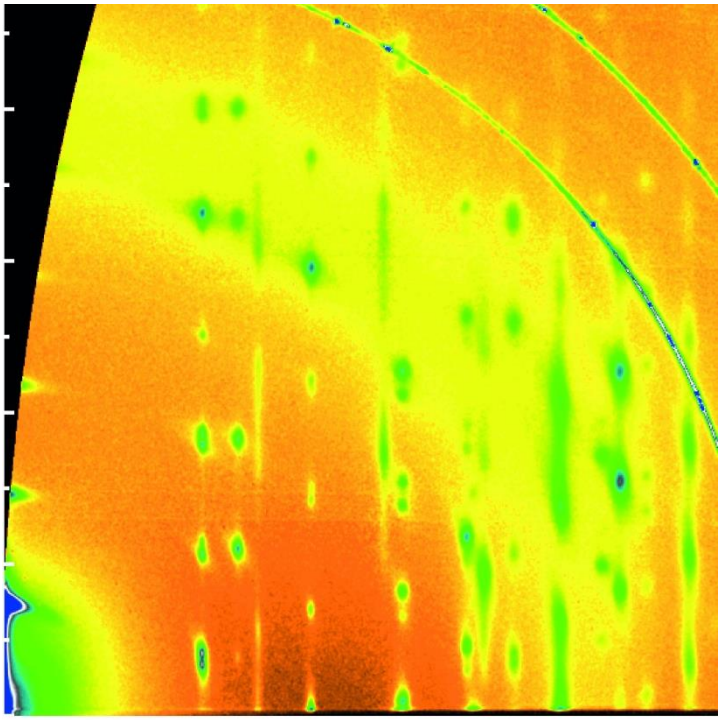
40th Annual Condensed Matter and Materials Meeting

Wagga 2016



Charles Sturt University, Wagga Wagga, NSW
2nd February – 5th February, 2016

ISBN : 978-0-646-96433-1

Australian and New Zealand Institutes of Physics

40th Annual Condensed Matter and Materials Meeting

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CONFERENCE HANDBOOK

ISBN : 978-0-646-96433-1

2016 Organising Committee

Anton Tadich
Helen Brand
Dominique Appadoo
Trevor Finlayson
Michael James

Australian Synchrotron
Clayton, VIC 3168, Australia

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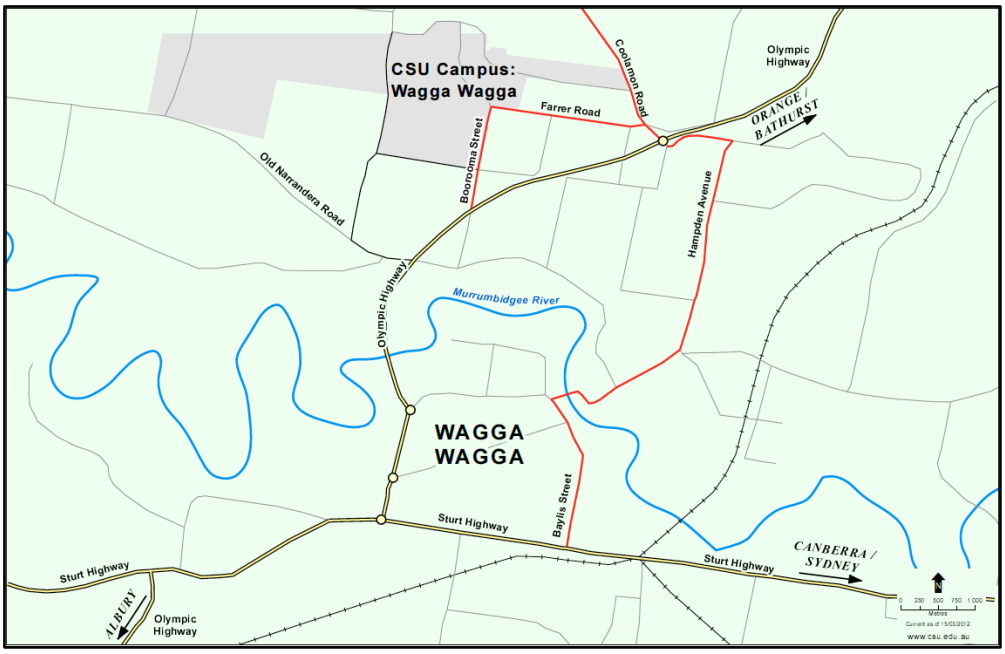
Front Cover Image:

