## No 67

# NEWSLETTER

# Society of Crystallographers in Australia and New Zealand

# FROM THE PRESIDENT



Greetings from Western Australia. It is an honour and a privilege to serve as the president of SCANZ and I hope that I, together with the help and hard work of the SCANZ Council, will be able to represent the needs and concerns of the society and provide opportunity for growth and development.

I would like to start by formally introducing the members of the SCANZ Executive and Council:

President – Alice Vrielink Vice President – Chris Ling Past President – Stuart Batten Treasurer – David Aragao Secretary – Jack Clegg Councillor – Suzanne Neville Councillor – Christopher Squire Councillor – Joanne Etheridge Newsletter Editor – Peter Czabotar

http://scanz.iucr.org/

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> AsCA 2016 Synchrotron User Meeting IUCr 2017

The last SCANZ meeting (Crystal 30) was held along the waterfront in beautiful Hobart, Tasmania from March 29 – April 1. The conference was highly successful with a turnout of 102 participants and many exciting research talks. I would like to thank Stuart Batten as the Chair of the Local Organizing Committee for organizing such a stunning venue. Additionally I would like to thank Peter Czabotar as the Chair of the Program Committee, and his team for their hard work at organizing a stimulating conference. Special congratulations go to the recipients of this years SCANZ medals:

Lawrence Bragg Medal: Professor Ted Baker, Auckland University Sandy Mathieson Medal: Associate Professor Chris Sumby, University of Adelaide

## FROM THE PRESIDENT



Also congratulations to this years Rising Star winners: Richard Birkinshaw, Jamie Hicks, Crystall Swarbrick, Michael Pfrunder and Jason Brower.

There are a number of upcoming crystallographic conferences that you should all consider attending. These include the 2016 Asian Crystallographic Association Meeting in Hanoi, Vietnam from December 4 – 7<sup>th</sup>, 2016 (see <a href="http://www.asca2016.org/">http://www.asca2016.org/</a>). In addition the 24<sup>th</sup> Congress and General Assembly of the International Union of Crystallography will be held in Hyderabad India from August 21 – 28<sup>th</sup>, 2017 (see <a href="http://">http://</a>

www.iucr2017.org/). Funding to support attendance at these conferences is available for postgraduate students who are members of SCANZ in the form of Maslen Scholarships. The deadline for Maslen Scholarship applications to attend the AsCA conference is Friday September 30<sup>th</sup>, 2016. Application forms were emailed to all members earlier in August. Applications must be submitted to Dr. Jack Clegg, SCANZ Secretary (j.clegg@uq.edu.au). If you require an application form please contact Jack Clegg. The conditions of the Award of a Maslen Scholarship are detailed on the SCANZ website.

At our last Business Meeting in Hobart it was decided that SCANZ would establish an Education Standing Committee. The purpose of the Committee would be to oversee the curriculum for the Australasian Crystallography School and any advanced methods schools that might take place when the Australasian Crystallography School is not scheduled. I have appointed a temporary committee to establish the Terms of Reference that would formulate the workings of the future Education Standing Committee. The members of the temporary committee are David Turner, Jade Forwood, Laura Bourgeois and Micelle Dunstone. This temporary committee will present an outline of how the Education Standing Committee would function at the next SCANZ Business meeting for further discussion and approval from the membership. As that time we will also have an election for members of the Education Standing Committee.

The SCANZ Council have had a recent meeting with one of the items for discussion including plans for the next CRYSTAL meeting. It was decided that CRYSTAL 31 would be held in Western Australia from December 3 – 7<sup>th</sup>, 2017. The final venue is still being decided upon and we should be able to report updates to you on this within the next couple of months.

Finally the Council have decided that the time has come to increase the SCANZ membership fees. Our fees are currently very low and have been that way for many years. Council have decided that effective immediately the general membership fees to the Society would be \$40 per year. Student membership will remain unchanged at \$30 for 3 years. The Treasurer has setup a membership portal for easy payment of fees. A link to the portal can be found on the SCANZ website.

