil Sciences, Forestry and Agricultural Biotechnology Institute (FABI), University of Pretoria**
10:10-10:30	Rotten roots to genes to genomes: Tackling the challenges of one of Europe's most serious tree pathogens - **Prof. Jan Stenlid, Professor of Forest Pathology, Department of Forest Mycology and Plant Pathology, Swedish University of Agricultural Sciences, Uppsala, Sweden**
10:30-11:00	COFFEE AND TEA (Aula Theatre)
11:00-11:20	Applied plant pathology in the Genomics Era - **Prof. Jim Correll, Department of Plant Pathology, University of Arkansas, USA**
11:20-11:40	20 years of Mycology in FABI - **Prof. Wilhelm de Beer, Associate Professor, Department of Microbiology and Plant Pathology, FABI, University of Pretoria**
11:40-12:00	The 'too-much-talent effect' in fungi - **Prof. Duur Aanen, Associate Professor in Evolutionary Biology, Wageningen University, the Netherlands**
12:00-12:20	Mycorrhizal fungi of Australian orchids – **Prof. Celeste Linde, Associate Professor: Ecology and Evolution, Research School of Biology, College of Science, The Australian National University, Canberra, Australia**
12:20-12:40	*Pectobacterium brasiliensis:* an emerging, economically important bacterial pathogen of potato plants - **Prof. Lucy Moleleki, Associate Professor and Acting Head of Department: Department of Microbiology and Plant Pathology, University of Pretoria**
12:40-13:00	Yellowhorn plantation intensification using biotechnology in China - **Prof. Xudong Xhou, Head of Research and Development, FuturaGene Biotechnology (Shanghai) Company, Shanghai, China**
13:00-14:00	FINGER LUNCH (FABI Courtyard)
14:00-17:00	**See FABI and Meet the FABIans** **Visit FABI, FABI Square and the FABI Biocontrol Facility** **Visit th FABI Exhibition of Tree and Wood Art**
18h00	BRAAI (By invitation - Uitspan venue at the University of Pretoria's L.C de Villiers Sports Campus)

SPEAKER BIOGRAPHIES

Prof. Cheryl de la Rey

Vice-Chancellor and Principal, University of Pretoria

Prof. Cheryl de la Rey has been the Vice-Chancellor and Principal of the University of Pretoria since November 2009. Her previous executive positions include being the Chief Executive Officer of the Council on Higher Education, Deputy Vice-Chancellor at the University of Cape Town and Executive Director at the National Research Foundation.

She has published books and several journal articles and she is registered as a Psychologist by the Health Professions Council of South Africa, is a Fellow of the Psychological Association of South Africa, a Fellow of the Royal Society of South Africa and of the Academy of Science of South Africa. She is the Chairperson of the National Advisory Council on Innovation and is a member of a number of national and international boards and committees such as the Executive Board of the International Council for Science and the University Social Responsibility Network.

Dr Johan van Zyl

Chief Executive Officer, African Rainbow Capital, South Africa

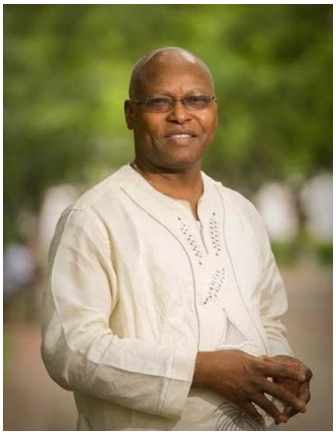
Dr Johan van Zyl presently is the CEO of African Rainbow Capital, a black-owned and controlled investment holding company.

He previously was the CEO of Sanlam and Santam, as well as the Vice-Chancellor and Principal of the University of Pretoria (during FABI's conception and establishment). He presently is a Board Member of several listed entities in South Africa and abroad, including the Chairman of Sanlam and a Board Member of Steinhoff International.

He received a number of prestigious leadership awards, and published more than 250 journal articles and several books early on in his career as an agricultural economist.

Prof. Jean Lubuma

Dean: Faculty of Natural and Agricultural Sciences (NAS), University of Pretoria



Prof. Lubuma has been Dean of the Faculty of Natural and Agricultural Sciences (NAS) at the University of Pretoria (UP) since March 2015. He received his Ph.D. from the University of Louvain in Belgium in 1985 and was a postdoctoral Fellow at the International Centre for Theoretical Physics in Italy. Since then, he has worked in or visited many prestigious universities and research institutions.

Prof. Lubuma's research interests include the numerical analysis of ordinary and partial differential equations with an emphasis on differential equations models that occur in science, engineering and technology. In the past ten years, he has focused on modeling biological processes such as disease transmission, interacting species, mutant gene propagation and enzymatic reactions. Prior to his appointment as Dean, he held the SARChI Chair in Mathematical Models and Methods in Bioengineering and Biosciences. This was a culmination of his continued efforts to create a world-class environment and facility in which multidisciplinary research activities are supported and can flourish.

Prof. Lubuma published widely in several prestigious journals and has attended several major conferences in his field. Since 2015, he published more than 15 papers on mathematical biology and related areas in ISI journals. He has made numerous significant contributions to the theory of the nonstandard finite difference schemes, as well as to the design and implementation of several innovative numerical schemes replicating the dynamics of a wide range of differential equations that arise in real-life problems. Prof. Lubuma also serves as Editor and Referee for several journals. He has contributed to making science work in Africa, trained several postgraduate students and is involved in multiple regional Centres of Excellence.

Recent awards, honours and recognitions received include the Sign of Honour from the Bulgarian Academy of Science, the South African Mathematical Society Award for Research Distinction, and Fellowships of the African Academy of Sciences, the Academy of Science of South Africa, and the Suid-Afrikaanse Akademie vir Wetenskap en Kuns (South African Academy for Science and Arts). Prof. Lubuma has been recognised as an Exceptional Achiever by UP for four consecutive periods from 2007. He has a B2 rating from the NRF.

Prof. Mike Wingfield

Founding Director: Forestry and Agricultural Biotechnology Institute (FABI), University of Pretoria

Michael (Mike) Wingfield, is the founding Director of the Forestry and Agricultural Biotechnology Institute (FABI) in 1998, a position from which he has chosen to step down after 20 years at the end of 2017. He is succeeded in this position by Prof. Bernard Slippers, a long-time member of the FABI Team and who is globally recognised for his research on tree health, as a leading academic and facilitator of global research collaborations. Mike has conducted research on tree pests and pathogens, especially concerning their global movement, for more than 30 years. He has published widely on the topic of tree health in more than 900 research papers, seven books and in numerous prestigious invited presentations globally. He serves/ has severed in many prestigious positions based on his research. He is an A1-rated NRF scientist, has received honorary Doctorates from the University of British Colombia, Canada (2012) and North Carolina State University (2013) and received the highest scientific award (Kwame Nkrumah Scientific Award) of the African Union in 2013. He is currently serving a five-year term as the President of the International Union of Forestry Research Organizations (IUFRO), based in Vienna, Austria and one of the largest and oldest scientific organisations representing in excess of 15,000 forestry scientists globally.

http://www.fabinet.up.ac.za/mwingfield

Dr Molapo Qhobela

Chief Executive Officer, National Research Foundation (NRF), South Africa

Dr Molapo Qhobela is Chief Executive Officer of the National Research Foundation (NRF). He is a seasoned executive leader with extensive policy and administration experience that has seen him head up the development of a significant number of policy and strategy documents which have shaped the nature and operations of South African universities as well as the education system in general. He has exceptional knowledge of the South African Higher Education System and the National System of Innovation, and has established well-seeded international relationships and networks with funders and Government entities over the years.

