



AUSTRALIAN INSTITUTE OF PHYSICS **15th Biennial Congress 2002**

physics and industry working together

SYDNEY CONVENTION & EXHIBITION CENTRE
DARLING HARBOUR, SYDNEY, NEW SOUTH WALES

Monday, 8 July to Thursday, 11 July 2002

INCORPORATING

Australian Conference
on Optical Fibre
Technology (ACOFT) &
Australian Optical
Society (AOS)



ENDORSED BY

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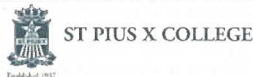
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The registration desk will be staffed in the Foyer of
 Sydney Convention Centre during the following times:

Sunday, 7 July	4.00pm–7.00pm
Monday, 8 July	8.00am–7.30pm
Tuesday, 9 July	8.30am–6.00pm
Wednesday, 10 July	8.30am–5.30pm
Thursday, 11 July	8.30am–5.30pm

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Congress AIP2002 will be the largest physics meeting in Australia in 2002. It incorporates the following Physics Conferences:

AINSE/Nuclear and Particle Physics

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Dr Stuart Tovey

Research Centre High Energy Physics, University of Melbourne

Atomic and Molecular Physics and Quantum Chemistry

Prof Igor Bray

Australian Professorial Fellow, Physics and Energy Studies, School of Mathematical & Physical Sciences, Murdoch University, Perth

Dr Julian Lower

Research Fellow, Atomic and Molecular Physics Laboratories, The Australian National University, Canberra

Australasian Society for General Relativity and Gravitation

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School of Mathematics, University of New South Wales, Sydney

Australian Conference on Optical Fibre Technology

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Australian Optical Society

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School of Physics, University of Melbourne

Prof Keith Nugent

School of Physics, University of Melbourne

Condensed Matter Physics

A/Prof Michelle Simmons

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Industry Forum

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School of Physics, University of Sydney

Vacuum Society of Australia

Dr Bruce King

Physics Department, University of Newcastle

Women in Physics

Dr Manjula Sharma

School of Physics, University of Sydney

PROGRAM IN DETAIL

MONDAY, 8 JULY 2002

KEYNOTE/PLENARY—AUDITORIUM

10.15am **OFFICIAL OPENING**
Hon Peter McGauran, Minister for Science

Session Chair John O'Connor

10.30am Photonics—Physics and Industry—Today and Tomorrow
Sceats, Mark

11.30am Revitalising Undergraduate Science: Why Some Things Work and Most Don't
Tobias, Sheila

12.30pm–1.00pm Particle—Antiparticle Symmetry Violation and Our Existence
Kayser, Boris

MASSEY MEDAL—AUDITORIUM

6.30pm–7.30pm Four dimensions: more or less?
Delbourgo, Bob

JOINT AINSE/NUPP/AMPQC/AOS—AUDITORIUM

Session Title In Honour of Geoff Opat 1935–2002
Session Chair David Neilson

2.00pm Geoff Opat, 1935–2002
Nugent, K

71–447 **2.15pm** Geoff Opat, particle physics and the early years
Tovey, S

413–428 **2.40pm** Geoff Opat and Neutron Optics 1975–1995
Klein, A

409–423 **3.05pm** Geoff Opat's Impact on Atom Optics 1983–2002
Hannaford, P

3.30pm–4.00pm **AFTERNOON TEA**

AINSE/NUPP—ROOM 5

Session Chair Stuart Tovey

233–193 **5.00pm** Studies of highly compressed nuclear matter using Au+Au at the Brookhaven AGS
Krofcheck, D

15–117 **5.30pm** Overview of lattice gauge theory at the CSSM
Williams, A

185–135 **5.50pm** Hadron masses from a novel fermion action in lattice QCD
Zanotti, J

18–11 **6.10pm–6.30pm** Predictions of total reaction cross sections for nucleon-nucleus scattering up to 300 MeV
Deb, P

ASGRG—ROOM 6

Session Chair To be confirmed

262–234 **2.00pm** Self-similar evaporation of a rigidly rotating cosmic string loop
Anderson, M

319–321 **2.18pm** General properties of cosmological models with an isotropic singularity
Scott, S

278–260 **2.36pm** A characterising feature of cosmological models with an isotropic singularity
Ericksson, G

21–10 **2.54pm** A gravitational conformal invariant model and coupling constants in 5D non-compact Kaluza-Klein gravity
Darabi, F