Alice Vrielink SCANZ President

## CRYSTAL30, MASLEN SCHOLARSHIP REPORTS



The Crystal 30 conference was held from March 29 to April 1 2016 in Hobart, Tasmania. The venue of the conference was the Hobart Function and Conference Centre, located directly on the waterfront. The well organised conference offered an excellent scientific program, and Hobart presented itself with perfect weather - sunshine and blue skies to enjoy our coffee breaks on the pier.

The micro-symposia covered a wide range of diverse crystallographic topics, ranging from macromolecular crystallography to MOFs and to the application of crystallography in the development of new battery materials. I was especially impressed by the plenary lecture given by Branton Campbell from Brigham Young University in Utah about distortion mode analysis. The speaker program was accompanied by a poster exhibition further showcasing the variety of research related to crystallography.

Organisation of the conference was also excellent – delicious food was provided for morning tea, lunch and afternoon tea kept our stomachs always filled. We never even had the chance to actually get hungry.

Crystal 30 was a great opportunity to meet and catch up with fellow crystallographers from Australia and New Zealand. Thanks to SCANZ for the financial support in form of a Maslen Scholarship that made this great trip possible.



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## **CRYSTAL30, MASLEN SCHOLARSHIP REPORTS**







The Crystal 30 Conference was the first conference that I participated in during my postgraduate study. It was a great conference organised by Society of Crystallographers in Australia and New Zealand (SCANZ). The venue of the conference was Hobart Convention Centre near to the Tasmanian Travel & Information Centre and next to the Tasman Sea. The selection of the conference location in this isolated island state of the Commonwealth of Australia was geographically attractive to participants.



The conference was participated by many researchers and top scientists from Australia and New Zealand doing crystallographic research, gathering and sharing expertise with each other. While in the audience at a presentation I explored the various latest crystallographic research, analysing tools and techniques. I also learned skills in presentation at the conference. I was impressed with several presentations that described protein crystal structures with interesting explanations and attractive animations. The conference program also allocated sufficient poster/tea/coffee time for us to interact with each other and further discuss our research. It may help us to generate research collaborations with each other in future.

I was staying in Brunswick Hotel during the conference period, it was very convenient for me to access the conference venue. I also took the opportunity to travel around Hobart city. I would like to sincerely thank SCANZ for awarding me the Maslen Scholarship and giving me the chance to explore new knowledge and memorable experiences.

> Chee Wah LOY School of Chemistry, University of Sydney



Crystal 30 Poster Prize Winners Adrian. Emerson from Monash University Angus Cowan -from The Walter & Eliza Hall Institute Sean Injac from The University of Sydney Katrina Black from The Walter & Eliza Hall Institute Mohd Ishtiaq Bin Anasir from La Trobe University

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## **CRYSTAL30, MASLEN SCHOLARSHIP REPORTS**







The beautiful city of Hobart was a fantastic setting for the Crystal 30 conference. The wonderful Hobart Function and Conference centre was a beautiful location for the conference, as we were out on the harbour and very much enjoyed the wonderful weather which Hobart turned on for our stay. The Methieson Medal lecture, presented by Chris Sumby was exciting and truly inspirational, as he showed us some of what is possible when using crystallography for understanding porous molecular materials. The concurrent sessions on chemical and protein crystallography allowed each of the groups of crystallographers to present work to their peers, as well as the combined sessions that exposed us to new areas and applications of crystallography. The Keynote seminar by Jagadese Vittal shed light on how crystallography can be used to follow some exciting new reactions, which are possible within solid state structures. I would like to thank SCANZ for awarding me the Maslen scholarship to attend this conference as it was a wonderful learning experience.

Stephanie Boer Monash University





Mathieson Medallist Chris Sumby with Stuart Batten

The SCANZ Crystal 30 conference was held at the Hobart Function and Conference Centre, a lovely venue with stunning views of Hobart. The organising committee did an amazing job. The exciting oral and poster presentations covered topics ranging from porous coordination frameworks (for various applications in storage, separation, catalysis, and spin crossover), photo-active crystals, flexible crystals, battery materials and oxide/perovskite structures, and protein complexes and lipid structures. The plenary and keynote speakers, as well as the Rising Star plenary speakers, presented some inspirational research. Other presentations, including fundamental crystallography, research currently conducted on various instruments at ANSTO, and an update of the MX beamlines at the Australian Synchrotron, gave an insight into the significant research carried out at these important Australian facilities. It's always interesting to discover the current research of our scientific community.

