

11th February 2019

Acknowledgement of Country and Welcome

9:00AM - 9:30AM Wesfarmers Lecture Theatre

Housekeeping, Dr Deirdre Gleeson

Conference Opening, Prof Tony O'Donnell

Plenary 1 - Through the eye of the needle: Microbes, carbon, water, and their connection through soil pores

9:30AM - 10:15AM Wesfarmers Lecture Theatre

Chair: Deirdre Gleeson

9:30 AM **Vanessa Bailey**

Through the eye of the needle: Microbes, carbon, water, and their connection through soil pores
abs# 1

Morning Tea

10:15AM - 10:45AM Foyer

Atmospheric trace gases: fuelling the dormant microbial majority

10:45AM - 11:15AM Wesfarmers Lecture Theatre

Chair: Talitha Santini

10:45 AM **Chris Greening**

Atmospheric trace gases: fuelling the dormant microbial majority *abs# 02*

Terrestrial Systems

11:15AM - 1:15PM Wesfarmers Lecture Theatre

Chair: Vanessa Bailey

11:15 AM **Jen A Middleton**

Spatial zoning of riparian microbial communities in contrasting land uses *abs# 3*

11:30 AM **Angela M Chilton**

Australian biocrusts in arid land rehabilitation *abs# 4*

11:45 AM **Eleonora Chiri**

Termite mounds are biofilters for termite-produced methane and hydrogen *abs# 5*

12:00 PM **Melissa A. Danks**

Microbial assemblages of post-mining soils on Christmas Island: beneficial microbes for agricultural production *abs# 6*

12:15 PM **Gupta Vadakattu**

Biogeography of actinobacteria in Australian and North Antarctica soils *abs# 7*

12:30 PM **Eleonora Egidi**

Identity, distribution and ecology of dominant fungi in global soils *abs# 8*

12:45 PM **Zahra F Islam**

Two Chloroflexi classes independently evolved the ability to persist on atmospheric carbon monoxide and hydrogen *abs# 9*

1:00 PM **Erinne Stirling**

Soil microbial influences on acid sulfate soils of the River Murray: a review and field study inform wetland management *abs# 10*

Lunch

1:15PM - 2:15PM Foyer

Genome-resolved metagenomics of an autotrophic thiocyanate-degrading microbiome enriched from mine tailings

2:15PM - 2:45PM Wesfarmers Lecture Theatre

Chair: Elizabeth Watkin

2:15 PM **John W Moreau**

Genome-resolved metagenomics of an autotrophic thiocyanate-degrading microbiome enriched from mine tailings *abs# 11*

Engineered Systems

2:45PM - 3:30PM Wesfarmers Lecture Theatre

Chairs: John Moreau & Elizabeth Watkin

2:45 PM **Katelyn Boase**

Acid Saline Lakes as a Source of New Biomining Organisms. *abs# 12*

3:00 PM **Farhad Shafiei**

Environmental and microbiome-driven factors influencing the efficiency of thiocyanate bioremediation *abs# 13*

3:15 PM **Emma J Gagen**

Microbial iron cycling in the field and harnessed for a pilot-scale attempt at iron duricrust re-formation. *abs# 14*

Afternoon Tea

3:30PM - 4:00PM Foyer

Engineered Systems cont.

4:00PM - 5:15PM Wesfarmers Lecture Theatre

Chairs: John Moreau & Elizabeth Watkin

4:00 PM **Karen Gibb**

Whole-community sequencing to identify new indicator bacteria for a tropical waste stabilisation pond *abs# 15*

4:15 PM **Robert Speight**

A snapshot of diversity and function of microbes from a sugarcane bagasse pile *abs# 16*

4:30 PM **Wajid Javed**

Title: Archaea community composition of an acidic mine Pit lake in the semi-arid tropics. *abs# 17*

4:45 PM **Casey K Huang**

Biofilm Ecology in the Premise Plumbing of Drinking Water Distribution Systems *abs# 18*

5:00 PM **Xabier Vázquez-Campos**

Unusual DPANN Archaea from a radioactive legacy site *abs# 19*

Poster Session

5:15PM - 6:45PM Foyer

Morten Andersen

The application of 3D printing and nutrient biomaterial microhabitats in microbial capture culture *abs# 101*

Alana L Butler

Comparing cats and dogs: Exploring 16S rRNA amplicon sequencing and metagenomic shotgun sequencing using a SKG mouse model *abs# 102*

Tu Dam

Development of new enzymes and microbial cells for lignin degradation and the enhancement of livestock feeds based on sugarcane fibre *abs# 103*

