SCANZ - Crystal31
Bunker Bay, Western Australia
Program

DAY 1 – Sunday DECEMBER 3	
14:00 – 17:30	Coach Transport from Perth Airport – Bunker Bay
17:30 – 19:00	Registration (Pullman Bunker Bay Resort - Reception)
Session 1 **(Windmills 1 & 2) – Conference opening and 1987 Fund Lecture**	
Chair: Michael Landsberg	
19:00 – 19:10	**Welcome and Opening Remarks** Alice Vrielink, SCANZ President
19:10 – 20:00	**1987 Fund Lecture** Werner Kühlbrandt **CryoEM of mitochondrial membrane protein complexes**
20:00 – 22:00	**Welcome Reception (Restaurant Terrace and the Sugarloaf Rock Room)**

SCANZ - Crystal31
Sponsors

Gold

THE UNIVERSITY OF WESTERN AUSTRALIA · BRUKER · AXT · Rigaku · UNCHAINED LABS · ttplabtech · ThermoFisher SCIENTIFIC

Keynote Sponsors

Douglas Instruments Success in protein crystallization · EMBO excellence in life sciences · Australian Government · Ansto Nuclear-based science benefiting all Australians

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FORMULATRIX

Morning / Afternoon Tea Sponsors

Molecular Dimensions

General

CRYSTAL IMPACT · PERTH CONVENTION BUREAU · MiTeGen · The Cambridge Crystallographic Data Centre · GeneWorks · Curtin University

Other

CrystEngComm · BECKMAN COULTER

DAY 2– Monday DECEMBER 4	
Session 2 **- Mathieson Medal Lecture (Windmills 1 & 2)**	
Chair: Chris Ling	
08:45 – 09:30	**Mathieson Medal Lecture** Vanessa Peterson **In situ and *in operando* neutron and X-ray studies of functional materials**
Session 3 **– Keynote Lecture Session and Flash Poster Presentations (Windmills 1 & 2)** Sponsored by the University of Western Australia THE UNIVERSITY OF WESTERN AUSTRALIA	
Chair: Chris Richardson	
09:30 – 10:00	**Keynote Lecture 1** Shane Telfer **Partially-Interpenetrated Metal-Organic Frameworks**
10:00 - 10:30	**Flash Poster Presentations**
Khidhir Alhameedi	Quantifying intermolecular interaction in crystals using Roby-Gould bond indices
Katrina Black	Investigating the role of conformational change in gating and conduction of K_{IR} K+ channels
Ali Chahine	Crystal engineering of alkylamine-based coordination polymers for carbon dioxide capture
Asha Davidson	Exploring the programmability of synthetic PPR proteins to target specific RNA sequences
Camila Faoro	Rational targeting of the Signal Recognition Particle Receptor
Brady A. Johnston	Designer pentatricopeptide repeat proteins, a molecular spring in action
Md Habibur Rahaman	Targeting TIR domain assemblies in TLR signaling pathways to design anti-inflammatory drugs
Ariela Samantha	Structural determination of phosphatidylinositol-synthesizing engineered phospholipase D from *Streptomyces antibioticus*
Luke Smithers	Biophysical and Structural Characterisation of the *Neisserial* Capsule Export Machinery
Bishwa Subedi	Structural analysis of the type E pseudomurein peptide ligase from methanogenic archaea
Courtney Sullivan	Cell envelope biosynthetic pathways as targets for novel antibacterial drug design against *Burkholderia pseudomallei* and *Neisseria meningitidis*
Raphael Trenker	Screening and Crystallographic Analysis of Intramembrane Helix Interactions Using Lipidic Cubic Phase (LCP) Techniques
Sampath Yalamanchili	Expression, purification and biophysical characterization of enzymes from the lipid A biosynthesis pathway
Karina Yui Eto	DNA specificity of Ribbon-Helix-Helix proteins controlling mobilisation of Antimicrobial-Resistance Plasmids in *Staphylococcus aureus*
10:30 – 10:50	**Morning Tea**