377–392 **3.12pm** Period solutions for the geodesic equations in the Reissner-Nordstrom universe
Mittelstu, G

3.30pm–4.00pm **AFTERNOON TEA**

CONTINUED

MONDAY, 8 JULY 2002 (continued)

	<i>Session Chair</i>	To be confirmed
180-257	5.00pm	The abstract boundary construction and singularity theorems Ashley, M
258-228	5.18pm	Gravitational collapse of higher dimensional inhomogeneous dust Beesham, A
95-94	5.36pm	Do the fundamental constants of Nature vary with time and distance? Flambaum, V
52-71	5.54pm	A variable fine structure constant? New results Murphy, M
160-93	6.12pm-6.30pm	A variation of the spacetime geometry equation Robinson, V

ACOFT—ROOM 3

	<i>Session Chair</i>	Thas Nirmathalas
	2.00pm	The new economy of light: taking a bite out of the price per bit in communication networks Ishak, W
121-44	2.45pm	Broad band amplitude noise of 40GHz subharmonically synchronous mode locked pulses Bao, H
210-163	3.00pm	Simplified method for calculating power penalties due to interferometric crosstalk from single or multiple interferers Dods, S
492-455	3.15pm	Impact of carrier pulse shape on 40Gb/s based DWDM transmission Wen
	3.30pm-4.00pm	AFTERNOON TEA

	<i>Session Chair</i>	John Love
624	5.00pm	A comparative study of optical network architectures Safaei, F
387-29	5.30pm	Add-drop multiplexing through dispersion inverted interference Aslund, M
198-150	5.45pm	Inorganic polymer glasses for integrated optics Luther-Davies, B
219-173	6.00pm	Stress and mode characterisation of HARE deposited films and rib waveguides Au, V
207-160	6.15pm-6.30pm	Planar waveguide add/drop wavelength filters based on segmented gratings Tomljenovic-Hanic, S

AOS—AUDITORIUM

	<i>Session Title</i>	Quantum Optics & Bose Einstein Condensates
	<i>Session Chair</i>	Chris Chantler
386-401	5.00pm	Simple atoms: QED tests and fundamental constants Karshenboim, S
326-330	5.30pm	Quantum magnification of classical sub-Planck phase space features Hensinger, W
209-162	5.45pm	Generating continuous variable optical quantum states and entanglement Lam, PK
64-55	6.00pm	Exact uncertainty relations in quantum optics Hall, M
432-451	6.15pm-6.30pm	A proposal for an infrared/optical beamline for the new Australian synchrotron project Creagh, D

CONTINUED

MONDAY, 8 JULY 2002 (continued)**CMP—ROOM 4**

<i>Session Title</i>	Fundamental Quantum States	
<i>Session Chair</i>	David Neilson	
497-404	2.00pm	The puzzle and promise of high-temperature superconductors Tallon, J (invited)
137-67	2.30pm	Bose condensation and BCS superconductivity Strinati, G (invited)
176-119	3.00pm	Dynamic localisation of optimally smooth AC electric fields de Sterke, M
34-60	3.15p	The Kondo lattice model Oitmaa, J
	3.30pm-4.00pm	AFTERNOON TEA
<i>Session Title</i>	Materials Physics sponsored by Scientific Technology Pty Limited	
<i>Session Chair</i>	Trevor Finlayson	
338-345	5.00pm	Indium nitride emerges Butcher, S (invited)
154-84	5.30pm	Application of high energy ion scattering techniques to the investigation of iron oxide surfaces and interfaces Maheswaran, S
389-406	5.45pm	Synthesis and characterisation of amorphous group-III (Al, Ga, In) nitrides by ion assisted deposition Lanke, U
320-323	6.00pm	Disorder effects on ferromagnetism in (III,Mn)V diluted, magnetic semiconductors Kennett, M
252-217	6.15pm-6.30pm	Multilayer thermionic cooling in semiconductor heterostructures Lough, B