His prior appointments include: Vice-Principal: Institutional Development at the University of South Africa; Deputy Director-General at the Department of Science and Technology; Deputy Director-General and Acting Director-General of the Department of Higher Education and Training. Dr Qhobela obtained his Ph.D. (Plant Pathology) from Kansas State University and a B.Sc. (Botany and Zoology) from the University of Zimbabwe.

Dr Ntsane Moleleki

Senior Specialist: Policy Investigations, The National Advisory Council on Innovation (NACI), South Africa

Dr Ntsane Moleleki is one of the founding student members at the inception of FABI in 1998. He holds an M.Sc. in Microbiology from the University of the Free State and a Ph.D. in Genetics from the University of Pretoria. After compeltiong his Ph.D. he continued for a two-year period at FABI as a Postdoctoral Research Fellow. After completing a postdoctoral stint at FABI, he was appointed as a Postdoctoral Researcher at the University of Dundee in Scotland in the group of Prof. Sir Philip Cohen.

On returning to South Africa, he joined the Council for Scientific and Industrial Research in different positions in the Biosciences unit. He held the position of Research Group Leader for the Yeast Expression Group where he managed a group of scientists ranging from postdoctoral research scientists, Ph.D. and M.Sc. students.

During his stay at the CSIR, Dr Moleleki enrolled for further training in Bioentrepreuneurship and Financial Management (Financial Management for Non Financial Managers) with the Continuing Education at the University of Pretoria. Dr Moleleki is currently Senior Specialist at National Advisory Council on Innovation (NACI), which is an advisory policy unit to the Minster of Science and Technology.

Mr Alexander Buck

Executive Director, International Union of Forest Research Organizations (IUFRO), Vienna, Austria

Alexander Buck is the Executive Director of the International Union of Forest Research Organizations (IUFRO), a global network for science collaboration uniting over 15,000 scientists in more than 600 member organisations in 125 countries. He studied forestry and law and is an expert on international forest, environment and resource policy. Alexander has 20 years of experience in working in research management and at the science-policy interface. He is a member of the advisory boards of various forest-related international initiatives, including the Program of Forests (PROFOR) hosted by the World Bank and Yale University's Governance, Environment and Markets (GEM) Initiative.

Mr Michael Peter

Executive Director, Forestry South Africa

Michael Peter has nearly 30 years of experience in both the public and private forestry sectors. He has been involved in a broad range of activities in both indigenous and planted forests, from direct management of forests, to the development of national standards, policy and legislation and participating in domestic and international forests sector dialogues. He has served in several international collaborative forums, including the FAO's National Forest Programme Facility, Advisory Committee on Sustainable Forest Industries, which he also chaired for three years and the Advisory Committee to the World Forestry Congress 2015.

Since 2008 he has been the Executive Director of Forestry South Africa, which represents the interests of commercial timber growers in South Africa and which count as their members, over 90% of timber growers by number and by area. During this time he has also served as a member of the Tree Protection Co-operative Programme (TPCP) at FABI and the Sirex Steering Committee, both of which forums, provide direction and support to FABI.

Prof. Corli Witthuhn

Vice-Rector: Research, University of the Free State, South Africa

Prof. Corli Witthuhn was appointed in her current position as Vice-Rector: Research, at the University of the Free State (UFS) in April 2013. Her academic career started as a lecturer in 1999 in the Department of Food Science at Stellenbosch University (SU) after she completed a Ph.D. in Microbiology under the supervision of Prof. Brenda Wingfield and Prof. Michael Wingfield. She was Chair of the Department of Food Science at SU from 2005 until 2009 when she accepted the position of Vice-Dean of the Faculty of AgriSciences at SU. She then returned to the UFS and was appointed as Vice-Dean of the Faculty of Natural and Agricultural Sciences in 2011 before she took up the position of Vice-Rector. Her research interests include the rapid detection and identification of spoilage and pathogenic microbes in foods. She has published more than 70 international peer-reviewed scientific papers. She is a NRF rated researcher and has served as study leader for eight Doctoral and 26 Masters students.

Dr Len van Zyl

Chief Executive Officer, ArrayXpress Inc., North Carolina, USA

Dr Len van Zyl is the CEO and CSO of ArrayXpress Inc., a Next Generation Genomics services company founded with the vision of using the latest Next Generation Sequencing technologies to provide turn-key solutions for Systems Biology in both Pharmaceutical and Agricultural applications. Dr van Zyl obtained his Ph.D. in Microbiology at FABI in 1999, under the supervision of Professors Mike Wingfield, Teresa Coutinho and Brenda Wingfield. He is currently focused on the application of genetics and genomics technologies in Toxic Tort litigation. He is involved in Toxic Tort litigation cases as both a factual and expert witness in Federal and State Courts in the USA, and has developed an in-depth understanding in the application of genetics and genomics technologies to elucidate the existence of effects of toxicants on DNA, RNA, and epigenetic markers. Dr van Zyl has been recognised as a Top 50 Entrepreneurs Award winner for his impact on the scientific and business community in his home state of North Carolina, USA.

Prof. Randy Ploetz

Professor of Plant Pathology, University of Florida, USA

Professor Randy Ploetz received B.Sc. and M.Sc. degrees from Purdue University and a Ph.D. from the University of Florida (UF). In 1986, he joined UF's Tropical Research and Education Center in Homestead, where he was promoted to Professor in 1996. Randy is an authority on diseases of tropical fruit crops and has written four books and several hundred scientific and popular articles on these topics. He has visited over 60 countries on professional assignments. In 2004, he received the UF Research Foundation Professorship Award, and from the American Phytopathological Society received the Excellence in International Service Award in 2008, and the Fellow Award in 2016. Randy has had a long relationship with FABI. In 2008, he helped conduct the 10th anniversary review of FABI. He has been a plenary speaker at the annual TPCP meeting, has been an external examiner of M.Sc. and Ph.D. theses, and is an advisor of a Hans Merensky Foundation-sponsored Avocado Rootstock Improvement Project at FABI.