Thomas R Jones

Preferential accelerated weathering of Rare Earth Element hosting apatite and precipitation of REE minerals through bacterially mediated acid production. *abs# 104*

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Growth Response of wheat to chemical and mineral fertiliser application influenced by multispecies microbial inoculant. *abs# 105*

Himel N Khaleque

Constraint based metabolic flux analysis of *Acidithiobacillus ferrooxidans* under extreme environmental stresses *abs# 106*

Kim-Anh Le Cao

Batch Effect Adjusting Methods for Microbiome Data *abs# 107*

Jen A Middleton

Developing microbial indicators for the health of aquatic systems *abs# 108*

Ghislaine Platell

Accurately estimating a core community and using it as a tool to tease apart vertically and environmentally acquired components of the gut community of termites *abs# 109*

LINA SILVA

Improving DNA extractions from corrosion products *abs# 110*

Joon-seok Chae

Circulation of tick-borne severe fever with thrombocytopenia syndrome (SFTS) Phlebovirus in the natural environments *abs# 111*

Darren Cheah

Community structure and dynamics of petroleum-degrading microbes in subsurface environments of the North West Shelf, WA *abs# 112*

Guangli Feng

Distinct arabinoxylyan degradative processes and fermentation end-products are exhibited by faecal bacterial communities with different cell-wall structures *abs# 113*

Jennifer Hudson

Molecular mechanisms of bacterial virulence in phylogenetically diverse macroalgal pathogens *abs# 115*

Kyoung Lee

Kocuria marina CE7 is salt tolerant, and alkali-producer *abs# 116*

Deirdre Mikkelsen

In vitro fermentation of purified cereal and vegetable dietary carbohydrates using a human faecal inoculum promote distinct microbial communities *abs# 117*

Scott A. Rice

The mechanisms and impacts of superinfection by a filamentous phage in *Pseudomonas aeruginosa* *abs# 118*

Young C Song

Phylogenomic analysis of two recently recognised Firmicutes classes, TC1 and Dehalobacteriia *abs# 119*

Agustinus R. Uria

Genetic Diversity and Biotechnological Potential of Symbiotic Microbiome in Indonesian Marine Sponges revealed by Metagenomic Illumina Sequencing *abs# 120*

Nikole Arrieta

The role of phototrophy and heterotrophy in a laboratory model of Heron Island (southern Great Barrier Reef) beachrock formation through microbial carbonate precipitation *abs# 121*

Nathan Danckert

The microbiome of Australian abalone from aquaculture *abs# 122*

Xiao Deng

Potential Mechanism of Subsurface Life Fuelled by Extracellular Electron Uptake *abs# 123*

Amaranta Focardi

Investigating the viral diversity in a western boundary current *abs# 124*

Noor-ul-Huda Ghori

Diversity dynamics and metabolic interactions of microbes living at the limits of life *abs# 125*

Abolghasem Hedayatkhan

Cyanothece sp.CCY110, a promising bioremediation agent for potassium dichromate contaminated sites *abs# 127*

Yalimay Jimenez de Duarte

Shark bay microbial mat community responses to oil contamination a long-term lab-controlled experiment *abs# 128*

Heyu Lin

Investigating the phylogenetic potential for bacterial mercury methylation *abs# 129*

Natalia Malinowski

Isolation and detection of free living amoebae and associated bacteria from water storage tanks around Western Australia *abs# 130*

Diane McDougald

A wolf in sheep's clothing: Protozoan expelled food vacuoles are a protective transmission vector for pathogens *abs# 131*

Ratish Permala

Assessing the efficacy of continuous electrochlorination on the disinfection of drinking water *abs# 133*

Stephen Summers

The influence of microbial biofilms and substrate materials on the settlement of marine invertebrates *abs# 134*

Ling Tan

Secondary mineral formation during bioleaching of Merensky Reef materials: Implications for PGE migration *abs# 135*

Betty Wediawati

Biodegradation of detergent parameter on Bojongsoang Waste Stabilization Pond *abs# 136*

Maria Dzunkova

Determination of phage host-range by culture-independent viral-tagging method *abs# 137*

Muhammad Hafiz Ismail

The role of bacteriophage in structuring microbial communities in wastewater treatment systems *abs# 138*

Silvia J. Salgar Chaparro

Comparison of DNA- and RNA-based 16S rRNA diversity profiling of the microbial community recovered from a Western Australian oilfield production facility *abs# 139*

Jonovan Van Yken

An integrated biohydrometallurgical process for metal recovery from electronic wastes *abs# 142*

Su Yan

Efficiency and microbial ecology of a sulfate-reducing fluidized bed reactor treating mine water after hydrotalcite precipitation *abs# 143*