This image is an example of a two dimensional Grazing-incidence Wide Angle X-ray Scattering (GIWAXS) pattern, collected in one second from a heated spin-coated thin organic film in-situ at SAXS/WAXS beamline at the Australian Synchrotron. Analysis of the peak locations and intensities reveals a unique crystalline structure, not seen at room temperature. Further analysis of how patterns such as these change at different temperatures reveals crystalline phase transitions and the thermal expansion of crystallites in these phases. Interestingly they also expose unexpected behaviours such as highly negative, and in other very similar molecules, highly positive linear thermal expansion coefficients. These different thermal expansion coefficients end up correlating very well with the varying performance of thin film transistors made of these materials annealed and quenched at different temperatures.

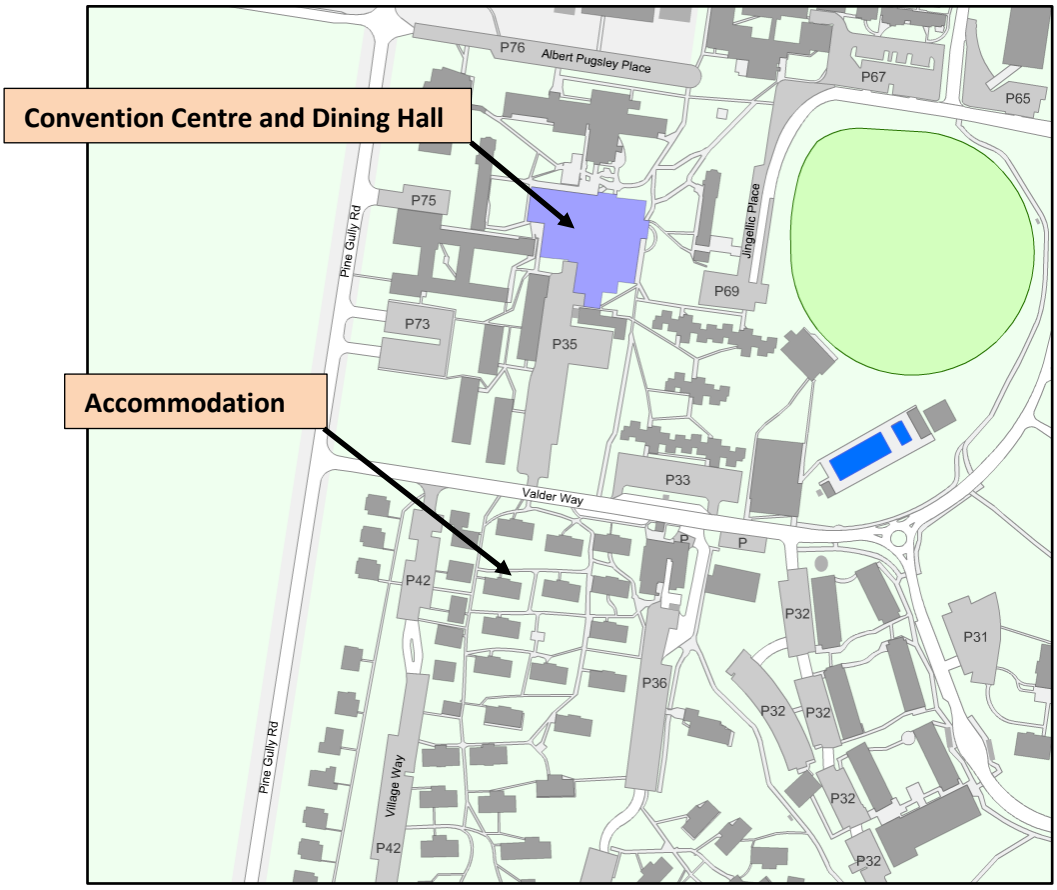
Courtesy: Dr Eliot Gann (Monash University / Australian Synchrotron)

WW2016 : MAPS

Wagga Wagga and the location of the Charles Sturt University campus



Location of Convention Centre and accommodation



WW 2016 : CMM GROUP

Welcome to the "Wagga" community:

Just by attending the annual Condensed Matter and Materials (CMM) Meeting you are a member of the CMM topical group of the Australian Institute of Physics (AIP). There are no forms or membership fees involved.