Dr Conrad Schoch

Team Lead and Fungal Curator, NCBI Taxonomy, National Center for Biotechnology Information (NCBI), Bethesda, USA

Dr Conrad Schoch completed his BSc. and, subsequently M.Sc. in microbiology, at the University of the Free State by 1996. In 1999 he completed his Ph.D. as a 'long distance' member of FABI in Stellenbosch under Prof. Pedro Crous with Professors Brenda and Mike Wingfield as co-advisors. His Ph.D. dissertation addressed the phylogenetic and population relationships of *Eucalyptus* pathogens in the fungal genus *Calonectria*. This led to postdoctoral positions at Cornell University from 2000 to 2003 and at Oregon State University from 2003 to 2008. During the latter, he was responsible for sampling non-lichenised ascomycetes on the Fungal Tree of Life Project. Since 2009 he is a staff scientist at the National Center for Biotechnology Information (NCBI), in the National Library of Medicine and one of the National Institutes of Health in Bethesda, Maryland, USA. His responsibilities include the taxonomic curation of fungal sequence submissions to GenBank and improving the NCBI Taxonomy database as team lead for the NCBI Taxonomy group. In 2012 Dr Schoch was lead author on a multi-author paper that proposed the first universal DNA barcode for Fungi. He has been lead author or co-author on more than 50 peer-reviewed publications published in the journals Nature, Proceedings of the National Academy of Sciences of the USA, Systematic Biology and others. Dr Schoch is currently Chair for the International Committee for Taxonomy of Fungi (ICTF).

Dr Oliver Preisig

Executive Director, Inqaba Biotechnical Industries (Pty) Ltd., South Africa

Dr Oliver Preisig grew up close to Zurich and was interested in Africa from a young age, being especially fascinated about TV series like Daktari. He received his degree as a Doctor of Natural Sciences for genetic studies done on the Nitrogen-fixing bacterium *Bradyrhizobium japonicum* from the Swiss Federal Institute of Technology in Zurich, Switzerland in 1995. Africa was then calling to the surprise of many and Oliver started his postdoctoral studies into dsRNA mycoviruses in the TPCP research group under the leadership of Prof. Mike Wingfield at the University of the Free State in the same year. After just over two years in Bloemfontein, he was among the first to move to Pretoria at the end of 1997 to support setting up FABI and continued his research there in Mike and Brenda's research group. Later he was employed as senior research officer and co-supervised a few students. In the early 2000s, Oliver had the idea to start a biotechnology company. Supported by several friends from all over the world, the team started Inqaba Biotec, Africa's Genomics Company. Fifteen years later, Inqaba Biotec has grown to a medium-sized company with around 80 employees in Sub-Saharan Africa.

Prof. Pedro Crous

Director: Westerdijk Fungal Biodiversity Institute, Utrecht, the Netherlands

Professor Pedro Crous is Director of the oldest and largest Microbial Biological Resource Centre for fungi, the Westerdijk Fungal Biodiversity Institute. He is currently Professor at Utrecht and Wageningen (NL), Murdoch and Melbourne (AUS), Stellenbosch, Free State and Pretoria (SA), and Chiang Mai (Thailand). He is Executive or Managing Editor of three of the top journals in Mycology, namely: *Studies in Mycology* (IF=14), *Persoonia* (IF=7.5), and *IMA Fungus* (IF=4.6). He is Secretary-General of the International Mycological Association, and Member of numerous scientific organisations, being Corresponding Member of the Royal Academy for Overseas Sciences (Belgium), Fellow of the Linnaean Society of London, the Southern African Society for Plant Pathology, and Honorary Member of the Mycological Society of America, and Mycological Society of India. He has received the President's Award from the South African Foundation of Research Development, Alexopolous Award from the Mycological Society of America, Havenga Award for Biological Sciences from the South African Academy for Arts and Science, Christiaan Hendrik Persoon Gold Medal from the Southern African Society for Plant Pathology, and the Founders' Award from the European Mycological Association. As a phytomycologist, his research focuses on biosecurity and trade, the identification of fungal plant pathogens, and how this relates to host specificity and speciation. In this regard he launched MycoBank, the world's largest database for fungal names and metadata, with more than 2,500 distinct users per day, to coordinate global research on fungal biodiversity. He has described several thousand fungal taxa, and is a key role player in DNA barcoding of fungi. He has published more than 600 papers in ISI-rated journals, and 30 books, and is listed among the highest cited researchers (Plant and Animal Science) by Thomson Reuters.

Prof. ShuaiFei Chen

Associate Professor, Research Leader of the Forest Protection Group, China Eucalypt Research Centre, Chinese Academy of Forestry, China; Extra-ordinary Lecturer, Forestry and Agricultural Biotechnology Institute (FABI), University of Pretoria

Prof. ShuaiFei Chen received his Ph.D. from FABI in 2011. While he conducted his research in Eucalypt breeding at the China Eucalypt Research Centre at the Chinese Academy of Forestry, he realised that the eucalypt plantations in China were threatened by a growing number of diseases. His Ph.D thesis entitled "Fungal diseases of eucalypts in P.R. China" provides the most extensive study of fungal pathogens of eucalypts in China to date. Research results of his Ph.D. project provided a foundation for eucalypt fungal disease research in China.

During 2011 and 2013, he conducted two postdoctoral projects in FABI and the University of California-Davis, respectively. During his postdoctoral research in South Africa and California, he kept on building his research experience in tree pathology. In June 2013, ShuaiFei moved back to China where he was appointed as the research leader of the forest protection group in the China Eucalypt Research Centre. Recently, he and his colleagues in China and South Africa have built a research team, the CERC-FABI Tree Protection Programme (CFTPP), which is a cooperative venture programme established between the China Eucalypt Research Centre (CERC) and the Forestry and Agricultural Biotechnology Institute (FABI). The primary goal of the CFTPP is to build further collaboration and associated opportunities in the field of tree health research between CERC and FABI.

Dr Lehan Stemmet

Associate Dean: Faculty of Business and Information Technology, Manukau Institute of Technology, Auckland, New Zealand

In 1997 Lehan worked as part-time research assistant at the TPCP in Bloemfontein. He recalls the early morning day trips to Pretoria, standing in front of a section of open land with the other founder members... all sharing the same dream which eventually came to fruition when they opened the doors in 1998. His office was at the back of the molecular biology lab. He helped develop and establish some of the early systems and procedures, as well as troubleshooting many of the early growing pains.

Since FABI Lehan has worked in diverse industry sectors in South Africa, Ireland and New Zealand in roles related to organisational development and project management. He has senior leadership experience in the commercial and education sector. In his current role he is based in a modern "smart" campus where he plays a key role in transforming tertiary business and IT education and leads a large department with approximately 400 graduates every year.

His research is primarily applied and from a multidisciplinary perspective in the area of stress, resilience and cognitive load with collaborators based in the UK, New Zealand, the Netherlands and Spain. Lehan, his wife Fredericka and their three children: Ziva, Anya and Joel live in Auckland, New Zealand.

Prof. Diana Six

Professor of Forest Entomology/Pathology, WA Franke College of Forestry and Conservation, Department of Ecosystem and Conservation Sciences, The University of Montana, USA

Professor Diana Six's primary research focuses on the evolution and maintenance of symbioses particularly those occurring among bark beetles and fungi. She also conducts research on bark beetle ecology and management, including how the beetles may influence forests' adaption to climate change and how they interact with native and invasive pathogens. After years of conducting research on biological systems and writing and editing for scientific journals, she now is involved in translating science to public through writing, social media, and video, particularly in the areas of forest management, policy and climate change. She is an intense lover of nature and pursuer of fish and is one of the few people in the world who thinks bark beetles are cute.

Six has worked with faculty and students at FABI since 2004. In addition to research, co-advising students, and acting as an external examiner, she has served as a member of the Advisory Board for the DST-NRF Center for Tree Health Biotechnology (CTHB) since its inception. She considers her time at FABI and her interactions with Fabians as among the most transformative of her career and life and is proud to be a part of such a remarkable phenomenon!