Katharina Belt

Application of plant-immune biosensors for screening and discovery of Actinobacteria biocontrol candidates against necrotrophic fungal pathogens *abs# 144*

Heike Bostelmann

Phosphate precipitate formation during bioleaching of secondary copper sulfides *abs# 145*

Aaron J Brace

Understanding soil microbial community shifts in response to fire and weed invasions in urban *Banksia* woodlands *abs# 146*

Kenny Sing Ong Choo

Bacterial communities on Black Perigord Truffles (*Tuber melanosporum*) during storage *abs# 147*

Mark Farrell

Microbial variations: Relationships between biogeochemistry, community composition and function across a 900 km aridity gradient *abs# 148*

Homayoun Fathollahzadeh

Diversity and function of phosphate solubilizing bacteria isolated from Mount Weld rare-earth mine Australia *abs# 149*

Anicia Henne

Microbially catalysed iron mobility within the critical zone at Salobo, Brazil *abs# 150*

Anna J.M. Hopkins

Urban bandicoots - a vector for ectomycorrhizal dispersal *abs# 151*

Hangwei Hu

Manure application promotes transmission of antibiotic resistance genes to vegetables *abs# 152*

Simranjit Kaur

Screening of potassium solubilizing strains to develop different microbial consortium for wheat production *abs# 153*

Leadin KHUDUR

Assessing the microbial diversity and ecotoxicity in co-contaminated soil with aged Heavy Metals and Total Petroleum Hydrocarbons *abs# 154*

Alan Levett

Canga lake-edge field characterisation: inspiration for iron ore mine remediation *abs# 155*

Chaoyu Li

Responses of comammox *Nitrospira* to four nitrification inhibitors in two agricultural soils *abs# 156*

Di Liu

The vineyard soil microbiome distinguish wine producing regions *abs# 157*

Falko Mathes

How can we better manage soil and plant microbiomes to increase crop production? *abs# 158*

Anat Paz

Evidence of primary surface colonizers on iron duricrust (canga) in Carajás, Brazil *abs# 159*

Yolanda Plowman

Arbuscular mycorrhizal fungal diversity response to fertiliser, tilling, and crop rotation in wheat rhizospheres over multiple years *abs# 160*

Viduthalai Rasheedkhan Regina

Microbial interactions between representative skin microbiome members in a mixed species microbial biofilm community *abs# 161*

Talitha Santini

Environmental drivers of microbial community composition in shale-derived soils spanning a global climosequence *abs# 162*

Paul J Storer

Bio-mineral fertilizer shows potential in wheat production *abs# 163*

Louise F Thatcher

Mining the genomes of soil and endophytic Actinobacteria for new biopesticides *abs# 164*

Sakshi Tiwari

Microbial community dynamics under concrete environments in search for novel alkalophiles for potential application of Biocement *abs# 165*

Marcos Voutsinos

Microbial lanthanide remobilisation in highly weathered Australian soils *abs# 166*

Zhenzhen Yan

Distribution patterns of antibiotic resistance genes in urban greenspaces *abs# 167*

12th February 2019

Registration

7:30AM - 5:15PM Foyer

Housekeeping

9:15AM - 9:30AM Wesfarmers Lecture Theatre

Plenary 2 - The Evolution of Molecular Methods in Microbial Ecology

9:30AM - 10:15AM Wesfarmers Lecture Theatre

Chair: Andrea Paparini

9:30 AM **Linda Blackall**

The Evolution of Molecular Methods in Microbial Ecology *abs# 20*

Morning Tea

10:15AM - 10:45AM Foyer

Seagrass rhizosphere; understanding the bottom to manage the top

10:45AM - 11:15AM Wesfarmers Lecture Theatre

Chair: Linda Blackall

10:45 AM **Belinda C Martin**

Seagrass rhizosphere; understanding the bottom to manage the top *abs# 21*

Aquatic Systems

11:15AM - 1:15PM Wesfarmers Lecture Theatre

Chair: Linda Blackall

11:15 AM **Matthew Campbell**

Diversity and function of microorganisms in microbial mat communities from Shark Bay, Western Australia *abs# 22*

11:30 AM **YaJou Chen**

Fermentative and respiratory bacteria are uncoupled in anoxic permeable sediments *abs# 23*

11:45 AM **Marco JL Coolen**

Holocene paleodepositional changes reflected in the sedimentary microbiome of the Black Sea *abs# 24*

12:00 PM **Juliana Mendes Monteiro**

The microbiome of lithifying and non-lithifying microbial mats from hypersaline lakes at Rottneest Island (Western Australia) *abs# 25*

