

DAY 1 SUNDAY / DAY 2 MONDAY

Day 1 Sunday 21 September 2014

16:00–17:00	Registration (Foyer of The Shine Dome)
17:00–19:00	Welcome reception (Jaeger Room of The Shine Dome)

Day 2 Monday 22 September 2014

8:30–12:00	Registration (Foyer)
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9:00–10:00

Opening session (Ian Wark Theatre)

Session chair: **Wayne Hutchison**, University of New South Wales, Australia

9:00 Welcome

Conference chairs: **Wayne Hutchison**, University of New South Wales, Australia, **Andrew Stuchbery**, Australian National University, Australia and **Heiko Timmers**, University of New South Wales, Australia

9:10 Official opening

Aidan Byrne, Chief Executive Officer, Australian Research Council

9:30 Invited presentation

Monika Stachura, ISOLDE-CERN, Switzerland
Beta-NMR on liquid media for bio-physics applications

10:00–10:30

Morning Tea (Jaeger Room)

10:30–12:00

Session M1 (Ian Wark Theatre): Applications of HFI and NQI techniques

Session Chair: **Guido Langouche**, University of Leuven (KU Leuven), Belgium

10:30 Invited presentation

Khashayar Ghandi, Mount Allison University, Canada
Muons as a hyperfine interaction probe in chemistry

11:00 Oral presentation

Tim Bastow, MSE, CSIRO, Australia
NMR measurement of NQI in metals: application to lightweight alloy development

11:20 Oral presentation

David Stephenson, University of the West Indies, Trinidad and Tobago
 ^{14}N NQR of sildenafil citrate

11:40 Oral poster presentation (Poster Session I)

Mototsugu Mihara, Department of Physics, Osaka University, Japan
Spin-spin relaxation of the short-lived β -emitter ^{12}B in Si

11:45 Oral poster presentation (Poster Session I)

Asif Ahmed, Australian National University, Australia
Time-dependent recoil in vacuum using the ANU plunger device—improved sensitivity to hyperfine fields and nuclear moments

11:50 Oral poster presentation (Poster Session I)

Debashis Banerjee, Bhabha Atomic Research Centre, India
Short-range texture formation in anatase: a TDPAC study

11:55 Announcements

Conference chair: **Wayne Hutchison**, University of New South Wales, Australia

12:00–14:00

Lunch

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DAY 2 MONDAY / DAY 3 TUESDAY

14:00–15:20	<p>Session M2 (Ian Wark Theatre): Hyperfine interactions <i>Session chair: Stefaan Cottenier, Center for Molecular Modeling, Belgium</i></p> <p>14:00 Invited presentation Guido Langouche, <i>University of Leuven, Belgium</i> Properties of Fe in dilute magnetic semiconductors after ion implantation studied by ^{57}Fe emission Mössbauer spectroscopy</p> <p>14:30 Invited presentation Tilo Söhnel, <i>The University of Auckland, New Zealand</i> Mössbauer spectroscopy on Fe, Ru and Ir-Sn cluster compounds</p> <p>15:00 Oral presentation Kei Imamura, <i>RIKEN Nishina Center/Meiji University, Japan</i> Measurement of the hyperfine splitting of ^{133}Cs atoms in superfluid helium</p>
15:20–15:50	<i>Afternoon Tea (Jaeger Room)</i>
15:50–17:20	<p>Session M3 (Ian Wark Theatre): Theory <i>Session chair: Kristiaan Temst, KU Leuven, Belgium</i></p> <p>15:50 Invited presentation Artur Carbonari, <i>IPEN, Brazil</i> First-principles calculations of the Cd and Fe co-doped In_2O_3: a comparison to experimental results to determine the occupancy site of impurities</p> <p>16:20 Oral presentation Georgi Georgiev, <i>CSNSM/IN2P3/CNRS, France</i> Electron–nuclear spin interactions for nuclear moment studies</p> <p>16:40 Oral presentation Qiaoli Zhang, <i>China Institute of Atomic Energy, China</i> <i>Ab initio</i> calculations of electric field gradient and magnetic hyperfine field in Fe-doped SnO_2</p> <p>17:00 Oral presentation Matthew Zacate, <i>Northern Kentucky University, United States of America</i> Fluctuating hyperfine interactions: an updated computational implementation</p>