PEG—ROOM 2

<i>Session Title</i>	Use of IT in Teaching	
<i>Session Chair</i>	Ian Johnston	
290-274	2.00pm	Physics education research in Australia: the future Logan, Peter
108-34	2.30pm	Prototype of the dry lab for the first year student in Indonesia Soengeng, R
135-61	2.50pm	Quizzing with WebCT Swan, G
153-81	3.10pm	Physics and PlayStation Too: learning physics with computer games Stapleton, A
	3.30pm-4.00pm	AFTERNOON TEA
<i>Session Title</i>	Interface of high school and university teaching	
<i>Session Chair</i>	Manjula Sharma	
192-142	4.50pm	Quandary in quantum Hogg, S
287-271	5.10pm	Inspiring physical science education Taylor, P
197-425	5.30pm	Just how different are they? Learning physics in the wake of the NSW HSC syllabus changeover Stewart, C
267-240	5.50pm	Photonics education and training in Australia: new initiatives in the tertiary, high school and industrial sectors Stevenson, A
187-137	6.10pm-6.30pm	Are interactive teaching techniques transferable across cultures? Johnston, I

CONTINUED

MONDAY, 8 JULY 2002 (continued)
POSTER SESSION 1—FOYER
4.00PM–5.00PM
(sponsored by CSIRO)

ASGRG	M-001-ASGRG	Theoretical researches of a relativistic gravitation Shumakov, F	
	M-002-ASGRG	The substantiation of the pulsate relativistic gravitational concept of an origin of energy of astronomical object Shumakov, F	
	M-003-ASGRG	Creation of the relativistic gravitational concept models of the universe Shumakov, F	
	M-004-ASGRG	Michelson-Morley experiment using whispering spherical mode resonators Tobar, ME	
	M-005-ASGRG	Variation in the fine structure constant in the thermonuclear reaction rates during the big-bang synthesis Mititelu, G	
ACOFT	M-006-ACOFT	Two-point source grating writing methods Ashton, B	
	M-007-ACOFT	Optimisation of refractive index sampling for multi-channel FBG devices Buryak, AV	
	M-008-ACOFT	New design of variable optical attenuator based on a bent channel waveguide Tomljenovic-Hanic, S	
	M-009-ACOFT	Wavelength dependent leakage in a Fresnel-based air-silica structured fibre Canning, J	
	M-010-ACOFT	Modelling of concentration dependence of fluorescence from neodymium-doped optical fibres and its application to strain and temperature sensing Collins, SF	
	M-011-ACOFT	Optical switching using dual-core erbium doped fibre Lu, Y-B	
	M-012-ACOFT	Optical nonlinearity of chalcogenide glasses for photonic devices Ruan, Y	
	M-013-ACOFT	Scaled-cladding designs for microstructured refractive index guiding optical fibres Town, G	
	M-014-ACOFT	Automatic synthesis of microstructured holey optical fibre using numerical optimisation Mitchell, A	
	M-015-ACOFT	Ge-doped silica optical waveguide fabrication by HARE-PECVD Bulla, D	
	M-016-ACOFT	Ion beam written gratings in multimode fibre Grant, G	
	M-017-ACOFT	Comparison of responsivity of in different fibres using UV irradiation at 246nm Ganeshkumar, G	
	M-018-ACOFT	Study of the enhancement of acousto-optic effect by off-centre fibre Liu, Y	
	M-019-ACOFT	Optical soliton solutions of the quintic complex Swift-Hohenberg equation Akhmediev, NN	
	M-020-ACOFT	Characterisation of induced axial stress in bent optical fibres Michna, ML	
	M-021-ACOFT	Reactive Evaporated Ge-SiO ₂ Thin Films for Planar Waveguide application Li, WT	
	PEG	M-021-PEG	Exploring Rotational Motion Swan, G
		M-022-PEG	Should we be more systematic about uncertainty? Kirkup, L
		M-023-PEG	Physics learning for the long haul—students' responses to cooperative learning and computer simulation strategies Mills, D