Take a look at the CMM Group web site:

It can be accessed from the AIP national web site (**www.aip.org.au**) by clicking on **AIP Groups** listed under "Related Groups" in the column at the left of the home page and then selecting **Condensed Matter and Materials Group (CMM)**. Alternatively, you can go directly to **http://cmm-group.com.au/**

Please share your favourite "Wagga" experiences:

If you have some special group images of you and colleagues, interesting events and stories from previous "Waggas", please share them with us by passing them on to Glen Stewart (**g.stewart@adfa.edu.au**) who will have them incorporated into the history section of the CMM Group web site. Please include in your e-mail the year of the meeting and the names of those "Waggarites" you are able to identify in the images.

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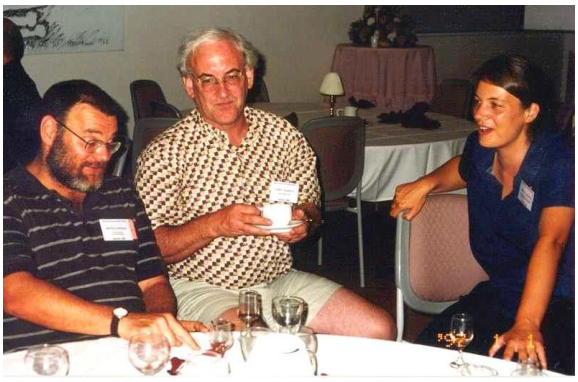

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WW 2016 : ATTENDEE INFORMATION

Scientific Program:

All poster sessions and lectures will be held at the Convention Centre. Chairpersons and speakers are asked to adhere closely to the schedule for the oral program. A PC laptop computer and data projector, overhead projector, pointer and microphone will be available. Please check that your presentation is compatible with the facilities provided as early as possible. Posters should be mounted as early as possible. Please remove your Wednesday session posters by early Thursday morning and your Thursday session posters by the close of the program on Friday.

Logistics:

Please wear your name tag at all times. Registration and all other administrative matters should be addressed to the registration desk or a committee member. For lost keys or if locked out of your room from 0900 to 1700, contact the Events Office for assistance 6933 4974; after hours, contact the Accommodation and Security Office near the corner of Valder Way and Park Way or phone them at 6933 2288. **Delegates must check out of their rooms on Friday morning, before 10:00am.**

Meals, Refreshments and Recreational Facilities:

All meals will be served in the "Food Bowl" dining room at Atkins Hall, except the Conference Dinner on Wednesday 3 February, which will be held in the Convention Centre. You will receive a dining room pass on registration and a ticket to the Conference Dinner. The dining room pass must be produced at every meal. It may also be required as identification for use of all other campus facilities, which are at your disposal.

Morning and afternoon tea will be served each day, as indicated in the timetable. Coffee and tea-making facilities are also available in the Common Room of each residence. In addition, on arrival on Tuesday afternoon and for the poster sessions, drinks will be available from the Conference Bar.

The swimming pool is open on weekdays from 06:00 until 21:00, as are the adjacent gymnasium and squash courts. A wide range of facilities such as exercise bikes, table tennis and basketball are available in the gymnasium. Access to these facilities is covered by your registration fee.

Organising Committee Contact Numbers:

Anton Tadich	Chair	0411747351
Helen Brand	Treasurer	0430679007
Dominique Appadoo	Secretary	0488346319

Convention Centre Contact Numbers:

Events Office Phone	(02) 6933 4974
After-hours Emergencies, Accommodation and Security Office	(02) 6933 2288

Wireless Internet:

Is available on site. Login details will be provided upon registration.

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WW 2016 : OVERALL TIMETABLE

Tuesday 2nd February

16:00 – 18:00	Registration desk open
	Conference bar open
18:00 – 19:30	*Dinner*
19:00 -	Posters WP1- WP33 to be mounted
19:30 – 21:00	*Wine Tasting*

Wednesday 3rd February

07:30 – 08:45	*Breakfast*
08:45 – 09:00	Conference opening
09:00 – 10:30	Oral Session: WM1 – WM4
10:30 – 11:00	*Morning tea*
11:00 – 12:30	Oral Session: WN1 – WN5
12:30 – 14:00	*Lunch*
14:00 – 15:30	Oral Session: WA1 – WA4
15:30 – 16:00	Poster Slam
16:00 – 18:00	Poster Session: WP1 – WP33
	Afternoon Tea
	Conference bar open
18:00 -	Posters**:** TP1 – TP37 to be mounted
18:30 – 22:00	*Wagga 2016 Conference Dinner*