Day 3 Tuesday 23 September 2014

Early morning	Optional balloon rides
8:30–10:00	<p>Session Tu1: Mössbauer Spectroscopy (I) <i>Session chair: Glen Stewart, The University of New South Wales, Australia</i></p> <p>8:30 Invited presentation Gerhard Wortmann, <i>University of Paderborn, Germany</i> High-pressure studies using synchrotron-based Mössbauer spectroscopies</p> <p>9:00 Oral presentation Michael Oshtrakh, <i>Ural Federal University, Russia</i> The ^{57}Fe hyperfine interactions in the iron bearing phases in different fragments of Chelyabinsk LL5 meteorite: a comparative study using Mössbauer spectroscopy with a high velocity resolution</p> <p>9:20 Oral presentation Vadim Ksenofontov, <i>Institute of Inorganic and Analytical Chemistry, Johannes Gutenberg-University, Germany</i> ^{57}Fe-Mössbauer study of LiNH_2-intercalated FeSe: evidence for spin fluctuations connected with superconductivity at $T_C = 43\text{ K}$</p> <p>9:40 Oral presentation Sunghyun Yoon, <i>Department of Physics, Gunsan National University, South Korea</i> Temperature dependence of magnetic anisotropy constant in CoFe_2O_4 nanoparticles examined by Mössbauer spectroscopy</p>
10:00–10:30	<i>Morning Tea</i>

DAY 3 TUESDAY

10:30–12:00	<p>Session Tu2: Mössbauer Spectroscopy (II) <i>Session chair: Krish Bharuth-Ram, University of KwaZulu-Natal, South Africa</i></p> <p>10:30 Invited presentation Dominic Ryan, McGill University, Canada Phase-quantitative studies of magnetism and valence using Mössbauer spectroscopy</p> <p>11:00 Oral presentation Dariusz Malczewski, University of Silesia, Faculty of Earth Sciences, Poland Correlations between changes of the select Mössbauer parameters and changes in electric conductivity for the annealed fully metamict $\text{REE}_2\text{Fe}^{2+}\text{Be}_2\text{Si}_2\text{O}_{10}$</p> <p>11:20 Oral presentation Itzhak Halevy, NRCN, Israel Neutrons high pressure crystallographic structure and magnetic study of the Fe-Cr-H_x phase diagram</p> <p>11:40 Oral poster presentation (Poster Session I) Adurafimihan Abiona, University of New South Wales, Australia Split-vacancy palladium defect complexes in silicon and germanium</p> <p>11:45 Oral poster presentation (Poster Session I) Hisazumi Akai, ISSP, University of Tokyo, Japan Electronic structure and isomer shift of valence-fluctuating beta-YbAlB₄</p> <p>11:50 Announcements <i>Conference chair: Andrew Stuchbery Australian National University, Australia</i></p> <p>11:55 Conference photo in front of the Shine Dome</p>
12:00–13:50	<p><i>Lunch</i> (Lunch will not be provided at the Shine Dome, however, quite a number of food outlets are located in walking distance and cater for a variety of tastes. The local organisers would be very happy to make suggestions. If in doubt, ask at the registration desk. This may be an opportunity to venture out in groups and catch-up with other conference participants.)</p>
13:50–15:00	<p>Session Tu3: Lattice and defect dynamics <i>Session chair: Hisazumi Akai, ISSP, University of Tokyo, Japan</i></p> <p>13:50 Invited presentation Manfred Deicher, Universität des Saarlandes, Germany Structural and optical characterization of indium-antimony complexes in ZnO</p> <p>14:20 Oral presentation Shintaro Yamaoka, Van De Graaff Lab Faculty of Science, Osaka University, Japan Dynamical property of Li in Li-ion conduction studied by ⁶Li β-NMR</p> <p>14:40 Oral presentation Patrick Kessler, HISK, Bonn University, Germany Orientation of a defect induced electric field gradient in ZnO</p>
15:00–15:30	<p><i>Afternoon Tea</i></p>
15:30–17:30	<p>Session Tu4 (Corridor around the Ian Wark Theatre and Jaeger Room): Poster session I and exhibition (Please refer to the contents section of the conference handbook for the list of posters).</p> <p>17:00 onwards refreshments served, sponsored by the conference chairs.</p> <p>17:30 Presentation of Abstract Submission Prizes sponsored by Magritek</p>
18:00–19:00	<p>18:00 Meeting of the International Committee (Becker Room of the Shine Dome)</p>