12:15 PM **Matthew W Fraser**

Assessing the contribution of sediment microbes in mediating sulfide intrusion in seagrass ecosystems *abs# 26*

12:30 PM **Lisa R. Moore**

Unicellular cyanobacteria and eukaryotic phytoplankton communities around Australia's oceanic regions *abs# 27*

12:45 PM **Douglas Brumley**

Microbial navigation in marine systems *abs# 28*

1:00 PM **Melanie C Bruckberger**

Investigation of microbial communities in the 1st Gulf war affected, crude oil-contaminated groundwater in Kuwait *abs# 29*

Lunch

1:15PM - 2:15PM Foyer

Interactions among anthropogenic disturbance, an endemic disease and communities of mycorrhizal fungi

2:15PM - 2:45PM Wesfarmers Lecture Theatre

Chair: Anna Hopkins

2:15 PM **Treena Burgess**

Interactions among anthropogenic disturbance, an endemic disease and communities of mycorrhizal fungi *abs# 30*

Symbiotic and Microbial Interactions

2:45PM - 3:30PM Wesfarmers Lecture Theatre

Chairs: Treena Burgess & Anna Hopkins

2:45 PM **Chathurika Daulagala**

Inter-strain interactions of *Rhizobium leguminosarum* influence field pea N nutrition *abs# 31*

3:00 PM **Marnie L Freckelton**

Understanding settlement: the role of common bacterial biofilm elements in the induction and metamorphosis of the polychaete *Hydroides elegans* *abs# 32*

Afternoon Tea

3:30PM - 4:00PM Foyer

Symbiotic and Microbial Interactions cont.

4:00PM - 5:15PM Wesfarmers Lecture Theatre

Chairs: Treena Burgess & Anna Hopkins

4:00 PM **Jeff Powell**

Drivers of mycorrhizal fungi and root pathogens in threatened woodlands of the Cumberland Plain *abs# 34*

4:15 PM **Ghislaine Platell**

Intraspecific variation in the gut communities of termites highlights their plasticity and potential for manipulation *abs# 35*

4:30 PM **Rachel J Standish**

Mycorrhizal fungi benefit ecosystem restoration, but how much depends on plant functional type, restoration context and time *abs# 36*

4:45 PM **Sasha Tetu**

Genome-wide screening for genetic factors important in microbe-plant and microbe-microbe ecological interactions *abs# 37*

5:00 PM **Jed Calvert**

Effects of seasonal drought and host identity on endophytic fungal communities in forests of Cape York, northern Australia *abs# 38*

Cocktail Event

7:00PM - 10:00PM

13th February 2019

Registration

7:30AM - 1:30PM Foyer

Housekeeping

9:15AM - 9:30AM Wesfarmers Lecture Theatre

Plenary 3 - Large scale microbial ecology using citizen scientists: Lessons from MicroBlitz

9:30AM - 10:15AM Wesfarmers Lecture Theatre

Chair: Naomi Boxall

9:30 AM **Andrew Whiteley**

Large Scale Microbial Ecology Using Citizen Scientists: Lessons from MicroBlitz *abs# 39*

Morning Tea

10:15AM - 10:45AM Foyer

Single cell viral tagging

10:45AM - 11:15AM Wesfarmers Lecture Theatre

Chair: Andrew Whiteley

10:45 AM **Philip Hugenholtz**

Single cell viral tagging *abs# 40*

Microbial Toolbox

11:15AM - 1:15PM Wesfarmers Lecture Theatre

Chairs: Andrew Whiteley & Philip Hugenholtz

11:15 AM **Sean K Bay**

Soil microbial communities exhibit strong biogeographical patterns at fine taxonomic resolution
abs# 41

11:30 AM **Jeremy Bougoure**

NanoSIMS for the microbial ecologist *abs# 42*

11:45 AM **Thomas C Jeffries**

Finding keystone taxa in microbial networks *abs# 43*

12:00 PM **Deepa Ruth Varkey**

Dynamic ocean provinces: An outlook for machine learning approaches in microbial ecology
abs# 44

12:15 PM **Angus Keillar**

Resolving proteomic responses to supercritical carbon dioxide exposure in *Geobacter sulfurreducens* *abs# 45*

12:30 PM **Kim-Anh Le Cao**

Multivariate microbiome data analysis *abs# 46*

12:45 PM **Christian Rinke**

A proposal for a standardized archaeal taxonomy *abs# 47*

1:00 PM **Ben J Woodcroft**

Community profiling in the age of genomes *abs# 48*

Conference Closing

1:15PM - 1:30PM Wesfarmers Lecture Theatre

Lunch and depart

1:30PM - 2:30PM Foyer