Thursday 4th February

07:30 – 08:45	*Breakfast*
08:45 – 10:30	Oral Session: TM1 – TM6
10:30 – 11:00	*Morning tea*
11:00 – 12:30	Oral Session: TN1 – TN5
12:30 – 14:00	*Lunch*
14:00 – 15:30	Oral Session: TA1 – TA5
15:30 – 16:00	Poster Slam
16:00 – 18:00	Poster Session: TP1 – TP37
	Afternoon Tea
	Conference bar open
18:00 – 19:30	*Dinner*
19:30 – 22:00	Trivia Quiz (Lindsay Davis Cup)

Friday 5th February

07:30 – 08:45	*Breakfast*
08:45 – 10:30	Oral Session: FM1 – FM6
10:30 – 11:00	*Morning tea*
11:00 – 12:15	Oral Session: FN1 – FN4
12:15 – 12:30	Awards and Closing
12:30 –	*Lunch*

WW 2016 : PROGRAM DETAILS

Tuesday 2nd February

16:00 –	Registration desk open
16:00 – 18:00	Welcome reception
18:00 – 19:30	Dinner
19:30 – 21:00	Wine Tasting

Wednesday 3rd February

08:45 – 09:00	**Opening : *Anton Tadich, Australian Synchrotron***	
09:00 – 10:30	**WM**	**Chairperson : *Garry McIntyre, ANSTO***
09:00 – 09:30	WM1	The Australian Synchrotron in 2015 – Turning Bright Ideas into Brilliant Outcomes *Michael James, Australian Synchrotron* *INVITED*
09:30 – 09:45	WM2	Reactions of dihalogenated 3,4-ethylenedioxythiophenes on metal surfaces *Jennifer Macleod, Queensland University of Technology*
09:45 – 10:00	WM3	Developing cryogenic high-pressure techniques on the WISH neutron diffractometer. *Chris Ridley, University of Edinburgh*
10:00 – 10:30	WM4	Crystalline self-stratification in polymer thin films *Eliot Gann, Australian Synchrotron* *INVITED*
10:30 – 11:00		**Morning tea**
11:00 – 12:30	**WN**	**Chairperson : *Patrick Tung, UNSW***
11:00 – 11:30	WN1	Quantitative Femtosecond Charge Transfer Dynamics at Organic/Electrode Interfaces Studied by Core-Hole Clock Spectroscopy *Dongchen Qi, La Trobe University* *INVITED*
11:30 - 11:45	WN2	Unconventional Molecular Weight Dependence of Charge Transport in a High Mobility *n*-type Semiconducting Polymer *Masrur Nahid, Monash University*
11:45 - 12:00	WN3	An Approach to Degradation Mechanisms using Numerical Model Fitting in Thermally Activated Delayed Fluorescence (TADF) Organic Light Emitting Diodes (OLEDs) *Tadahiko Hirai, CSIRO*
12:00 – 12:15	WN4	In situ characterisation of calcium carbonate prenucleation clusters around the solubility limit using Small Angle X-ray Scattering. *Jonathan Avaro, Southern Cross University*

12:15 – 12:30	WN5	Supramolecular assembly of small molecular gelators mediated by additives *Jingliang Li, Deakin University*
12:30 – 14:00		**Lunch**
14:00 – 15:30	**WA**	**Chairperson : *Francesca Iacopi, Griffith University***
14:00 – 14:30	WA1	Engineering the Diamond Surface for Quantum Technologies *Alastair Stacey, University of Melbourne* *INVITED*
14:30 – 14:45	WA2	Vacancy-mediated electrical conductivity in lithium fluoride upon moderate heating *David Hoxley, La Trobe University*
14:45 – 15:00	WA3	One-step synthesis of n-type Mg_2Ge *Rafael Santos, University of Wollongong*
15:00 – 15:30	WA4	Towards Realisation of High-Performance Thermoelectrics for Energy Conversion *Zhigang Chen, University of Queensland* *INVITED*
15:30 – 16:00		**Poster Slam**
16:00 – 18:00		**Poster Session WP1 – WP33**
18:30 – 22:00		**Conference dinner** After Dinner Talk "Pluto: The Next Frontier for Condensed Matter " *Helen Brand, Australian Synchrotron*