I would like to thank SCANZ for awarding me the Maslen scholarship and for giving me the opportunity to attend Crystal 30 and present my work. It was an invaluable experience and I am grateful for the opportunity.

Katrina Zenere The University of Sydney

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**Crystal 30 Rising Star Award Winners** Jason Brouwer, Michael Pfrunder, Crystall Swarbrick Richard Birkinshaw and Jamie Hicks

#### SCANZ COMMITTEES

PRESIDENT: IMMEDIATE PAST PRESIDENT: VICE-PRESIDENT: SECRETARY: TREASURER: COUNCIL:

NCCR REP: Newsletter Editor: Nominations Committee: Alice Vrielink (alice.vrielink@uwa.edu.au) Stuart Batten (stuart.batten@monash.edu) Chris Ling (chris.ling@sydney.edu.au) Jack Clegg (j.clegg@uq.edu.au) David Aragao (david.aragao@synchrotron.org.au) Chris Squire (c.squire@auckland.ac.nz) Suzanne Neville (<u>suzanne.neville@sydney.edu.au</u>) Joanne Etheridge (joanne.etheridge@mcem.monash.edu.au) Michael Parker (mitchell.guss@sydney.edu.au) Peter Czabotar (czabotar@wehi.edu.au) Brendan Kennedy (brendan.kennedy@sydney.edu.au) Peter Colman (pcolman@wehi.edu.au)

#### **BID FOR IUCR 2023**

Australia will be bidding for the honour of holding the Twenty-Sixth International Union of Crystallography Triennial Congress and General Assembly in Melbourne in 2023. At the recent SCANZ meeting in Hobart, a Melbourne team led by Professor Michael Parker (St. Vincent's Institute of Medical Research) won the right to present Australia's bid to host the meeting. The Melbourne Organising Committee consisted of David Aragão, Stuart Batten, Melissa Call, Megan Maher, Dean Morris, Michael Parker and Tom Peat. The local organising committee will now be expanded to include representation from around Australia and New Zealand. It is proposed that the Congress be held at the Melbourne Convention and Exhibition Centre, on the banks of the Yarra River. A decision for the location of the 2023 meeting will be voted upon by IUCr delegates at the next Congress meeting that is being held in Hyderabad, India in August, 2017.



## TRIBUTE



## Allan Henry White - 1938 - 2016

Having faced his many health problems with great fortitude for the last eight years, Allan White passed away on 26 March. I knew Allan for more than 40 years, initially as a shy undergraduate student in the early 1970s, and our paths intersected in many different ways over the years. Given that Allan never really retired from his lifetime of research, teaching and mentoring in chemistry and crystallography, this is a tribute, something in praise of Allan, on the occasion of his final – and forced - retirement. But it is difficult to capture the essence of a polymath like Allan White, so I'm also using some of his own words – letting him speak for himself, in his own inimitable style – as well as some from colleagues.

I have a copy of Allan's address at the UWA Academic Board Dinner in late 2007, which celebrated his Emeritus Professor status – what he referred to as his "beatification". In this he said: "I came to Chemistry, UWA, around April Fools' Day, 1966, fresh from a PhD, after three years prior tertiary teaching experience in Physics and Chemistry. I was of necessity immediately endowed with a large first year class, and, the following year, with my first Honours students, one of whom transmogrified into my first PhD candidate; thus was laid the foundation for Teaching and Research, which, properly done, in my view also constitute a third component of current expectations – Service – in a more profound sense than the often unnecessary and pointless, bureaucratically and legalistically manufactured paper-shuffling and 'community activities', now prolifically imposed or expected."