DAY 4 WEDNESDAY

Day 4 Wednesday 24 September 2014	
Early morning	Optional balloon rides
8:30–10:00	<p>Session W2: Magnetism, magnetic materials, thermoelectricity and superconductivity (I) <i>Session Chair: Itzhak Halevy, NRCN, Israel</i></p> <p>8:30 Invited presentation Yann Garcia, <i>Catholic University of Louvain, Belgium</i> Spin crossover complexes - Muon spin relaxation and Mössbauer studies</p> <p>9:00 Invited presentation Kristiaan Temst, <i>KU Leuven, Belgium</i> Probing the influence of spatial confinement on magnetic and superconducting properties by nuclear resonant scattering</p> <p>9:30 Invited presentation Raphael Hermann, <i>Forschungszentrum Juelich, Germany</i> Nuclear resonance scattering above 30 keV</p>
10:00–10:30	<i>Morning Tea</i>
10:30–12:00	<p>Session W2: Magnetism, magnetic materials, thermoelectricity and superconductivity (II) <i>Session chair: Manfred Deicher, Universität des Saarlandes, Germany</i></p> <p>10:30 Oral presentation Michael Reissner, <i>Vienna University of Technology, Austria</i> FeSb₂—a still puzzling material</p> <p>10:50 Oral presentation Hisazumi Akai, <i>ISSP, University of Tokyo, Japan</i> Hyperfine fields and magnetic anisotropy in Nd₂Fe₁₄B and Sm₂Fe₁₇N₃</p> <p>11:10 Oral presentation SN Mishra, <i>Tata Institute of Fundamental Research, India</i> Lattice location and magnetism of isolated Fe impurities in narrow band semiconductor InSb</p> <p>11:30 Oral presentation Vasily Potapkin, <i>Jülich Centre for Neutron Science JCNS and Peter Grünberg, Institut PGI, JARA-FIT, Germany</i> Magnetic interactions in NiO at ultra-high pressure</p> <p>11:50 Announcements <i>Conference Chair: Heiko Timmers, University of New South Wales, Australia</i></p>
10:00–12:00	<i>Pick-up your lunch packs for the bus trip at the registration desk</i>
12:00–17:30	<p>HFI/NQI Excursion</p> <p>12:00 Coach departure outside the Shine Dome</p> <p>12:50 Guided tour of the Tidbinbilla Nature Reserve</p> <p>15:20 Visit to the Canberra Deep Space Communication Complex</p> <p>17:30 Return to the Shine Dome</p>

DAY 5 THURSDAY

Day 5 Thursday 25 September 2014

Early morning	Optional balloon rides
9:00–10:20	<p>Session Th1: Nuclear moments, nuclear polarization and nuclear models (I) <i>Session chair: Andrew Stuchbery, Australian National University, Australia</i></p> <p>9:00 Invited presentation Nicholas Stone, <i>University of Tennessee, United States of America</i> New table of recommended nuclear electric quadrupole moments</p> <p>9:30 Oral presentation Mototsugu Mihara, <i>Department of Physics, Osaka University, Japan</i> Development of ^{129}Xe comagnetometer for precise measurement of neutron electric dipole moment</p> <p>9:50 Oral presentation Tomoya Sato, <i>Tokyo Institute of Technology, Japan</i> EDM measurement in ^{129}Xe atom using dual active feedback nuclear spin maser</p> <p>10:10 Oral poster presentation (Poster Session II) Yu Sakamoto, <i>Tokyo Institute of Technology, Japan</i> Development of high-homogeneity magnetic field coil for ^{129}Xe EDM experiment</p> <p>10:15 Oral poster presentation (Poster Session II) Rakesh Dogra, <i>Beant College of Engineering & Technology, India</i> Structural, magnetic and optical studies of ni-nanostructures embedded in Al_2O_3 matrix</p>
10:20–10:50	<i>Morning Tea</i>
10:50–12:00	<p>Session Th2: Nuclear moments, nuclear polarization and nuclear models (II) <i>Session Chair: Tibor Kibedi, Australian National University, Australia</i></p> <p>10:50 Oral presentation Ping Fan, <i>China Institute of Atomic Energy, China</i> g-factor measurements of high spin states in ^{108}Cd</p> <p>11:10 Oral presentation Debashis Banerjee, <i>Variable Energy Cyclotron Centre, India</i> Measurement of lifetime and quadrupole moments in neutron rich $^{131,132}\text{I}$</p> <p>11:30 Oral presentation Alan Gregorovic, <i>Institute "Jozef Stefan", Slovenia</i> Correlations between ^{14}N NQR frequencies and ^{14}N local environment in molecular crystals</p> <p>11:50 Oral poster presentation (Poster Session II) Darren Goossens, <i>ANU, Australia</i> Chemical and magnetic ordering in $\text{Fe}_{0.5}\text{Ni}_{0.5}\text{PS}_3$</p> <p>11:55 Oral poster presentation (Poster Session II) Nihed Chaábane, <i>CEA Saclay, France</i> Damage accumulation in Au^{2+} irradiated SiC/SiC composites</p>
12:00–13:30	<p><i>Lunch</i> (Lunch will not be provided at The Shine Dome, however, quite a number of food outlets are located in walking distance and cater for a variety of tastes. The local organisers would be very happy to make suggestions. If in doubt, ask at the registration desk. This may be an opportunity to venture out in groups and catch-up with other conference participants.)</p>
13:30–15:30	<p>Session Th 3 (Corridor around the Ian Wark Theatre and Jaeger Room): Poster session II and exhibition (Please refer to the abstract section of the conference handbook for the list of posters).</p>
15:00–15:30	<i>Afternoon Tea</i>