Thursday 4th February

08:45 – 10:30	**TM**	**Chairperson : *Dongchen Qi, La Trobe University***
08:45 – 09:15	TM1	The endless possibilities of graphene on heteroepitaxial silicon carbide *Francesca Iacopi, Griffith University* *INVITED*
09:15 – 09:30	TM2	Capturing the transition from 3C SiC(111) to graphene by XPS and STM in Ultra High Vacuum *Nunzio Motta, Queensland University of Technology*
09:30 – 09:45	TM3	NEXAFS Anisotropy of Molecular Excitations Preceding the Carbon Continuum Edge in CVD Graphene on Copper *Hud Wahab, University of New South Wales, Canberra*
09:45 – 10:00	TM4	Quest for Zero Loss: The Materials selection problem in plasmonics *Michael Cortie, University of Technology Sydney*
10:00 – 10:15	TM5	Preparation and Characterization of Poly Lactide and Poly (Butylene Adipate-co-Terephthalate) Nanocomposites Reinforced with Graphene Nanoplatelet *Sima Kashi, Royal Melbourne Institute of Technology*

10:15 – 10:30	TM6	Development of Hydrophilic Materials for Nanofiltration Membrane Achieving Dual Resistance to Fouling and Chlorine *Xi Quan Chen, Harbin Institute of Technology, China*
10:30 – 11:00		**Morning tea**
11:00 – 12:30	**TN**	**Chairperson : *Gail Iles, ANSTO***
11:00 – 11:30	TN1	Atomic-scale understanding of CO_2 adsorption processes in metal-organic framework (MOF) materials using neutron scattering and ab initio calculations *Josie Auckett, ANSTO* *INVITED*
11:30 - 11:45	TN2	Crystallographic and magnetic structure study in $SrCoO_{3-x}$ by high resolution X-ray and neutron powder diffraction *Fenfen Chang, University of New South Wales, Kensington*
11:45 - 12:00	TN3	Hydrates under pressure – new insights from sulfuric acid hydrates *Helen Maynard - Casely, ANSTO*
12:00 – 12:15	TN4	Inelastic neutron scattering as a means for determining the magnetic exchange interactions in the frustrated quantum spin chain, Linarite. *Kirrily Rule, ANSTO*
12:15 – 12:30	TN5	An investigation of magnetic structure and spin reorientation in Cr and Mn doped rare earth ferrites using neutron powder diffraction *Xinzhi Liu, ANSTO*
12:30 – 14:00		**Lunch**
14:00 – 15:30	**TA**	**Chairperson : *Helen Maynard-Casely, ANSTO***
14:00 – 14:30	TA1	X-radiation in health and disease: Novel approaches to the study of disease processes and therapy *Damian Myers, University of Melbourne* *INVITED*
14:30 – 14:45	TA2	Investigation of Targeting Capabilities of Peptide-conjugated Endocannabinoid-based lipid Nanoassemblies in the Treatment of Arthritis *Nicola Barrie, CSIRO*
14:45 – 15:00	TA3	Sodium for securing future renewable energy supply *Manickam Minakshi, Murdoch University*
15:00 – 15:15	TA4	Bi(III)-containing lanthanum germanium apatite-type oxide ion conductors and their structure-property relationships *Matthew Tate, ANSTO*
15:15 – 15:30	TA5	Low temperature effect of lithium diffusion in 18650-type MNC battery *Chun-ming Wu, National Synchrotron Radiation Research Centre, Taiwan*
15:30 – 16:00		**Poster Slam**
16:00 – 18:00		**Poster Session TP1 – TP37**