Allan spent the 1967-68 summer vacation with Ray Golding at DSIR Wellington, working on proofs and exercises in Golding's book "Applied Wave Mechanics", a text Allan used as a basis for his advanced-level courses for many years. I remember being taught by Allan from that challenging text in my undergraduate studies.

In 1970 Allan spent a Nuffield Fellowship at Cambridge with A.D. (David) Buckingham (brother of Michael Buckingham, who was Professor of Physics at UWA). The publication that emerged from that stay was an important study of light scattering by gases to determine the Rayleigh depolarisation ratio, and from that the polarisability anisotropy, of small molecules (M.P. Bogaard, A.D. Buckingham, R.K. Pierens, A.H. White, *J. Chem. Soc. Faraday Trans.* 1, 1978, 74, 3008). For a long time this was Allan's most highly cited paper, and it is still his second most highly cited. I suspect I'm one of only a handful of people in Australia who fully appreciate the importance of those experiments, as that paper was an essential source of primary material for much of my research at the University of New England for over a decade.

Allan's dinner address continued: "Following a Nuffield Fellowship in Cambridge in 1970, I returned to find an impending acquisition of a newfangled diffractometer, at a price which moved my father to comment 'that's as much as I've earned in my life!' There were kindred spirits in Physics and, later, elsewhere, and in accordance with the Cole Plan, 50% of me became part of a cross-disciplinary Crystallography Centre, which was set up with synergistic colleagues, and with good ARC support forthcoming over the next quarter of a century. Catching a congenial and appropriate wave at the right time, and which, in different guises, persists to this day, it had an output which was testimony to what can be achieved if only bureaucracy can stay (out) of your way and let you get on with things."

### **TRIBUTE**

The Crystallography Centre at UWA was established in the late 1960s and it was very successful, including Ted Maslen and Syd Hall as well as Allan. Many of us remember Allan crossing James Oval between the Chemistry and Physics Buildings, as the diffractometer(s) and computer(s) at that time were housed in the Physics Building. Allan kicked gumnuts as he went across; if one strayed too far from his path he'd just reach into his pocket and get another out to kick! He was also often attacked by magpies when he made the walk during nesting time. Although Allan was part of the Crystallography Centre, and spent a lot of time there, he still felt very much part of Chemistry and spent morning and afternoon tea and lunch in the Chemistry tea-room. He worked 7 days most weeks.

The 'output' that Allan referred to in his address was prodigious! In his career Allan coauthored almost 1,900 publications, which have collectively received more than 43,000 citations. Close to one-third of those papers appeared in the *Australian Journal of Chemistry*, mostly in the three decades from the mid-1970s onwards. At his peak Allan published more than 70 papers a year – that's more than one a week! But it wasn't of course a solo effort – Brian Skelton and Allan White were an extraordinarily effective and efficient team for something like four decades, and 70% of Allan's career output was published jointly with Brian. On the occasion of Allan's 75th birthday the *Australian Journal of Chemistry* published a special issue to celebrate his contribution to Australian chemistry, and the Foreword to that issue is recommended for biographical details and a concise summary of Allan's research in chemistry (G.A. Koutsantonis, Y. Kim, *Aust. J. Chem.*, 2012, 65, 695).

The Cambridge Crystallographic Data Centre sent a letter of condolence to Allan's family, friends and colleagues, writing in part: "Allan has contributed more molecular structures to the CSD than anyone else in history. By our last count he had authored 5,372 structures – which is an achievement to be very proud of and more than the entire world produced in 1982. Each of these structures is important in its own way and as a collection the wealth of data they provide is phenomenal. His memory will live on through these structures and his data will continue to be used across scientific disciplines and industries for a long time to come."