Prof. Treena Burgess

Professor, School of Veterinary and Life Sciences, Murdoch University, Perth, Australia

Professor Treena Burgess's research field is the biology, ecology and genetics of beneficial and detrimental microorganisms in natural ecosystems, plantation forestry and horticulture, with a focus on biodiversity and biosecurity issues. Treena first came to FABI as a postdoc in 1999 for two years working on global diversity and movement of the pine pathogen *Diplodia pinea*. Subsequently, she was funded for a eucalypt biodiversity project at Murdoch University in Australia and through this Treena maintained close links in South Africa, visiting FABI for up to two months a year. This collaboration has continued to today resulting in, to date, 57 joint publications and she hold an Extraordinary Professorial position at the University of Pretoria. The association with FABI has not only produced an excellent research collaboration, but also many wonderful friendships.

Prof. Bernard Slippers

Director, Forestry and Agricultural Biotechnology Institute (FABI), University of Pretoria

Professor Bernard Slippers is the Director of the Forestry and Agricultural Biotechnology Institute (FABI) at the University of Pretoria (UP). He is a core team member of the Tree Protection Co-operative Programme (TPCP) and DST-NRF Centre of Excellence in Tree Health Biotechnology (CTHB) in the Institute. He is also a Professor in the Department of Biochemistry, Genetics and Microbiology.

Bernard's research focuses on the ecology and evolution of insects and micro-organisms that affect tree health, and the development of tools to mitigate their impact. For this purpose he uses genetic, genomic and chemical tools to characterise global patterns of spread of invasive tree pests and pathogens, as well as their population dynamics, communication systems and mating strategies. He has received wide recognition for his research nationally and internationally. He holds a B1 rating from the National Research Foundation and recently received the University of Pretoria Chancellor's Medal in 2016. He has published more than 200 papers, an edited book and a number of book chapters. He has supervised or co-supervised more than 50 M.Sc. and Ph.D. students.

He is a founding member of the Global Young Academy (GYA) and the South African Young Academy of Science (SAYAS). He has served in the leadership of both these organisations, including as co-chair of the GYA. Bernard is also a Young Affiliate of the Academy of Science of the Developing World (TWAS) and a member of the Academy of Science of South Africa (ASSAf). He leads the development of the Future Africa Institute at UP, aimed at developing excellence in transdisciplinary science leadership for innovation in Africa, as well as the associated Africa Science Leadership Programme.

Bernard and his wife, Dr Jana Slippers, are Heads of Residence of TuksVillage, where they live with their daughters Yvonne and Mia.

Prof. Dr. Ir. André Drenth

Theme Leader: Horticultural Crop Protection, Queensland Alliance for Agriculture and Food Innovation, Centre for Plant Science, The University of Queensland, Australia

Professor André Drenth obtained a M.Sc.. in Plant Breeding from Wageningen Agricultural University, the Netherlands and a Ph.D. in Plant Pathology from Wageningen and Cornell University USA in 1994. Prof Drenth is currently Theme Leader: Crop Protection in the Centre for Plant Science at the University of Queensland. He has conducted research on a wide range of Phytophthora diseases in tropical tree crops and is currently actively involved in developing management strategies for a range of diseases in banana, macadamia and citrus.

Prof. Drenth has, since 1996, developed a strong and enduring collaboration with the Forestry and Agricultural Biotechnology Institute (FABI) in areas of population genetics and management of diseases. This collaboration involved joint supervision of Ph.D. students, frequent short-term exchange of staff and students and collaboration on a number of international projects. This collaboration has been highly successful and has resulted in a total of 18 joint publications in International peer reviewed journals over the last 21 years.

Prof. Brenda Wingfield

SARChI Chair in Fungal Genomics, Forestry and Agricultural Biotechnology Institute (FABI), University of Pretoria

Professor Brenda Wingfield has made the study of the global movement and evolution of fungal pathogens, particularly those on trees, her main research focus for the past 30 years. She has been a Professor at the University of Pretoria's Department of Genetics for 20 years. She is one of the founding members of the Forestry and Agricultural Biotechnology Institute (FABI), and served a seven year term as Deputy Dean of Research and Postgraduate Studies of the Faculty of Natural and Agricultural Sciences at the University of Pretoria. She was involved in leading the winning bid for the research team in Tree Health Biotechnology to be one of the first six DST-NRF Centres of Excellence to be established. Prof. Wingfield holds the DST-NRF SARChI Research Chair in Fungal Genomics. She is Vice President of the Academy of Science of South Africa and the Secretary General of the International Society of Plant Pathology.

Prof. Wingfield has been responsible for a number of major advances in fungal taxonomy and phylogeny, not the least of which was the introduction of DNA-based research tools to her field of research in South Africa. This has enabled her research group to identify the biology of a wide variety of tree pathogens and establish itself as one of the foremost in the study of distribution and population dynamics of tree pathogens using DNA markers. She pioneered fungal genomics at the University of Pretoria where she was responsible for the first fungal genome to be sequenced in Africa. Her success as a researcher is reflected in the internationally recognised work of many of her past Ph.D. students. She has trained 51 Honours students, and supervised 51 Master's and 49 Ph.D. students and has contributed considerably to bringing more female graduates into the research field.

Prof. Wingfield's work and standing as a scientist has garnered considerable recognition. She has won the University of Pretoria's Excellent Achiever's Award for 10 consecutive years, and received the University's Chancellor's Award for Research in 2012. Additionally, she received the Women in Water Sanitation and Forestry Award twice, the DST Distinguished Women in Science Award, and the African Union Regional Award for Women in Science. She was a recipient of the Harry Oppenheimer Memorial Fellowship Award in 2016 and received the American Phytopathological Society Fellow Award in 2017.

Dr Michael Thomas-Poulsen

Associate Professor, Department of Biology, Section for Ecology and Evolution, University of Copenhagen, Denmark

Dr Michael Thomas-Poulsen is an expert in evolutionary ecology and he performs fundamental research into host-symbiont coevolution. He received his M.Sc. from Århus University in 2001 and a Ph.D. from the University of Copenhagen in 2005. After a productive five-year postdoctoral stay at the University of Wisconsin-Madison, he returned to the Department of Biology at the University of Copenhagen in 2010 to take up an Assistant Professorship. In 2014, he was promoted to Associate Professor at and has now established a strong group and a series of complementary research programs. Poulsen's primary model system, the ancient Old World fungus-farming termites, has a sophisticated agricultural symbiosis that pre-dates human farming by 30 million years, produces no organic waste, and does not suffer from specialised diseases. He uses this system to address how antagonistic and beneficial microbial symbionts shape host ecology and evolution; how complementary partnerships evolve and remain stable; and how sustainable defences against exploitation of host-symbiont associations evolve. His group integrates diverse behavioural, microbiological, molecular biology and genomics/metabolomics approaches to document and understand the management principles of sustainable large-scale farming. His work is thus also of applied significance, as it contributes to our understanding of the natural use of antibiotics and antibiotic resistance in parasites, and involves natural product and plant decomposition enzyme discovery. Poulsen has authored 59 publications, including in *Science, Nature Chemical Biology,* and *Nature Ecology and Evolution* (h-index = 26; 2,160 citations).