18:00 – 19:30		**Dinner**
19:30 – 22:00		**Trivia Night**

Friday 5th February

08:45 – 10:30	**FM**	**Chairperson : *Glen Stewart, UNSW Canberra***
08:45 – 09:15	FM1	A Morphotropic Phase Boundary in Samarium-modified Bismuth Ferrite Thin Films *Nagarajan Valanoor, University of New South Wales* *INVITED*
09:15 – 09:30	FM2	Reversible electrochromism, elasto-optic and thermo-optic effects in $BiFeO_3$ films *Daniel Sando, University of New South Wales, Kensington*
09:30 – 09:45	FM3	Effects of ^{18}O isotope substitution in multiferroic $RMnO_3$ (R=Tb, Dy) *Paul Graham, University of New South Wales, Kensington*
09:45 – 10:00	FM4	Growth and Properties of Strain-tuned $SrCoO_x$ ($2.5 \leq x < 3$) Thin Films *Hu Songbai, University of New South Wales, Kensington*
10:00 – 10:15	FM5	Experimental observations of grain-scale property coupling in electroceramics *John Daniels, University of New South Wales, Kensington*
10:15 – 10:30	FM6	Gamma irradiation effect on optical and laser damage performance of KDP crystals *Xiaodong Yuan, China Academy of Engineering Physics, China*
10:30 – 11:00		**Morning tea**
11:00 – 12:30	**FN**	**Chairperson : *Claudio Cazorla, UNSW***
11:00 – 11:30	FN1	Two-dimensional Coulomb gas at negative temperature *Tapio Simula, Monash University* *INVITED*
11:30 - 11:45	FN2	Multimode photon-assisted tunnelling in superconducting quantum circuits *Matthew Woolley, University of New South Wales, Canberra*
11:45 - 12:00	FN3	Focusing of electrons and holes in semiconductors: from semi-classical dynamics to spintronics *Samuel Bladwell, University of New South Wales, Kensington*
12:00 – 12:15	FN4	Amplitude of charge density wave in cuprates *Yaroslav Kharkov, University of New South Wales, Kensington*
12:15 – 12:30		**Awards and closing : *Anton Tadich, Australian Synchrotron***
12:30 – 14:00		**Lunch**

WW 2016 : POSTER SESSIONS

Wednesday 3rd February : WP1 - WP34

WP1 Porosity in Ge and $Si_{1-x}Ge_x$ Alloys Induced by Ion Implantation
H. Alkhaldi, F. Kremer, T. Bierschenk, J.L. Hansen, A. Nylandsted-Larsen, J.S. Williams and M.C. Ridgway

WP2 Synthesis and characterisation of $CoMoO_4$ nanospheres with improved supercapacitive performance
M. Barmi and M. Minakshi

WP3 Electrolytic manganese dioxide from secondary sources for energy storage
A. Biswal, M. Minakshi and B. Tripathy

WP4 Do porosity templates improve the performance of supercapacitor electrode materials?
S. Albohani, D. Laird and M. Minakshi

WP5 Multigelator organogels-mixture of gelators assembled by different driving forces
J. Chen and J. Li

WP6 In situ characterisation of calcium carbonate prenucleation clusters around the solubility limit using Small Angle X-ray Scattering technique.
J. Avaro and A. Rose

WP7 Terahertz Characterisation of 3D Printed Plastics
J. Colla, A. Squires and R. Lewis

WP8 THz Spectroscopy of Artists' Pigments, Binders and Canvas
A. Squires, M. Kelly and R. Lewis

WP9 Steels and intermetallics under extreme conditions
K-D. Liss, A. Shiro, R. Dippenaar, K. Akita, K. Funakoshi, M. Reid, H. Suzuki, T. Shobu, Y. Higo, H. Saitoh, S. Zhang and Y. Tomota

WP10 Improved Micro-CT of SiC/SiC Ceramic Matrix Composites
J. Thornton, M. Zonneveldt, B. Arhatari, J. A. Kimpton, M. Sesso, S. Y. Kim and C. Hall

WP11 Mechanical meta-materials: beyond conventional property
L. Wang and J. Daniels

WP12 Curing of large size construction for space exploitation
A. Kondyurin

WP13 Polyurethane medical implants improved by plasma immersion ion implantation
I. Kondyurina, B. Bao, A. Kondyurin and M. Bilek

WP14 In-situ diffuse scattering experiment on stress-induced ferroelastic transformation in Ti-15Nb-2.5Zr-4Sn
E. Obbard, R. Burkovsky, H. Wang and Y. Hao

WP15 Prodrug Amphiphile Nanoparticles of Gemcitabine and 5- Fluorouracil
J. Bulanadi, M. Moghaddam, A. Xue, S. Julovi, S. Bal, X. Gong and R. Smith

WP16 Spin-polarized single and double electron spectroscopies
J. Williams and S. Samarin

WP17 Structures of Silane SAMs on Oxide Surfaces
A. Magerl, H-G. Steinruck, M. Deutsch and B. Ocko

WP18 Biocompatible magnesium based ultrastable metallic glass (SMG) thin films
S. Gleason, K. Laws, J. Jiang and M. Ferry