11:00 – 12:30	***Concurrent Session 4a*** **– Exploration of minerals and materials (Windmills 1)**
	Chair: Christine Beavers
11:00 – 11:20 - Invited	Ulrike Troizsch **Deciphering complex biogenic carbonates: The skeleton of coralline algae *Porolithon onkodes* viewed with synchrotron micro-X-ray diffraction**
11:20 – 11:35	Christopher Sumby **Organic Synthesis in a Metal-organic Framework – Insights from X-ray Crystallography**
11:35 - 11:50	Chris Ling **Striped Magnetic Ground State of the Ideal Kagomé Lattice Compound $Fe_4Si_2Sn_7O_{16}$**
11:50 – 12:05	Jason Price **Chemical Crystallography at the Australian Synchrotron MX Beamlines**
12:05 – 12:20	
11:00 – 12:30	***Concurrent Session 4b*** **– Biological Assemblies (Windmills 2)**
	Chair: Richard Birkinshaw
11:00 – 11:20 - Invited	Sara Sandin **Phase plate cryo-EM analysis of chromatin**
11:20 – 11:35	Jeff Nanson **Characterisation of higher-order assembly signaling in Toll-like receptor pathways**
11:35 - 11:50	Jerome Le Nours **MR1 recognition by human γδ T cells**
11:50 – 12:05	Lou Brillault **CryoEM structure of the Bluetongue virus core-like particle: A recombinantly-engineered nano-delivery system**
12:05 – 12:25 - Invited	Alastair Stewart **Cryo-EM studies of *E. coli* ATP synthase**
12:30 – 13:45	**Lunch and Sponsor Presentation**
13:00 – 13:20	**Rigaku-Oxford Diffraction/AXT Sponsor Presentation (Windmills 1)** **Presented by Zoltan Gal**
13:45 – 15:15	***Session 5a*** **– Bacteria & Viruses (Windmills 1)**
	Chair: Charlie Bond
13:45 – 14:05 - Invited	Ren Dobson **Biology of bacterial sialic acid uptake**
14:05 – 14:20	Sandro Ataide **Structural Characterisation of EutV interactions with anti-termination hairpins**

14:20 - 14:35	Phill Pymm **MHC-I peptides get out of the groove and enable a novel mechanism of HIV-1 escape**
14:35 – 14:50	Suresh Banjara **Grouper iridovirus GIV66 is a Bcl-2 protein that inhibits apoptosis by exclusively sequestering Bim**
14:50 – 15:10 - Invited	Shaun Lott **The structure and function of KstR, the major regulator of cholesterol catabolism in *Mycobacterium tuberculosis***
13:45 – 15:15	***Session 5b* – Membrane Proteins (Windmills 2)**
	Chair: Sara Sandin
13:45 – 14:05 - Invited	Florante Quiocho **Specificity of the Phosphate and Sulfate Initial Receptors for ABC Transporters: Never the Twain Shall Meet**
14:05 – 14:20	Begoña Heras **Structural insights into the regulation and inhibition of bacterial aggregation and biofilm formation**
14:20 - 14:35	Michael Parker **Cholesterol-Dependent Cytolysins: from Water-Soluble State to Membrane Pore**
14:35 – 14:50	Bradley Spicer **Protein conformation of C9 controls the final membrane complex assembly**
14:50 – 15:10 - Invited	Renae Ryan **Structural characterisation reveals insights into substrate recognition by the Glutamine Transporter ASCT2 (SLC1A5)**
15:15 – 16:30	**Afternoon Tea and Posters (Sugarloaf Rock Room)**
	Odd numbered posters to present
16:30 – 18:00	***Session 6* – New people and new results (Windmills 1 & 2)** Sponsored by Bruker 
	Chair: Suzanne Neville
16:30 – 16:50 – invited	Kenji Sumida **Functional superstructures of Metal-organic Frameworks**
16:50 – 17:10 – invited	Phil Gale **Dissecting the chloride-nitrate anion transport assay**
17:10 – 17:30 – invited	Tara Christie **Recruiting the PAN2-PAN3 deadenylase complex to mRNA targets**
17:30 – 17:45	Jack Clegg **Flexible Crystals: Atomic resolution of the bending mechanism in [Cu(acac)$_2$]**
17:45 – 18:00	Michael Landsberg **Structure of the AAA+ ATPase Vps4: A Nightmare on EM Street**