DAY 5 THURSDAY / DAY 6 FRIDAY

15:30–17:00	Session Th 4 (Ian Wark Theatre): Large facilities <i>Session chair: Sean Cadogan, University of New South Wales, Australia</i> 15:30 Invited presentation Jess Brewer , <i>University of British Columbia & TRIUMF, Canada</i> μ SR HOWTO 16:00 Invited presentation Kei Minamisono , <i>NSCL Michigan State University, United States of America</i> Collinear laser spectroscopy and β NMR at NSCL/MSU 16:30 Invited presentation Michael James , <i>Australian Synchrotron, Melbourne</i> The Australian synchrotron: shining a light on Australian research
17:00–19:00	- break -
19:00–23:00	HFI/NQI Dinner–University House 19:00 Pre dinner drinks 19:30 Guests seated

Day 6 Friday 26 September 2014

9:00–10:20	Session F1 (Ian Wark Theatre): Nano-particles and–structures <i>Session chair: Matthew Zacate, Northern Kentucky University, United States of America</i> 9:00 Oral presentation Wataru Sato , <i>Kanazawa University, Japan</i> Atomic level observation of Ag-ion hopping motion in AgI nanoparticles 9:20 Oral presentation Alexios Douvalis , <i>Physics Department, University of Ioannina, Greece</i> Carbon nanotubes filled or decorated for advanced applications: properties insight through hyperfine interactions of ^{57}Fe and ^{119}Sn nuclei 9:40 Oral presentation Vadim Ksenofontov Application of the MIMOS II spectrometer in to study ductile Heusler alloys 10:00 Oral presentation David Stephenson , <i>University of The West Indies, Trinidad and Tobago</i> ^{14}N NQR and relaxation in ammonium nitrate
10:20–10:50	Morning Tea
10:50–12:40	Session F2 (Ian Wark Theatre): New developments and future directions <i>Session chair: Stewart Campbell, University of New South Wales, Australia</i> 11:00 Oral presentation Takeshi Inoue , <i>Tohoku University, Japan</i> Experimental search for the electron electric dipole moment with laser cooled francium atoms 11:20 Oral presentation Stefaan Cottenier , <i>Center for Molecular Modeling, Belgium</i> Teaching hyperfine interactions in the 21 st century 11:50 Acknowledgements and handing over of the flag <i>Conference chairs: Wayne Hutchison, University of New South Wales, Australia, Andrew Stuchbery, Australian National University, Australia and Heiko Timmers, University of New South Wales, Australia</i> 12:00 Presentation from the hosts of the next conference Kristiaan Temst , <i>KU Leuven, Belgium</i> 12:20 Summary & Discussion Matthew Zacate , <i>Northern Kentucky University, United States of America</i> Hyperfine interactions: Quo vadis?
12:40	End of conference