WP19 Epitaxial Growth of Spinel Iron Vanadate Thin Films on Perovskite Substrate
D. Zhou, Y. Zhou, N. Valanoor, Q. He and Y-H. Chu

WP20 Fingering instability in solid state dewetting of single crystal Ni films
S. Jahangir, N. Valanoor, C. Thompson, G.H Kim

WP21 Modelling TiO_2 supported Au cluster photocatalyst using DFT and SCC-DFTB approaches
J. Li, G. Metha and S. Irle

WP22 Photoconductivity of nanoscale grain boundaries in two dimensional ZnO platelets
N. Faraji Ouch Hesar

WP23 A Novel method for the preparation of a monolithic alumina catalyst support
M. H. Amin, S. Bhargava, J. Patel and M. Mazur

WP24 Refractive index of graphite and graphene at wavelengths spanning the carbon K edge
H. Wahab, C. Jansing, H. C. Mertins, S-H Choi and H. Timmers

WP25 Terahertz Spectroscopic Characterizations for Graphite Nanofibers and Graphite
H. Zhang, J. Horvat and R. Lewis

WP26 Optical bistability due to nonlinear surface plasmon polaritons in graphene
M. Sanderson, Y. Sin Ang and C. Zhang

WP27 Quantitative 3D Strain Mapping in Nanodiamonds using Bragg Coherent Diffractive Imaging (BCDI)
M. S. Maqbool, D. Hoxley, N. Phillips, A. Stacey, J. Clark, B. Chen, D. Langley, R. Harder, E. Balaur and B. Abbey

WP28 The role of dielectric function for the control of coupled dipole resonances in dimers of dissimilar metallic nanorods
G. Fletcher, M. Cortie and M. Arnold

WP29 Helium ion implantation dose dependent microstructure and laser damage of sapphire
Z. Sui

WP30 Theory of controlling avalanche process of carrier in short pulse laser irradiated dielectrics
X. Yuan, H. Deng and X. Xu

WP31 Cooperative Behaviour of Physical Systems
T. Finlayson and J. Lashley

WP32 EPR Study of a 'Capsule' Brewed Coffee and its Decaffeinated Version
G. Troup and S. Drew

WP33 An EPR Study of Tawny Ports, and Coffee Favoured Liqueurs
G. Troup and S. Drew

Thursday 4th February : TP1 – TP37

TP1 First spectrum measured on EMU, the cold-neutron backscattering spectrometer at the Bragg Institute, ANSTO
N. De Souza, A. Klapproth, G. Iles

TP2 Development of high-pressure single-crystal neutron diffraction on the Laue diffractometer, KOALA, at OPAL
J. Binns, G. McIntrye, K. Kamenev, S. Moggach and S. Parsons

TP3 Advanced Sample Environment Support for Neutron Instruments at the Bragg Institute, ANSTO
P. Imperia, N. Booth, G. Davidson, S. Lee, T. D'Adam and A. Manning

TP4 Vibrational studies using neutrons
A. Stampfl

TP5 Development of a compact X-ray source
E.W.J. Yap, R. Preston, J. Tickner and J. Daniels

TP6 Investigations of the Structural and Magnetic Phase Behaviour of $MnSb_{2-x}Ta_xO_6$ Solid Solutions
H-B. Kang, F. Suzuki and T. Soehnel and

TP7 Low Pressure Synchrotron X-ray Powder Diffraction of $Cu_{5-x}M_xSbO_6$ (M = Cr, Mn, W)
D. J. Wilson, T. Soehnel, K. Smith, H. E. A. Brand, C. Ulrich, P. Graham, F. Chang, M. Allison and N. H. Vyborna

TP8 Neutron diffraction study of double tungstates $Li_2M^{II}(WO_4)_2$ (M=Co and Ni)
C-W. Wang, S. Karna, F. C. Chou and R. Sankar

TP9 Low-energy crystal-field excitations observed using inelastic Neutron Scattering
G. Iles, G. Stewart, R. Mole, W. Hutchison and S. Cadogan

TP10 Dynamical Mechanism of Phase Transitions in A-site Ferroelectric Relaxor $(Na_{0.5}Bi_{0.5})TiO_3$
G. Deng, S. Danilkin, H. Zhang, P. Imperia, X. Li, X. Zhao and H. Luo