18:15	**SCANZ Council Meeting**

DAY 3– Tuesday DECEMBER 5	
Session 7 **– Bragg Medal Lecture (Windmills 1 & 2)**	
Chair: Alice Vrielink	
08:45 – 09:30	**Bragg Medal Lecture** Mark Spackman **New ways of thinking about molecules in crystals**
Session 8 **- Keynote Lecture Session (Windmills 1 & 2)**	
Chair: Begoña Heras	
09:35 – 10:05	**Keynote Lecture 2** Sponsored by Douglas Instruments Jenny Martin **A tale in two parts: how a search for antivirulence compounds led to the discovery of a shapeshifting copper resistance protein**
10:05 – 10:35	**Morning Tea**
10:35 – 12:30	***Concurrent Session 9a*** **– Applications of Porous Materials (Windmills 1)**
	Chair: Dave Turner
10:35 – 10:55 - Invited	Matthew Rowles **Porous metal scaffolds for use in hydrogen storage**
10:55 – 11:10	Josie Auckett **Atomic-scale explorations of stimulus-responsive framework properties in an ultramicroporous gas sorbent**
11:10 - 11:25	Aaron Seeber **Advanced Characterisation Methods Applied to Materials Produced at CSIRO's Additive Manufacturing Centre**
11:25 – 11:40	Timothy Ablott **Development of a Borane-Loaded MOF Reagent**
11:40 – 11:55	Stuart Batten **Porous Coordination Polymers of Alkylamine Ligands**
10:35 – 12:30	***Concurrent Session 9b*** **– Signalling and regulation (Windmills 2)**
	Chair: Bostjan Kobe
10:35 – 10:55 - Invited	Isabelle Lucet **Assembly and function of two interacting oncogenic pseudokinase scaffolds**
10:55 – 11:10	Ghader Bashiri **A generic mechanism for poly-γ-glutamylation in biomolecules**
11:10 - 11:25	John Bruning **The Human Sliding Clamp as a Therapeutic Target**
11:25 – 11:40	Richard Berry **A viral immunoevasin controls innate immunity by targeting a prototypical Natural Killer cell receptor**
11:40 – 11:55	Andrew Hedger

	Structural basis of TIR domain assembly formation in the Toll-like receptor TRIF-dependent pathway
11:55 – 12:10	Drew Hall **The structure-function relationship of transcriptional activators and antiactivators controlling quorum sensing and horizontal gene transfer**
12:30 – 14:00	**Lunch**
14:00 – 15:00	**Poster Session (Sugarloaf Rock Room)**
	Even numbered posters to present
15:00 – 15:30	**Afternoon Tea** Sponsored by Molecular Dimensions
16:00 – 17:30	***Session 10*– Challenges in Crystallography (Windmills 1 & 2)** Sponsored by AXT
	Chair: Chris Sumby
16:00 – 16:20 – invited	David Aragao **Recent and future developments on the Australian Synchrotron MX2 beamline driven by the Eiger 16M detector deployment**
16:20 – 16:40 – invited	James Hester **Taking our raw data to the next level**
16:40 – 17:00 – invited	Charlie Bond **Practical uncertainty in protein crystallography: It's a monomer. Or is it?**
17:00 – 17:15	Helen Maynard-Casely **Prospects for organic minerals on Saturn's moon Titan**
17:15 – 17:30	Alison Edwards **Has crystallography lost the plot on gender equity, or has it been penalized because of its historically greater equity?**
18:00 – 19:30	**SCANZ Annual General Meeting**