Prof. Zander Myburg

Chair in Forest Genomics and Biotechnology, Department of Genetics, Forestry and Agricultural Biotechnology Institute (FABI), University of Pretoria

Zander Myburg is the Director of the Forest Molecular Genetics (FMG) Programme in FABI and a Professor in Genetics at the University of Pretoria. He also holds the Chair in Forest Genomics and Biotechnology at UP. His research team has pioneered the use of population genomics and systems genetics approaches to unravel the genetic control of growth and wood formation in *Eucalyptus* trees. He also was the lead investigator of the US Department of Energy (DOE) funded international *Eucalyptus* Genome Project which generated the reference genome sequence for the genus (Myburg *et al*. 2014, *Nature*). This information is being used to develop biotechnology applications for tree improvement in South Africa including DNA fingerprinting, genome-assisted breeding approaches and genetic engineering towards enhancing tree growth and development for pulp, paper, timber and other bioeconomy applications. He has supervised 58 postgraduate (postdoc, M.Sc. and Ph.D.) students and is author of 91 ISI peer-reviewed papers and book chapters in the field of plant molecular genetics and genomics. He was recently awarded a B1 rating from the NRF.

Dr Francois Roets

Department of Conservation Ecology and Entomology, Stellenbosch University, South Africa

Dr Francois Roets completed his Ph.D. studies in 2006 at Stellenbosch University followed by a postdoctoral Fellowship at the University of Pretoria in 2008. He currently holds a senior lecturing position at Stellenbosch University and was appointed as core team member of the DST-NRF Centre of Excellence in Tree Health Biotechnology in 2008. His Ph.D. and postdoctoral research focused on the biology, ecology and systematics of *Sporothrix* and *Knoxdaviesia* fungi in the flowers of *Protea* trees and their mutualistic association with mites. More recently, his research suggested the involvement of birds in these complex systems. The major thrust of his research is on understanding factors that influence arthropod and microorganism biodiversity, ecology and evolution. His research group has described more than 20 new species of fungi, 10 new plant species and 10 arthropod species. Research includes interactions of microorganisms with plants and arthropods, and interactions between plants and arthropods. Biodiversity studies focus on arthropods and microorganisms as bio-indicators of environmental change. His publication record includes 86 papers in peer-reviewed journals and a book chapter.

Dr Christine Beemelmanns

Junior Research Group Leader, Chemical Biology of Microbe-Host Interactions, Leibniz Institute for Natural Product Research and Infection Biology e.V., Hans-Knöll-Institute (HKI), Germany

Dr Beemelmanns studied Chemistry at the RWTH Aachen. She then went to Japan for a one-year research stay in the group of Prof. Sodeoka at RIKEN. Back in Germany she worked at the FU Berlin with Prof. Reißig and received her Ph.D. in Organic Chemistry. She then worked another six months in Japan at the University of Tokyo under the supervision of Prof K. Suzuki and joined shortly afterwards the group of Prof. Clardy at Harvard Medical School (Boston) in 2011. In late 2013, she received a call from the Hans-Knöll Institute (HKI) to work there as a Junior Research Group Leader in the field of Natural Products Chemistry and Chemical Biology.

Her research combines different aspects of chemical ecology and organic and natural product chemistry and aims to chemically and functionally characterise microbial signaling and defense molecules in different model systems. By analyzing ancient and evolved microbial interactions, unprecedented chemical core structures with potential pharmaceutical application are likely to appear.

One part of her group focuses on the search for new antimicrobial secondary metabolites from microbes associated with fungus-farming termites. Macrotermitinae cultivate a symbiotic fungus (*Termitomyces* sp.) for nutrition. The fungus is grown on predigested plant material, which is piled up by the termites as a comb-like structure to enable optimal growth conditions. This environment is prone to exploitation by parasitic fungi (e.g. *Pseudoxylaria* sp.), if the colony ecosystem is out of balance. Due to the longevity and stability of a healthy termite colony, it is expected that several factors contribute to garden defense by the production of e.g. antimicrobial natural products. Another part of the group focuses on the identification and functional analysis of microbial signals with morphogenic activity. Here the group uses the model species *Hydractinia echinata* and its morphogenetic transition from the motile to the sessile phase, which is induced by the marine bacterium *Pseudoalteromonas.* In a parallel approach, the group uses organic chemistry to synthesize and chemically modify a specific set of microbial signals to allow structure-function analysis and target identification.

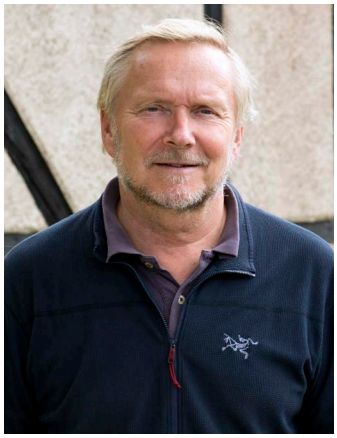
Prof. Dave Berger

Department of Plant and Soil Sciences, Forestry and Agricultural Biotechnology Institute (FABI), University of Pretoria

Dave Berger is Professor in the Department of Plant and Soil Sciences at the University of Pretoria, South Africa. He leads the Molecular Plant-Pathogen Interactions (MPPI) research group in the Forestry and Agricultural Biotechnology Institute (FABI). His main research focus is on molecular host-pathogen interactions of grey leaf spot disease, a threat to global maize production. He completed his Ph.D. at the University of Cape Town, South Africa, followed by a postdoc at the University of California, Berkeley, USA. He is a NRF Rated researcher (South Africa), has published more than 50 scientific papers, several patents, book chapters and bioinformatics software packages. He has supervised or co-supervised more than 50 Ph.D. or M.Sc. students. He was recipient of the 2016 Special Award in Crop Science and Food Security from NSTF-South 32. NSTF is the National Science and Technology Forum, South Africa. He was a 2013 USDA Norman E. Borlaug International Agricultural Science and Technology Fellow at the University of Arkansas (Department of Plant Pathology), USA.

Prof. Jan Stenlid

Professor of Forest Pathology, Department of Forest Mycology and Plant Pathology, Swedish University of Agricultural Sciences, Uppsala, Sweden



Professor Jan Stenlid was born in Uppsala in 1954 in a family is of Finnish-Swedish origin. His father was a biologist that held a Professorship in plant physiology. From an early age Jan was taken out on various field trips to collect berries and mushrooms or just on hikes in the forest or boat trips in the archipelago of Åland in southern Finland. He studied microbiology at Uppsala University and graduated in 1980. His interest in forest pathology started during his Ph.D. studies at Swedish University of Agricultural sciences. The thesis work was on ecology and physiology of the root rot disease caused by *Heterobasidion annosum,* a subject that he has continued working on for most of his career, along with studies on other forest diseases but also broader issues of fungal ecology and evolution.