CONTINUED

MONDAY, 8 JULY 2002 *(continued)*

	M-024-PEG	Using Hands-On Activities in Tutorials Wilson, K
	M-025-PEG	On the repeated use of well designed conceptual problems in summative assessment tasks Sharma, M
	M-026-PEG	The use of qualitative analysis to measure changes in student perception of physics as a result of changes in HSC syllabus Leung, A
	M-027-PEG	Does the new NSW HSC physics syllabus lead students to think about their physics knowledge differently? Whymark, A
	M-028-PEG	Medical Physics training, education and accreditation: past present and future Suchowerska, N
INDUSTRIAL PHYSICS	M-029-IP	Jobs for physicists: much improved—but not in industry Prescott, J
	M-030-IP	Simulation and analysis of the magnetic treatment of naval vessels Baynes, T
	M-031-IP	Barrier properties of PET sheet Doolan, K
	M-032-IP	Arc physics calculations to explain the variability in weld depth in Tungsten Inert Gas welding Lowke, J
	M-033-IP	Monitoring agricultural insect pests and winds in the lower atmosphere using a low-cost mobile x-band profiling radar Dean, TJ
	M-034-IP	The effects of disclosures and grace periods on the patentability of inventions Brown, R
	M-035-IP	From plasma-physics to fusion research: the transformation of German fusion research institutes Küppers, G
	M-036-IP	A proposal for an Australian national proton facility Bleasel
	M-037-IP	Understanding laser cleaning: insights and improvements Fernandes, Alanna
AOS	M-038-AOS	Application of permanent magnetic microstructures in Integrated Atom Optics Scharnberg, F
	M-039-AOS	Non-interferometric phase imaging of an atomic vapour Colton, I
	M-040-AOS	Bose-Einstein condensates as quantum electromechanical transducers—BEcTronic devices Upcroft, B
	M-041-AOS	Approximate master equations for atom optics Atkins, D
	M-042-AOS	Thermal modeling of laser removal of optics and photonics mountants Kane, D
	M-043-AOS	UV Laser Cleaning—the impact of laser beam geometry and scanning on the removal of alumina particles from glass slides Fernandes, A
	M-044-AOS	Single-point measurement of strain using laser speckle Wilksch, P
	M-045-AOS	Measurement of optical properties of thin TiN films on silicon Wilksch, P
	M-046-AOS	Frequency response of higher-order extremely asymmetrical scattering Pile, D
	M-047-AOS	Fresnel diffraction of circular and zone plate apertures illuminated with ultra-short pulsed laser light Ashman, R
	M-048-AOS	Efficient vacuum ultraviolet lamps with increased irradiance Mildren, R
	M-049-AOS	Non-steady-state extremely asymmetrical scattering in uniform and non-uniform periodic gratings Gramotnev, DK

CONTINUED

MONDAY, 8 JULY 2002 (continued)

	M-050-AOS	Non-steady-state grazing-angle scattering of electromagnetic waves in wide uniform periodic gratings Gramotnev, DK
	M-051-AOS	Imaging characteristics of Optical Coherence Microscopy Sharma, M
	M-052-AOS	Non-steady-state extremely asymmetrical scattering in uniform and non-uniform periodic gratings Nieminen, T
	M-053-AOS	Phase measurement of waves obeying non-linear equations Paganin, D
	M-054-AOS	Near Field Measurements of a Wollaston Prism Shear Displacement Dragomir, N
	M-055-AOS	Proposed spectral distribution for a Gaussian pulse beam Roy, M
	M-056-AOS	Application of interferometry to a determination of thickness of metallic foils De Jonge, M
CMP— GROUP A	M-058-CMP	A first principles calculation of copper clustering in aluminium Smith, A
	M-059-CMP	Plasmon dispersion and quasiparticle band structures for noble metals Smith, A
	M-060-CMP	Electron momentum spectroscopy of the group I and II metal and oxides Ford, M
	M-061-CMP	Synthesis and structure of Sr-doped rare earth cobaltes James, M
	M-062-CMP	Structural distortions in the non-Fermi liquid system $CeCu_{6-x}Au_x$ Robinson, R
	M-063-CMP	Why is magnesium diboride's superconducting temperature increased by the hydrogenation process? Flambaum, V
	M-064-CMP	Search for magnetic order of the copper sub-lattice in the 'green phase' Gd_2BaCuO_5 Gubbens, PCM
	M-065-CMP	A ^{169}Tm Mossbauer investigation of $Tm_{2/3}Ca_{1/3}MnO_3$ Stewart, G
	M-066-CMP	Magnetic and valence transitions in $YbMn_2Si_{2-x}Ge_x$ Campbell, SJ
	M-067-CMP	Order in Cu_4Mn Hunter, B
	M-068-CMP	Atomic and magnetic structure of MnF_3 Hunter, BA
	M-069-CMP	Fracture propagation in 3.0 MeV H^+ implanted sapphire and magnesia crystals Gurarie, VN
	M-070-CMP	Radiation induced densification in amorphous silica Wooton, A
	M-071-CMP	Diffraction studies of a soft-mode phase transformation: Ni_2MnGa Finlayson, T
	M-072-CMP	Image state energies and lifetimes of noble metal surfaces Read, M
	M-073-CMP	D abstraction by atomic H on $D/Si(111)$ Khanom, F
	M-074-CMP	Formation of D_{20} and D_2 by O atoms on silicon (111) surfaces Rahman, FHM
	M-075-CMP	Atomic and electronic structure of metals chemisorbed on silicon surfaces Radny, MW
	M-076-CMP	Divergence of the coefficient of thermal conductivity (κ) in the FPU model Tempatarachoke P