DAY 4 – Wednesday DECEMBER 6	
09:00 – 10:30	***Session 11*** **- Rising Star Session (Windmills 1 & 2)** Sponsored by ThermoFisher Scientific ThermoFisher SCIENTIFIC
	Chair: Jenny Martin
09:00 – 09:15	Anandhi Anandan **Structure of a lipid A phosphoethanolamine transferase, an endotoxin modifying enzyme from Gram-negative bacteria**
09:15 – 09:30	Angus Cowan **The first crystal structures of Bak in complex with lipid offer novel insights into oligomerisation and membrane permeabilisation**
09:30 – 09:45	Emily Furlong **Structural and functional analysis of two *Proteus mirabilis* copper resistance proteins reveals an unusual redox relay system**
09:45 – 10:00	Gabriel Murphy **The Unusual Structural Chemistry of Uranium: Controlling Phase Transformations in Ternary Uranium Oxides**
10:00 – 10:15	Sarah Piper **Cryo-EM structure of a type-II ABC toxin complex provides new clues to the mechanism of cell surface recognition**
10:15 – 10:30	Gabrielle Watson **Development of Potent and Selective Bicyclic Peptide Inhibitors of the Grb7 Cancer Target**
10:30 – 11:00	**Morning Tea**
11:00 – 12:30	***Session 12a*** **– Properties through materials design (Windmills 1)**
	Chair: Josie Auckett
11:00 – 11:20 - Invited	Emily Reynolds **Understanding correlated disorder within a MOF-5 analogue**
11:20 – 11:35	David Turner **Bis(Amino-Acid) Ligands in Crystal Engineering – Finding the Steric Goldilocks Zone**
11:35 - 11:50	Lauren Macreadie **Improving Hydrophobicity of MOFs Using Aliphatic Linkers**
11:50 – 12:05	Chris Richardson **Modulating organic reactivity in the solid-state through employing coordination polymer assemblies**
12:05 – 12:20	Alan Rae **A crystal structure that contains regions with different orientations, different origins and different space groups**
11:00 – 12:30	***Session 12b*** **– Biomolecular Recognition (Windmills 2)**
	Chair: Isabelle Lucet
11:00 – 11:20 - Invited	Rajesh Ghai **Molecular basis of the assembly of COMMD proteins into the CCC/Retriever complex**

11:20 – 11:35	Richard Birkinshaw **Pre-empting BCL2 mutational tolerance to Venetoclax, insights from structural biology**
11:35 - 11:50	Hayden Burdett **Plant TIR domains as NADases; missing link in plant innate immune signaling?**
11:50 – 12:05	Peter Czabotar **Development of a Bak inhibitory peptide based on the crystal structure of the Bak:BimBH3 complex**
12:05 – 12:20	Julian Vivian **Structural insights into the killer-cell immunoglobulin-like receptor family**
12:30 – 14:00	**Lunch and Sponsor Presentation**
13:00 – 13:20	**Formulatrix Sponsor Presentation (Windmills 1)** **Presented by Jian Xu**
14:00 – 15:30	***Session 13a*** **– Magnetism and phase transitions (Windmills 1)**
	Chair: Emily Reynolds
14:00 – 14:20 - Invited	Yun Liu **The symmetry-mode decomposition for better understanding of the structural evolution presented in polar functional materials**
14:20 – 14:35	Brendan Kennedy **Structural Studies of the monoclinic fergusonite to tetragonal scheelite structure in lanthanoid orthoniobates**
14:35 - 14:50	Suzanne Neville **Tailoring Elastic Frustration in Spin Crossover Networks**
14:50 – 15:05	Qingbo Xia **New Electrode Materials for Lithium & Sodium Ion Batteries**
15:05 – 15:20	Sean Injac **Structural Trends and Single Electron Magnetism in Ru/Os Scheelite Type Oxides**
14:00 – 15:30	***Session 13b*** **– Methods (Windmills 2)**
	Chair: Mitchell Guss
14:00 – 14:20 - Invited	Tom Peat **A structural analysis of an entire enzymatic pathway**
14:20 – 14:35	Christopher Lupton **Establishing micro electron diffraction as new tool for structural biology**
14:35 - 14:50	Patrick Stewart **Microseed matrix-screening (rMMS): introduction, theory, practice and a new technique for membrane protein crystallization in LCP**
14:50 – 15:05	Katherine Davies **Structural studies of MLKL's interaction with the plasma membrane using liposomes as a model system**