At the end of the 1980s Jan completed a postdoc with Alan Rayner in Bath, UK. In 1995 he was recruited as a Professor in Forest Pathology to the Swedish University of Agricultural Sciences, a position he has held ever since. Over the years he has built up a large research group with more than 25 Ph.D. students defending their theses and several tens of visiting postdocs and researchers, including Professors on sabbatical. The work has included studies of invasive biology of forest pests and diseases, ecology of wood decaying fungi, biodiversity of fungi and dispersal biology. In recent years he has, using state of the art genetic tools, worked on describing the genomes of fungi and characterising the microbial community in forests, especially in connection to carbon cycling. He has an interest in forest management and has *inter alia* contributed to developing a practical stump treatment against root rot. The genetic basis in trees for resistance against pathogens is another field of interest for him that has important implications for forestry and managing disease in an environmentally friendly way.

He has also collaborated widely in international research consortia and networks besides serving as editor and referee on numerous scientific journals.

Jan is married to Maria and has two sons that live in Stockholm, Sweden. When not busy at work he enjoys outdoor activities along with playing music - both traditional Swedish fiddle tunes as well as rock and jazz.

Prof. Jim Correll

Department of Plant Pathology, University of Arkansas, USA

Professor Jim Correll received his Ph.D. from the University of California, Berkeley and is a Professor of Plant Pathology at the University of Arkansas, Fayetteville, USA. He conducts research on a wide range of vegetable, fruit, and row crop diseases, particularly rice. He has extensive expertise in Integrated Pest Management practices for vegetable diseases and breeding for disease resistance in vegetables and rice and focuses on the use of advanced molecular biology approaches to address applied agricultural disease problems. Professor Correll has been involved in a number agriculture projects throughout Asia, Africa, and South America through various funded projects including Winrock International, ACDI/VOCA, USAID, Land O'Lakes, and Partners for the Americas. The majority of these efforts have been with the Farmer-to-Farmer programs in various countries where he has worked on a broad range of production, disease, and pest challenges. He continues to strive to develop better working networks with international scientists to address improving agriculture production by the use of better disease management practices, and breeding for disease resistance to reduce pesticide inputs.

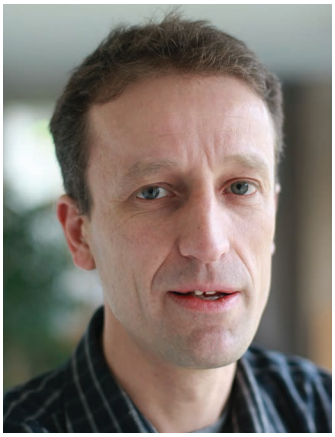
Prof. Wilhelm de Beer

Associate Professor, Department of Microbiology and Plant Pathology, Forestry and Agricultural Biotechnology Institute (FABI), University of Pretoria

Professor Wilhelm de Beer is an Associate Professor in the Department of Microbiology, Forestry and Agricultural Biotechnology Institute (FABI), at the University of Pretoria. He received his M.Sc. degree in Microbiology at the University of the Free State, and his Ph.D. in Microbiology at the University of Pretoria. He lectures Mycology and his research is primarily about fungi associated with arthropods such as bark beetles, ambrosia beetles and mites. More recently he also became involved in projects relating to the fungal associates of termites. The bulk of his published work focuses on the ophiostomatoid fungi (Ophiostomatales and Microascales), with research topics ranging from taxonomy, phylogeny, population genetics, mating behavior, diagnostics, symbiotic relationships, invasion biology, to their causal roles as agents of sapstain and decay in timber, and of disease in trees and humans.

Prof. Duur Aanen

Associate Professor in Evolutionary Biology, Wageningen University, the Netherlands



Prof. Duur Aanen is an Associate Professor in Evolutionary Biology at Wageningen University, the Netherlands. He specialises on the origin and evolution of cooperation and conflicts between the levels of selection. The levels he addresses range from interspecific cooperation between fungus-growing termites and their symbiotic fungi to cooperation between genomes within cells. After finishing his Ph.D. on speciation of fungi at Wageningen University in 1999, he became a postdoc and later Assistant Professor at the University of Copenhagen but returned to Wageningen in 2006. Duur uses fungi as his main experimental model system. Fungal 'individuals' can fuse and form chimeras, can be used in evolution experiments, show various forms of allorecognition, and are important mutualistic partners of other species. Those characteristics make them excellent model systems for the evolution of conflict and cooperation. The work of Prof. Duur Aanen greatly profited from his collaboration with FABI, which started back in 2003 when he made his first visit to Pretoria for field work.

Prof. Celeste Linde

Associate Professor: Ecology and Evolution, Research School of Biology, College of Science, The Australian National University, Canberra, Australia

Professor Linde completed all her degrees at the University of the Free State in Bloemfontein. For her postgraduate degrees she studied *Pythium* and *Phytophthora* diseases, specifically the population genetics of *Phytophthora cinnamomi* for her Ph.D. (1999) under the supervision of Professors Mike Wingfield and Andre Drenth – refuting the perhaps idealistic idea that *P. cinnamomi* has its origin in South Africa! After a brief stint in Brisbane Australia to work on her Ph.D., Prof. Linde returned to South Africa to work on root diseases of pome and stone fruit at Infruitec in Stellenbosch. Frustrated, she moved to Switzerland (ETH) for a postdoc to continue her research on population genetics, this time of cereal pathogens. After five years of cycling, hiking, and enjoying a wonderful public transport system (and of course research), it was difficult to leave Zurich. However, Prof. Linde got a real job at the Australian National University in Canberra in 2004, and thus departed for the Brownian land of Australia - leaving behind European green for brown, weedy gardens, interesting (albeit a bit dumb) hopping wildlife, fascinating plants and wide open land. In Australia she also discovered the fascinating world of orchids and their mycorrhizae. Australia is the world centre of diversity for sexual deception with several hundred terrestrial orchid species in multiple genera. Sexually deceptive orchids lure male insect pollinators to their flower by emitting volatile semiochemicals that mimic the female sex pheromone. Orchids are also fascinating in the sense that the seeds lack an endosperm, and are thus dependent on colonisation by fungi for germination. This relationship with fungi may last the entire lifespan of the orchid, providing the plant with essential nutrients. Australia appears to be unique in that most of the sexual deceptive orchids are extremely specific in their interactions with fungi. Dispersal ability combined with specificity has had important consequences for conservation of these orchids, but not for orchid speciation.

Prof. Lucy Moleleki

Associate Professor and Acting Head of Department: Department of Microbiology and Plant Pathology, University of Pretoria

Lucy Moleleki obtained her Ph.D. from the Scottish Crop Research (now The James Hutton) Institute (Dundee University) in the United Kingdom investigating molecular interactions between soft rot pathogens and potato plants. She is currently an Associate Professor in the Department of Microbiology and Plant Pathology in the Faculty of Natural and Agricultural Sciences (NAS) at the University of Pretoria. She is also a Research Group Leader at the Forestry and Agricultural Biotechnology Institute (FABI). Her research group studies Bacterial Genomics and Host Pathogen Interactions. She has (co-) supervised four postdoctoral Fellows, five Ph.D. students, nine M.Sc. and several Honours students. The research group has produced more than 30 publications and her most significant research outputs include a co-authorship in Nature and Annual Review of Phytopathology.