TP11 Kaolinite and halloysite – does octahedral Fe^{2+} introduce the extra water into halloysite?
J. Cashion, W. Gates, J.M. Cadogan, J. Churchman and L. Aldridge

TP12 An ^{57}Fe Mössbauer Study of the Ordinary Chondrite meteorite Lynch-001
N. Elewa and S. Cadogan

TP13 Spin transitions in cementite
S. Clark

TP14 Non-equilibrium field theory and decay widths: a new golden rule
H. Scammell and O. Sushkov

TP15 Incommensurate magnetic order in $PrNiAl_4$
R. White, W. Hutchison, M. Avdeev and K. Nishimura

TP16 Skyrmions and Hopfions in frustrated ferromagnets
Y. Kharkov, M. Mostovoy and O. Sushkov

TP17 The magnetic properties and magnetocaloric effect in $(Mn_{1-x}Ni_x)CoGe$
Q. Ren, W. Hutchison, J. Wang, A. Studer and S. Campbell

TP18 Azimuthal dependence of planar orbits in the crossed fields diamagnetic Kepler problem in silicon
C. Bleasdale and R. Lewis

TP19 Temperature and magnetic field dependent magnetization of nanoparticulate $ZnFe_2O_4$ produced by mechanochemical synthesis
F. Nesa, X. Wang, J. Wang, S. Kennedy, S. Campbell and M. Hofmann

TP20 Pressure induced, reversible, fourfold enhancement of the magnetic ordering temperature in transition metal monomers
C. Woodall, J. Martinez Lillio, A. Prescimone, M. Misek, J. Cano, J. Faus, S. Parsons, K. Kamenev and E. Brechin

TP21 Physical, thermal and ^{57}Fe Mössbauer studies of $Y_2Fe_2Si_2C$
R. Susilo, S. Cadogan, C-H. Hsu, H. lin, W. Hutchison and S. Campbell

TP22 Mechanism of enhancement of the electron g-factor in quantum point contacts
G. Vionnet and O. Sushkov

TP23 Towards understanding the magnetic structure of DyN, a ferromagnetic semiconductor
J. Evans, G. Stewart, S. Cadogan, W. Hutchison, E. Mitchell and J. Downes

TP24 G-factors of hole bound states in spherically symmetric potentials in cubic semiconductors
D. Miserev and O. Sushkov

TP25 A ^{161}Dy-Mössbauer spectroscopy investigation of $DyCrO_4$
G. Stewart, S. Cadogan, W. Hutchison and D. Ryan

TP26 Spin drift in Rashba systems with tilted magnetic fields
S. Bladwell and O. Sushkov

TP27 Epitaxial (001) $BiFeO_3$ thin-films with excellent ferroelectric properties by chemical solution deposition-The role of gelation
Q. Zhang and N. Valanoor

TP28 Complex Magnetic Structure in strained nanoscale bismuth ferrite thin films
C. Ulrich, J. Bertinshaw, R. Maran, S. Callori, V. Ramesh, J. Cheung, S. Danilkin, S. Hu, J. Seidel and N. Valanoor

TP29 Nanoscale Ferroelectric domain structure of bismuth ferrite $BiFeO_3$ under different strains
A. Alsubaie, P. Sharma and J. Seidel

TP30 Generalised requirements for ferroelectric domain sharing over grain boundaries
S. Mantri and J. Daniels

TP31 Rational design of multiferroic superlattices
C. Cazorla

TP32 Positive effect of an internal depolarization field in ultrathin epitaxial ferroelectric films
G. Liu and N. Valanoor

TP33 Determining fundamental properties from diffraction: electric field induced strain and piezoelectric coefficient
M. Hinterstein, A. Studer and M. Hoffman

TP34 Diffuse X-ray Scattering: Probing the Nano-scale Disorder in the Lead-Free Piezoelectric $Na_{0.5}Bi_{0.5}TiO_3$
P. Tung, M. Major, J. Hudspeth and J. Daniels

TP35 Combinatorial synthesis of piezoelectric materials using an inkjet printer
F. Marlton, J. Daniels and O. Standard

TP36 Stress and electric-field dependence of the induced phase symmetry in BNT-xBT
M. J. Hossain, Z. Wang, N. Khansur, P. Tung and J. Daniels

TP37 Contrasting strain mechanisms in lead-free piezoelectric ceramics
N. H. Khansur and J. Daniels