15:05 – 15:20	Victor Fadipe **Isoniazid-oleanolic acid co-crystal system: Synthesis, anti-TB and toxicological effect on the Human Embryonic Kidney (HEK293) and Human Hepatocellular Carcinoma (HepG2) cell lines**
15:30 – 16:00	**Afternoon Tea**
***Session 14 - Keynote Lecture Session* (Windmills 1 & 2)**	
Chair: Helen Maynard-Casely	
16:00 – 16:30	**Keynote Lecture 3** Christine Beavers Sponsored by ANSTO **High Pressure Crystallography: Not Just for Mineralogists Anymore!**
***Session 15 - THE EMBO LECTURE* (Windmills 1 & 2)**	
Chair: Jade Forwood	
16:30 – 17:10	**Keynote Lecture 4 - THE EMBO LECTURE** Sponsored by EMBO Murray Stewart **Crystallographic insights into the molecular mechanism of nucleocytoplasmic transport**
17:10 – 17:20	**AsCA 2018/Crystal 32 meeting announcement**
17:20 – 17:30	**Closing remarks** Alice Vrielink, SCANZ President
18:30 – late	**Conference Dinner (Windmills 1 & 2)**

DAY 5 – Thursday DECEMBER 7	
9:00 – 12:30	**Coach Transport from Bunker Bay - Perth Airport**

POSTER NUMBERING		
#	**Presenting author**	**Title**
1S	Khidhir Alhameedi	Quantifying intermolecular interaction in crystals using Roby-Gould bond indices
2S	Katrina Black	Investigating the role of conformational change in gating and conduction of K_{IR} K+ channels
3S	Ali Chahine	Crystal engineering of alkylamine-based coordination polymers for carbon dioxide capture
4	Paul Crellin	Crystal structure of a novel membrane protein essential for cell wall lipoglycan synthesis in Mycobacteria
5S	Asha Davidson	Exploring the programmability of synthetic PPR proteins to target specific RNA sequences
6S	Camila Faoro	Rational targeting of the Signal Recognition Particle Receptor
7	Thierry Izoré	Ebony C-terminal domain is an arylalkylamine *n*-acetyltransferase
8S	Brady A. Johnston	Designer pentatricopeptide repeat proteins, a molecular spring in action
9	Janet Newman	Extending CINDER to let users score for themselves
10S	Md Habibur Rahaman	Targeting TIR domain assemblies in TLR signaling pathways to design anti-inflammatory drugs
11S	Ariela Samantha	Structural determination of phosphatidylinositol-synthesizing engineered phospholipase D from *Streptomyces antibioticus*
12S	Luke Smithers	Biophysical and Structural Characterisation of the *Neisserial* Capsule Export Machinery
13S	Bishwa Subedi	Structural analysis of the type E pseudomurein peptide ligase from methanogenic archaea
14S	Courtney Sullivan	Cell envelope biosynthetic pathways as targets for novel antibacterial drug design against *Burkholderia pseudomallei* and *Neisseria meningitidis*
15S	Raphael Trenker	Screening and Crystallographic Analysis of Intramembrane Helix Interactions Using Lipidic Cubic Phase (LCP) Techniques
16	Richard Welberry	Single Crystal Diffuse Scattering using Neutrons
17S	Sampath Yalamanchili	Expression, purification and biophysical characterization of enzymes from the lipid A biosynthesis pathway
18S	Karina Yui Eto	DNA specificity of Ribbon-Helix-Helix proteins controlling mobilisation of Antimicrobial-Resistance Plasmids in *Staphylococcus aureus*