Prof. Xudong Xhou

Head of Research and Development, FuturaGene Biotechnology (Shanghai) Company, Shanghai, China

Forest pathologist; September 1998-December 2002: Ph. D with Proff Mike Wingfield and Brenda Wingfield from FABI at the University of Pretoria (UP), South Africa on taxonomy, biology and population genetics of conifer-infesting bark beetles and their associated fungi; January 2003-December 2006: Postdoc programme on plantation health at UP and Sappi, South Africa; January 2007-October 2011: Joint position both at UP as Senior Research Fellow, and China Eucalypt Research Centre (CERC) as Principal Investigator, Research Professor & Assistant Director; November 2011-present: Chief Scientist, Head of Research and Development, FuturaGene China; Extraordinary Professor at UP and honorary Professor at CERC.

Prof. Zhou specialises in forest pathology and tree biotechnology and has built sound links with experts in the field globally. He is the founder of CFEPP (CERC-FABI Eucalypt Protection Program). He has supervised three Ph.D. students and five M.Sc. Students, led a number of projects funded by national and international organisations, and published over 50 papers in peer-reviewed journals. Prof. Zhou has also been invited to deliver a number of talks/keynotes nationally and internationally. He serves as the project reviewer for the National Science Foundation of China and the Ministry of Science and Technology, the manuscript reviewer for a number of recognised journals, and is on the editorial board of the journal *Fungal Diversity* and *Forest Pathology.* Prof. Zhou has been awarded as the State Council (China) Expert for Special Allowance since 2016. Currently, his team focus on biotechnology improvement of woody oil-producing plants such as yellowhorn (*Xanthoceras*) and peony (*Paeonia*), and transgenic eucalypt (*Eucalyptus*) and poplar (*Populus*) mainly for yield enhancement and protection.

Speed Presentations

Darryl Herron

Ph.D. candidate, Forestry and Agricultural Biotechnology Institute (FABI), University of Pretoria

Darryl Herron is a huge fan of stories. It doesn't matter if the story has been captured in a book, shot on film or delivered on stage, as long as it is good. Darryl's love for stories and the inspiration they give him got him – partly - into a career in science. One of the reasons he is here, working toward a Ph.D. in microbiology, is because of the 1995 movie *Outbreak*, starring Dustin Hoffman and Morgan Freeman. While he didn't end up battling the deadly Motaba virus, he did use his talents to work on another important pathogen (of pine), *Fusarium circinatum.* During his M.Sc., Darryl worked with a number of important *Fusarium* species, eventually describing some of them. When an M.Sc. wasn't enough, he moved onto a Ph.D. where he now studies the *Fusarium* occurring on grass beneath diseased pine trees. He hopes to gain a better understanding of the role alternative plant species play in the biology and distribution of devastating *Fusarium* species, like the pitch canker fungus, *Fusarium circinatum.* The only thing Darryl loves more than stories and science is being able to tell some of his own stories. During his postgraduate career, Darryl has been learning to communicate science better. He wants to use his storytelling through comics, blogs, posters and popular science pieces to make many more people fans of science.

Joey Hulbert

Ph.D. candidate, Forestry and Agricultural Biotechnology Institute (FABI), University of Pretoria

Joey Hulbert is a Ph.D. Candidate studying the diversity and distribution of *Phytophthora* species in the Cape Floristic Region. He is from the USA where he completed a B.Sc. in Forestry at Washington State University and an M.Sc. at Oregon State University. Joey was introduced to *Phytophthora* through his M.Sc. project about Sudden Oak Death. He initiated Cape Citizen Science (www.citsci.co.za) to involve more people in his research. He believes everyone has a little bit of scientist in them; it is the reason we are curious. Cape Citizen Science provides the opportunity to "release that inner scientist".

Danielle Roodt

Ph.D. candidate, Forestry and Agricultural Biotechnology Institute (FABI), University of Pretoria

Danielle has been a part of FABI since her undergraduate degree as a student in the DST-NRF Centre of Excellence in Tree Health Biotechnology (CTHB) mentorship programme. She continued with her B.Sc. (Honours) and M.Sc. in Genetics degrees under the supervision of Prof. Brenda Wingfield, completing both *cum laude.* For her Ph.D., she joined the Forest Molecular Genetics (FMG) programme under the supervision of Dr. Eshchar Mizrachi. Her Ph.D. research focuses on the evolution and development of wood in the land plants, and she aims to especially increase the knowledge base for the under-represented seed plant lineages; the cycads, the Ginkgoales containing the monotypic species *Ginkgo biloba,* and the Gnetales (which contain the genera *Welwitschia, Gnetum* and *Ephedra*). To improve the current understanding of wood development and evolution, she is investigating and comparing wood development pathways between representative species of these three gymnosperm lineages and the well-studied angiosperms. Danielle also compared the genomes of dicots (such as *Eucalyptus* and *Populus*) and monocots (such as maize and rice) to better understand wood evolution in the angiosperms, and her manuscript entitled "The evolution of secondary xylem in angiosperms and its loss in monocots" has recently been submitted and is in review. Furthermore, she investigated whether evidence exists for remnants of ancient whole genome duplications in the non-coniferous gymnosperms, events that are comparatively prevalent in the angiosperms, and recently published "Evidence for an ancient whole genome duplication in the cycad lineage" in PLOS ONE. During 2016, she completed a two-month research visit with her co-supervisor, Prof. Yves Van de Peer, in Ghent, Belgium, and presented her work at two international conferences (Plant Biology in Honolulu, USA, and Plant Genome Evolution in Sitges, Spain) during 2017. After completing her Ph.D., Danielle plans to continue her research on evolution in the non-coniferous gymnosperms as a postdoctoral researcher in FABI.

Osmond Mlonyeni

Ph.D. candidate, Forestry and Agricultural Biotechnology Institute (FABI), University of Pretoria

Osmond Mlonyeni is a Ph.D. candidate in Genetics at the Forestry and Agricultural Biotechnology Institute (FABI) at the University of Pretoria (UP). His research forms part of a broader project to understanding diversity in the *Sirex-Amylostereum-Deladenus* symbioses. This system serves as a model to understand the potential role of diversity in invasive pests and biological control systems. The knowledge and tools developed in his project provides opportunities to improve the efficiency of the biological control programme against *Sirex noctilio*, but also has relevance to the management of other invasive pests.

Andi Wilson

Ph.D. candidate, Forestry and Agricultural Biotechnology Institute (FABI), University of Pretoria

Andi Wilson is a student in the Genetics Department and is in the third year of her Ph.D. under the primary supervision of Prof. Brenda Wingfield. She was a student in the CTHB mentorship programme and subsequently completed her B.Sc. (Hons) and M.Sc.: Genetics degrees with FABI, making this her eigth year at FABI. Andi's major research focus has been on understanding the genetic mechanisms that enable sex in a group of fungi belonging to the Ceratocystidaceae. These species exhibit a wide variety of interesting sexual strategies, each with their own unique genetic underpinnings. Utilising whole genome and transcriptome sequencing, she has been able to elucidate some of the pathways that underlie self-sterile and self-fertile mating in the genus *Huntiella*. Andi has presented her research at a number of local and international conferences and has been an author on five publications, including two as the first author. She is currently working on establishing a transformation system in this group of fungi that will allow more in-depth investigation into the biology of these species. Andi spent some time at Pennsylvania State University in the USA to develop this protocol and will be returning their later this year to further improve the system. Andi was awarded a "Women in Science" Award in 2017 by the Department of Science and Technology.

