Program
Tuesday 20th November 2007

16:30 - 18:30  Registration
17:30 - 19:30  Welcome and light refreshments

Wednesday 21st November 2007

08:15 - 09:15  Registration
09:15 - 09:40  Welcome

Session 1  Environment and Bioscience (1)
Chair: Jeff McCallum

09:40 - 10:20  David Paterson, Australian Synchrotron
Microanalysis capabilities of the microspectroscopy beamline at the Australian Synchrotron

10:20 - 10:40  Samuel Marx, University of Queensland
Evidence of enhanced El Niño activity in the mid Holocene inferred from records of Australian dust deposition in New Zealand.

10:40 - 11:00  Dora Pearce, University of Ballarat
Toenails: they know where you’ve been!

11:00 - 11:30  Morning Tea

Session 2  Advanced Materials and Analysis
Chair: Rob Elliman

11:30 - 12:00  Daniel Riley, University of Melbourne
Use of ultra-fast diffraction in the design of novel materials

12:00 - 12:20  Imam Kambali, University of Newcastle
Determination of hydrogen adsorption site on palladium(100) using low energy ion scattering spectroscopy

12:20 - 12:40  Babs Fairchild, University of Melbourne
Fabrication of sub micron layers in single-crystal diamond

12:40 - 13:10  Claudia Schnohr, Australian National University
Comparison of the atomic structure in InP amorphised by electronic or nuclear ion-energy-loss processes

13:10 - 14:30  Lunch

Session 3  Environment, Bioscience (2) and Nanotechnology (1)
Chair: Peter Johnston

14:30 - 15:00  Paul Pigram, Latrobe University
Detecting oligonucleotide immobilization and hybridisation using TOF-SIMS

15:00 - 15:20  Robert Haworth, University of New England
Blending lead-210 and AMS age profiles from estuarine sediment cores to reconstruct Holocene climate change in the Sydney Region
<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker</th>
<th>Topic</th>
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<tbody>
<tr>
<td>15:20 - 15:40</td>
<td>Andreas Markwitz, GNS</td>
<td>Low energy lead implantation into Si for novel group IV nanomaterials</td>
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<td>15:40 - 16:00</td>
<td>Michael Gladys, University of Newcastle</td>
<td>Bridging the gap between the nano-particle and single crystal surface science</td>
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<td>16:00 - 16:30</td>
<td>Paul Munroe, University of NSW</td>
<td>Application of focused ion beam systems to materials analysis</td>
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16:30 – 18:30 **Poster Session 1** and Afternoon Tea

18:00 onwards BBQ

**Thursday 22nd November 2007**

**Session 4**

**Environment and Bioscience (3)**

Chair: David Cohen

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<thead>
<tr>
<th>Time</th>
<th>Speaker</th>
<th>Topic</th>
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<tr>
<td>09:00 - 09:30</td>
<td>James Robertson, AFP</td>
<td>Nuclear science and forensic science - complementary sciences!</td>
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<tr>
<td>09:30 - 09:50</td>
<td>Serena Abbondante, University of Canberra</td>
<td>Radiologically contaminated evidence: extraction procedures and the effect of radioactive materials on forensic DNA profiling</td>
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<td>09:50 - 10:10</td>
<td>Laura Gladkis, ADFA@UNSW</td>
<td>A new methodology in prosthesis research: radioisotope tracing of knee implant wear</td>
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<td>10:10 - 10:30</td>
<td>Amy Ziebell, University of Wollongong</td>
<td>Cylindrical silicon-on-insulator microdosimeter: charge collection characteristics</td>
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<td>10:30 - 11:00</td>
<td>Julian Adams, Australian Synchrotron</td>
<td>Protein crystallography using the Australian Synchrotron</td>
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<td>11:00 - 11:30</td>
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<td>Morning Tea</td>
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**Session 5**

**Nanotechnology (2)**

Chair: Andreas Markwitz

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<tr>
<th>Time</th>
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<th>Topic</th>
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<tbody>
<tr>
<td>11:30 - 12:00</td>
<td>Matt Kilburn, University of Western Australia</td>
<td>NanoSIMS: Recent advances and new applications in SIMS</td>
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<tr>
<td>12:00 - 12:20</td>
<td>Damian Carder, GNS</td>
<td>Ion-beam sputtered germanium thin films – self-assembly of surface nanostructure using post growth annealing</td>
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<td>12:20 - 12:40</td>
<td>Michael Dunn, University of Melbourne</td>
<td>Interface trap density reduction in thin silicon oxides using ion Implantation</td>
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<tr>
<td>12:40 - 13:00</td>
<td>Dinesh Venkatachalam, RMIT</td>
<td>Surface fraction statistics of gold nanoclusters of dissimilar sizes determined by RBS</td>
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</table>
13:00 - 13:30  | Rob Elliman, Australian National University
| Photonic nanostructures and their influence on Er luminescence

13:30 - 14:30  | Lunch

14:30 – 18:30  | Conference Tour of Synchrotron

19:00 - 22:30  | Conference Dinner at Treetops Restaurant, Melbourne Museum

**Friday 23rd November 2007**

**Session 6: Advanced Materials, Devices and Analysis**  | Chair: Chris Ryan

09:00 - 09:30  | John Kennedy, GNS
| Unravelling the mystery of zinc oxide

09:30 - 09:50  | Julius Orwa, University of Melbourne
| Towards a formula for optimized production of single NV centres in diamond by ion implantation

09:50 - 10:10  | Kane O’Donnell, University of Newcastle
| Neutral atom microscopy: a non-destructive, high-resolution surface analysis technique

10:10 - 10:30  | Andrew Baloglow, University of Wollongong
| Characterization of silicon detectors utilized in an on-line dosimetry system for microbeam radiation therapy

10:30 - 10:50  | Perry Davy, GNS
| Diffusion characteristics of silicon implanted with group IV elements

10:50 - 11:20  | Rachel Caruso, University of Melbourne
| Porous titanium dioxide materials fabricated by using templating techniques

11:10 - 11:30  | Morning Tea

11:30 -13:00  | Poster Session 2

13:00 - 14:00  | Lunch

14:00 - 16:30  | Session 7: Ion Beam Science and Advances in Analysis  | Chair: David Jamieson

14:00 - 14:30  | John O’Connor, University of Newcastle
| Helium ion microscope – high resolution, high contrast microscopy for nanotechnology
14:30 - 14:50  Chris Ryan, CSIRO
Next generation x-ray microspectroscopy: towards full-spectral XANES and high throughput fluorescence imaging using massively parallel detector arrays and realtime spectral deconvolution 100

14:50 - 15:10  Michael Went, Australian National University
Extended interface analysis using high energy electron scattering 104

15:10 - 15:30  Changyi Yang, University of Melbourne
Avalanche detector technology for keV single ion detection and implantation for quantum bits construction 108

15:30 - 15:50  David Cohen, ANSTO
Towards a better understanding and prediction of the bremsstrahlung background in PIXE spectra 111

15:50 - 16:10  Andrew Gleadow, University of Melbourne
Fully-automated counting of fission tracks in natural minerals for fission track dating and thermochronology 116

16:10 - 16:40  David Belton, CSIRO
PIXE imaging of a developing corrosion front beneath a protective coating on galvanized steel 119

16:40 - 17:00  Closing Remarks and Award of Prizes