But Allan would never have considered himself just a "crystallographer" – he was first and foremost an inorganic and structural chemist. He was elected to Fellowship of the Royal Australian Chemical Institute in 1980 and recognised by the Institute's premier HG Smith Medal (1987 – "which recognises contribution to the development of a branch of chemical science") and the Burrows Award of the Inorganic Division (2005). Along with Brian Skelton, Allan was a Thomson ISI "highly-cited" scientist until a year or two ago, when Thomson ISI changed their definition of "highly-cited". For a long time Allan and Brian were two of only five chemistry HiCi's in the nation. Allan also served a term as President of the Society of Crystallographers in Australia (now SCANZ) 1991-93. Quite remarkably, in his career Allan obtained a BSc, DipEd, BEd, BSc(Hons), PhD and DSc (all from the University of Melbourne), and from UWA a BA (in 1970, with a major in Political Science) and BMus(Hons) - in 1987.

Jack Harrowfield, a long-time collaborator of Allan's wrote on Allan's passing: "Allan White and I grew up in the same country town (Hamilton) in western Victoria and later on completed PhDs, a couple of years apart, at Melbourne University but it was in Perth, at UWA, that I benefitted most from our friendship. What an extraordinary human being! His immense knowledge and remarkable memory for detail of topics as diverse as English literature (at least back to Shakespeare), Australian eucalypts, Volvo maintenance, history of the Essendon football club and how to build your own pipe organ at home made him so much more than just an exceptional chemist. His devotion to the establishment and maintenance of the Crystallography Centre at UWA, similarly, was not just a matter of providing a facility but also a means of ensuring that he could aid innumerable colleagues, nationally and internationally, in the betterment of their research."

#### **TRIBUTE**

Research was a subject close to Allan's heart, and in his 2007 address he observed: "Research can now only be seriously addressed if one can find one's own funds, a very discouraging state of affairs for young staff who must otherwise become knowledge workers, immersed and possibly smothered in research centres and their managerial structures, perhaps more appropriate to a Technischehochschule, than a University. Creativity is an individual and fragile commodity."

On my return to UWA Chemistry in 2004 Allan was by then an academic colleague, and he undertook to educate me in the unwritten history of management excesses and scandals at UWA. It turns out that Allan did the same for many new appointees, and often considerably more. His subtle indoctrination included a copy of *Microcosmographica Academica – Being a Guide for the Young Academic Politician* (published 1908), as well as the loan of a large collection of underground newsletters that circulated at UWA some time ago. And when I took on the role of Head of School, Allan presented me with my very own copy of Machiavelli's The Prince.

For the last four years as a Head of School I was effectively Allan's "supervisor". This involved ensuring he was well looked after with a comfortable office and secretarial assistance to complete outstanding papers. His office was also a wonderful place for a Head of School to retreat and chat about all manner of things: university administration and rankings, Tipu's tiger (look it up), Johannes Kepler and Tycho Brahe, the Enigma machine, and to share copies of scientific biographies. But extremely important to me was Allan's unwavering support, particularly in the form of numerous little (sometimes cryptic) emails, laced with his very dry and often subversive sense of humour.

Allan was publishing right up to the end. The record shows nine papers in 2015, and six so far this year! When I last visited him in hospital he could no longer speak, but communicated on a small whiteboard his plan to come back to his office after radiotherapy to instruct on the finalisation and completion of remaining unpublished material. Unfortunately that was never meant to be.

I couldn't finish this tribute to Allan any better than to again quote Jack Harrowfield, whose words speak for so many of us: "Allan's personal kindness and consideration towards his colleagues and acquaintances were as exceptional as the intelligence and wit in all his dealings, no matter whether the topic was chemistry, politics, music or life in general. His self-effacement as a scientist was such that it will take the international community some time to appreciate his immense contribution to modern chemistry and just how much it has lost with his passing. Those of us who knew him well have a lot to live up to but no doubt Allan would have been happy to know that. Thank you, Allan".

Mark A. Spackman



## No 67

**Conference of the Asian Crystallographic Association** 

#### Hanoi University of Science and Technology, Hanoi, Viet Nam, 3-7 December 2016

#### Hanoi's AsCA 2016

After more than 100 years of development, the Modern Crystallography has helped to understand the material nature of our world, to across the sciences, and to underpin most technological developments in our modern society. The impact of crystallography is present everywhere in our daily lives.