Tsakani Miyambo

M.Sc. student, Forestry and Agricultural Biotechnology Institute (FABI), University of Pretoria

Tsakani Magdeline Miyambo was born in South Africa and completed her B.Sc. (Genetics) degree, at the University of Pretoria (UP) in 2013. She co-founded Gene-UP, a genetics society at UP, and served as the treasurer for two years. She pursued her dreams of becoming a scientist and enrolled for an Honours degree in Genetics, at UP. Her research focused on studying the endophytic bacterial communities in the Fynbos biome, where she worked in the Centre for Microbial Ecology and Genomics (CMEG). After graduating, Tsakani joined MECS Africa and Thermofischer Scientific. However, in 2016 her passion for science made her return to the university to continue with an M.Sc. in Genetics. She received a scholarship from the Hans Merensky Foundation and National Research Foundation, and works in the Avocado Research Programme. Her Research is focused on the identification and characterisation of polygalacturonases in the notorious pathogen, *Phytophthora cinnamomi.*

EXHIBITION OF TREE AND WOOD ART IN FABI

In an exciting venture where Arts and Sciences will join forces, the Forestry and Agricultural Biotechnology Institute (FABI) at the University of Pretoria (UP) is hosting an art exhibition as part of its 20th anniversary celebrations. The exhibition of Tree and Wood Art, curated by the Department of UP Arts, includes works from the permanent collection of the University of Pretoria that depict trees, are made of wood, or where wood has been used in the creation of the pieces. Works on display include those of well-known South African artists such as Lucky Sibiya, Hendrik Pierneef and Gregoire Boonzaaier. The exhibition also includes work by a group of San artists, as well as more recently acquired works that include a magnificent painted wood carving of Lebohang Kganye, winner of the 2017 Sasol New Signatures Art Competition.

The works will be on display in the foyers and passages of FABI main building and FABI Square on the main campus of the University of Pretoria during the course of the 20th celebrations. The exhibition will be 'self-guided" with a "floor plan" and facilitated by a brochure with background on the art works.

Door handle
Lucky Sibiya
Carved and painted wood

Trees in a drift
J.H. Pierneef
Oil on asbestos

Tree roots
J.H. Pierneef
Etching

Baobab with vultures
Wynand Steyl
Woodcut block

Board of Directors
Collen Mashwangunyi
Carved and painted wood

Windblown trees
Gregoire Boonzaaier
Woodcut

Letsema
Ranko Pudi
Woodcut

Mountains
Wynand Steyl
Woodcut block

Cloak as a dagger
Avitha Sooful
Carved wood

Fish III
Isaac Seoka
Mixed media

Family group
Lucky Sibiya
Carved and painted panel

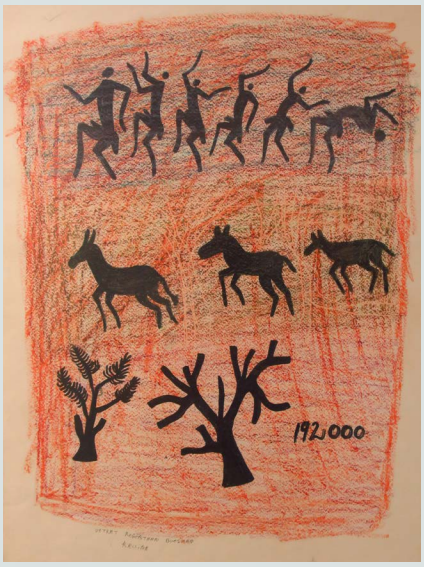
Rugby player
Lucas Thobojane
Carved wood

Letsema
Ranko Pudi
Woodcut

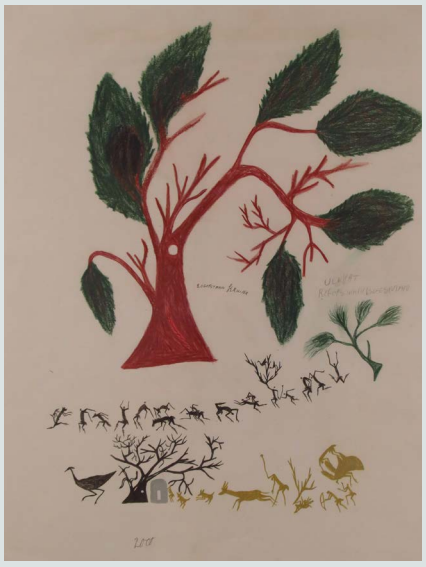
Umshikashika
Sthenjwa Luthuli
Carved and painted wood

Combretum zeyheri
Retha Buitendach
Oil on wood

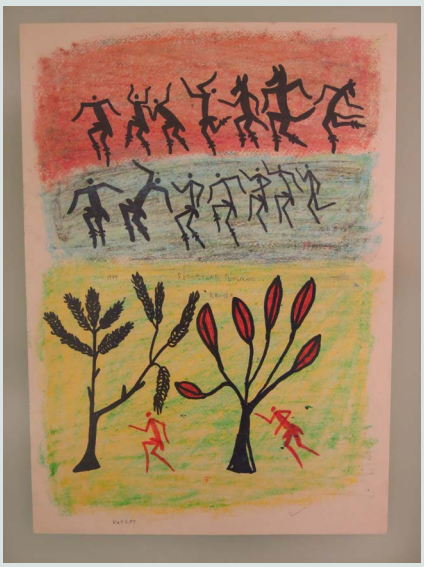
Pterocarpus angolensis
Retha Buitendach
Oil on wood



19200
Vetkat Kruiper
Ink

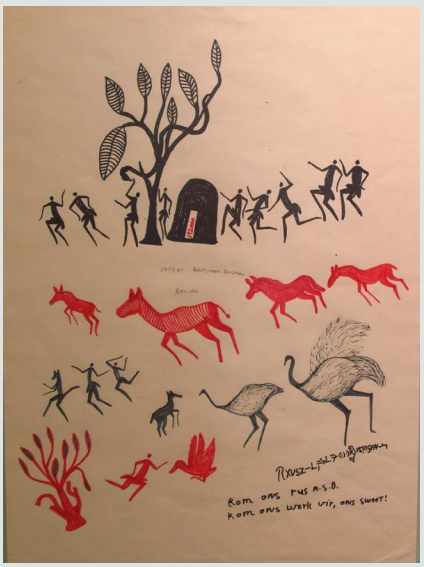


Untitled
Vetkat Kruiper
Ink



Untitled
Vetkat Kruiper
Ink

Untitled
Vetkat Kruiper
Ink



Untitled
Vetkat Kruiper
Ink

Mother and child
Wynand Steyl
Lino block

The four sins of hard work
Berco Wilsenach
Oil on canvas

Women
Wynand Steyl
Woodcut block

Sun man
Lucky Sibiya
Carved and painted wood

www.fabinet.up.ac.za