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MONDAY, 8 JULY 2002 (continued)

CMP— GROUP B	M-077-CMP	Ion beam analysis of surface reactions in $\text{Na}_2\text{O-Al}_2\text{O}_3\text{-SiO}_2$ glasses exposed to aqueous solutions Maheswaran, S
	M-078-CMP	Inductance-dependent characteristics of HTS dc-SQUID amplifiers Mitchell, E
	M-079-CMP	Advances in heavy ion ERD and their relevance for materials analysis Weijers, TDM
	M-080-CMP	Developments of new generation nuclear microprobe systems at the University of Melbourne Rout, B
	M-081-CMP	Small-angle neutron scattering at the Australian replacement reactor Gilbert, E
	M-082-CMP	Neutron scattering studies of colossal magnetoresistive perovskites near the Curie temperature Ersez, T
	M-083-CMP	Neutron diffraction studies of structural deviations in cement clinker Peterson, V
	M-084-CMP	Cathodoluminescence microanalysis of defects induced in National Ignition Facility silica optics by high influence 3ω UV laser pulses Stevens-Kalceff, M
	M-085-CMP	Optical characterisation of low temperature grown gallium nitride Afifuddin, A
	M-086-CMP	Studies of AgMn ₅ N ₄ S ₄ spectrum of disordered Ag _{0.5} Pd _{0.5} alloy by Auger photoelectron coincidence spectroscopy (APECS) Jiang, ZT
	M-087-CMP	A New THz Thermal Sensor for Applications in Atmospheric Spectroscopy Kaila, M
	M-088-CMP	Methods for reducing the classical noise of an atom laser beam Robins, N

PROGRAM IN DETAIL

TUESDAY, 9 JULY 2002

INDUSTRY FORUM —AUDITORIUM *(sponsored by CSIRO)*

		<i>Session Chair</i>	John Lowke
358-405	11.00am		Semiconductor optoelectronic devices at ANU: from cutting-edge research to commercial opportunity Williams, Jim
151-79	11.20am		From concept to commercialisation: the manufacturing of fibre Bragg gratings in Australia Poole, Simon
395-413	11.40am		The Cochlear story Patrick, Jim
394-412	12.00noon		Engineering innovators in automotive steering and transport technology—Bishop Technology Group Robinson, David
393-411	12.20pm		Critical care diagnostics—AMBRI Ltd Cornell, Bruce
351-361	12.40pm-1.00pm		The Dynasphere—increasing the efficiency of lightning protection D'Alessandro, Franco

WALSH MEDAL—AUDITORIUM *(sponsored by Varian Australia)*

2.00pm-3.00pm Ian Bassett and John Haywood

PUBLIC LECTURE—AUDITORIUM

Session Chair P Fekete

7.00pm-8.00pm Great Moments in Science® The four forces and Murphy's Law
Karl Kruszelnicki

AINSE/NUPP—ROOM 5

Session Chair Bob Delbourgo

29-52	8.30am		A new classification of the fundamental particles Robson, BA
155-85	9.10am		Calculation of parity non-conservation in Cesium and possible deviation from the standard model Dzuba, VA
298-287	9.30am		Yrast, high-spin isomer and octupole correlations in ^{213}At Lane, GJ
332-338	9.50am		High spin states in light radon isotopes Hazel, JC
179-127	10.10am		Parity nonconservation in heavy atoms: the radiative correction enhanced by the strong electric field of the nucleus Sushkov, OP

10.30am-11.00am MORNING TEA

Session Chair BA Robson

292-279	3.00pm		Isomers as a probe of triple shape co-existence in neutron deficient Pb nuclei Dracoulis, GD
222-177	3.30pm		Non-linear effects in gas ionization detectors Weijers, TD
123-47	3.50pm		Density matrix renormalisation group approach to the massive Schwinger model Byrnes, T
171-12	4.10pm		Form factors and wave functions in covariant light-cone dynamics Leitner, O