Responding to the Appeal of the IUCr and UNESCO for the implementation of the Resolution of the General Assembly of the United Nations for the international crystallographic year 2014 (IVCr 2014), Hanoi University of Science and Technology (HUST) in collaboration with the Vietnamese Crystallography Association successfully hold the workshop "Vietnam Meeting on IYCr 2014".

On the occasion of 60-year foundation of HUST, with an agreement of IUCr and AsCA, HUST and SEP plan on coordinating with AsCA's executing committee to hold 14<sup>th</sup> Asian Crystallographic Association Conference (AsCA 2016). This event is to attract more than 500 scientists from Asia, Ocean Continentals and the world to participate. The conference will cover various aspects of crystallographic research in physics, chemistry and biology with both of theoretical and practical approaches. The conference is also the great opportunity for researchers, scientists, students and companies to meet, exchange and cooperate in future research.



#### Registration

Early Bird Registration opens Abstract Submission opens Travel support application deadline Abstract submission deadline Travel support and abstract acceptance announcement Early bird Registration closes Regular Registration closes

May 1, 2016. June 1, 2016. August 31, 2016 August 31, 2016 September 30, 2016. September 30, 2016. November 20, 2016.

Program, date, timetable, accommodation, travel, please access this link: http://asca2016.org/accommodation.html

#### Venue: Taquangbuu Library

#### Scientific Programme

#### AsCA 2016 Organizer

1100

#### AsCA, MOET, HUST,

President: Prof., Academician Dang Vu Minh, President of Vietnam Union of Science and Technology Associations. Prof. Pinak Chakrabarti, President of Asian Crystallographic Association.

#### **Programme Committee**

Masaki Kawano (Tokyo Institute of Technology, Japan, Chair). Jagadese J. Vittal (NUS, Singapore, Co-Chair). Ian Williams (The Hongkong University of Sci. & Tech.). Alice Vrielink (University of Western Australia). Ted Baker (University of Auckland, New Zealand). Nguyễn Duc Chien (HUST, Vietnam). K. Suguna (Indian Institute of Science). Toshiyuki Shimizu (University of Tokyo, Japan). Institute of Science). Toshiyuki Shimizu (University of Tokyo, Japan). Kurt L. Krause (University of Otago, Newsiland). Nei-Li Chan (National Taiwan University, Taiwan). Genji Kurisu (Osaka University, Japan). Kyeong Kyu Kim (Sungkyungkwan University, Korea). Martin K Schreyer (Institute of Chemical & Eng. Sci., Singapore). C. Malla Reddy ((IISER), India). Partha S. Mukherjee (IISC Bangalore, India). Miao Du (Tianjin Normal University, China). (ISC bangalofe, India). Miao Du (Tranjin Nomia University, Chilla). Apinpus Rujiwatra (Chilang Mai University, Thailand). Edward R.T. Tiekink (Sunway University). Shin-ichi Adachi (KEK, Japan). Richard Garrett (ANSTO, Australia). Hyotcherl Ihee (KAIST, Korea). Chang-Hee Lee (HANARO, Korea). Brendan J. Kennedy (The University of Sydney, Australia). Kenji Tsuda (Tohoku University, Japan). Maki Okube (Tokyo Institute of Technology, Japan).

#### Local Organizing Committee

Local Organizing Committee . Hoang Minh Son (HUST Rector, Chair), Pho Thi Nguyet Hang (HUST, oc-chair). Duong Ngoc Huyen (Vietnam Cryst. Assoc. co-chair). Dinh Van Phong (HUST). Nguyen Phu Khanh (HUST), Huynh Trung Hai (HUST). Dao Hong Bach (HUST). Huynh Dang Chinh (HUST). Quan Le Ha (HUST). Nguyen Duc Chien (Vietnam Material Science Assoc.). Nguyen Xuan Phuc (Vietnam Academy of Sci. Tech.). Nguyen Van Tri (Vietnam Cryst. Assoc.). Do Minh Nghiep (Vietnam Cryst. Assoc.). Vo Vong (Vietnam Cryst. Assoc.). Nguyen Hoang Nghi (Vietnam Cryst. Assoc.). Vo Nguyen Xuan Chain (Vietnam Cryst. Assoc.). Le Van Vu (Hanoi National Uni). Nguyen Van Minh (Hanoi National Edu. Uni). Du Thi Xuan Thao (Hangi Uni. Wining and Geolooy. Tran Trung (Hung Yeu Uni.). Nguyen Van Chan, J. Mayori, Maning and Geology). Tran Trung (Hung Yen Uni.). Nguyen Van An (Hongduc Uni.). Dinh Xuan Khoa (Vinh Uni.). Truong Van Churong (Hue Uni.). Vu Xuan Quang (Duytan Uni.). Le Hong Son (Danang Uni.). Tran Linh Thuoc (Hochiminh National Univ.).



#### I. Special session of Material Science All topics relating but not limited to material science. Accepted and selected papers will be published in special conference proceedings. II. Micro Symposiums Area 1 - Structural Biology Area 2 - Chemical Crystallography Area 3 - Specialized Techniques Engineering of Crystalline and Non-crystalline Solids. MS1 Disease Related Proteins MS3 Synchrotron Radiation MS2 Application. MS4 Macromolecular Complexes: MS5 Structure and Properties of MS6 XFEL Applications Conference Hall (10F). Meeting Hall 923, 901, 902, 903, 904, 816 Free Wifi Internet. Proteins/DNA/RNA Functional Materials. Membrane and Membrane-Metal-organic Frameworks MS7 MS8 MS9 Advances in X-rav and associated Proteins. and Organic: Inorganic Hybrid Neutron Crystallography Mator Reactions and Dynamics in the Solid State. Hybrid/Integrative Methods in Biological Structure Analysis. MS10 MS11 MS12 Crystallography of Novel **Invited Speakers** Materials Electron Diffraction in Crystallography. **MS13** Ultra-high Resolution Structure MS14 Chemical Crystallography: Hot MS15 Special lecture on IUCr 2017 and Structures some general crystallography issues. Prof. Gautam Desiraju, Immediate Past President, IUCr. MS16 Hot Structures in Biology MS17 Chemical Crystallography MS18 Crystallography for Earth, Planetary Sciences and General Interest Related Techniques. III. Satellite meeting School of Powder Structure Determination School of Single Crystal Structure Determina Basic theory of powder structure determination. Basic theory of single crystal structure determination. Dec. 3, PM Dec. 3, PM Sample preparation and data collection. Preparation and handling of samples, and data collection. Dec. 3, PM Dec. 3, PM Dec. 3, PM Dec. 3, PM Initial structure determination. Data processing. Prof. Sumio Ijima, Meijo Univ., Japan. Dr. Wah Chiu Baylor College of Medicine, USA Prof. Makoto Fujita, University of Tokyo, Japan. Prof. Hyotcherl Ihee KAIST, Korea. Dec. 4, AM Rietveld refinement. Dec. 4, AM Structure determination and refinement Dec. 4, AM Dec. 4, AM Evaluation of results and data base Evaluation of results and data base Keynote Speakers: 1. Prof. Jenny Martin, Griffith University, Australia Trob sensity mound Chinici Chinesesty, Russiana. Crob a mounded). Prof. Tomislav Friščić, McGill University, Montreal, Canada. Prof. Rahu Banerjee, CSIR-National Chemical Laboratory, India Prof. Song GAO, Peking University, China. 6. Prof. Joanne Etheridge, Monash University, Australia NAFOSTED IUCr CRYSTAL GROWTH DECTRIS STOP III ttplabtech

More information in details, please access the website: http://asca2016.org



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# 24–25 November

The Australian Synchrotron warmly invites you to User Meeting 2016.

Our annual meeting showcases the best research undertaken at the Australian Synchrotron, and provides updates on the latest technique and application developments.

User Meeting 2016 will be held at the Australian Synchrotron's National Centre for Synchrotron Science (NCSS).

800 Blackburn Road, Clayton, VIC 3168 Enquiries: um2016@synchrotron.org.au

# um2016.synchrotron.org.au



## SEP 2016