4.30pm-5.00pm AFTERNOON TEA

Session Chair Anatoly Rozenfeld

165-104	5.00pm		Final results from the NOMAD experiment at CERN Varvell, K
72-267	5.30pm		Exotic fission fragment angular distributions Butt, R
308-303	5.50pm		Absence of fusion suppression due to breakup in the $^{12}\text{C}+^7\text{Li}$ reaction Mukherjee, A
95-96	6.10pm-6.30pm		Limits on cosmological variation of strong interaction and quark masses from big bang nucleosynthesis, cosmic, laboratory and Oklo data Flambaum, V

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TUESDAY, 9 JULY 2002 (continued)

AMPQC—ROOM 6

		<i>Session Chair</i>	Igor Bray
	8.25am		Opening Bray, Igor
117-39	8.30am		Parity and time invariance violation in mercury Ginges, JSM
386-448	9.00am		Laboratory search for variation of fundamental constants Karshenboim, SG
308-297	9.30am		Highly charged ions: a miniature laboratory for new fundamental science Gillaspy, J
286-270	10.00am		Recent developments in X-ray tests of QED Chantler, CT
	10.30am-11.00am		MORNING TEA

ACOFT—ROOM 3

		<i>Session Chair</i>	Martin de Sterke
580	8.30am		Integrated photonic crystal waveguide technology in Europe Kristensen, Martin
218-172	9.00am		Vector wave equation expansion method for leaky modes in microstructured optical fibres Issa, N
343-352	9.15am		Interferometric chromatic dispersion measurement of short length of MPOF Zhao, YC
173-115	9.30am		Novel microstructured optical fibres fabricated in polymer Large, M
183-132	9.45am		Single non-degenerate mode propagation in air-core Bragg fibres Bassett, I
199-151	10.00am		Optical continuum generation with nanosecond pump pulses in an irregularly microstructured optical fibre Town, G
96-22	10.15am		The Fresnel waveguide Canning, J
	10.30am-11.00am		MORNING TEA

		<i>Session Chair</i>	Stuart Jackson
625	3.00pm		Advanced grating components and where they are going Ibsen, Morten
255-223	3.30pm		Novel design of lossless planar x-junctions with variable transmission coefficients Sukhorukov, A
125-50	3.45pm		Exact soliton solution of the nonlinear Schrodinger Equation with distributed gain and anomalous group velocity dispersion Kruglov, VI
341-349	4.00pm		Investigation of dispersion effect on the bandwidth of parametric amplification De Sterke, M
562-459	4.15pm		Correction of systematic errors in FBG fabrication process Buryak, A
	4.30pm-5.00pm		AFTERNOON TEA

		<i>Session Chair</i>	David Psaila
473	5.00pm		Fibre components for systems: where they are going? Riant, Isabelle
167-106	5.30pm		Permanent refractive index modification in Ge-doped optical fibres using red light Kruhlak, R
175-351	5.45pm		DC—only apodisation of fibre Bragg gratings Ashton, B
140-73	6.00pm		Spectral optimisation of multi phase-shifted fibre Bragg gratings with multiple bandpass peaks Nirmalathas, T
528-458	6.15pm-6.30pm		Type I and type II Bragg gratings formation in polymer optical fibre Liu, Y

CONTINUED

TUESDAY, 9 JULY 2002 (*continued*)

AOS—AUDITORIUM

	<i>Session Title</i>	Laser and OPO Developments
	<i>Session Chair</i>	Murray Hamilton
257–225	8.30am	Resonator design issues and operation of a 1.4W diode-pumped Raman laser at 578nm Pask, H
158–91	8.45am	New tunes for pulsed optical parametric oscillators: injection-seeding strategies for spectroscopic applications He, Y
228–194	9.00am	Development of an Electro-optic Super Modulator Cusack, B
203–155	9.15am	Long-Cavity Variable-Repetition-Rate Passively Mode-Locked Nd:YVO4 Laser for Ultra-Fast Pulsed Laser Deposition Kolev, V
542–319	9.30am	Development of a 100W, single frequency, CW Nd:YAG Laser Veitch, P
277–259	9.45am	Room-temperature continuous-wave diode-pumped Tm,Ho:LuLiF4 laser at 2.1micron Sudesh, V
505–99	10.00am	Multiplex, continuous-wave spectroscopic sensing with a swept ringdown cavity and optical heterodyne detection Orr, BJ
195–146	10.15am	Mechanisms of ultrafast phase transition in gallium induced by femtosecond laser pulses Rode, A
	10.30am–11.00am	MORNING TEA
	<i>Session Title</i>	Atom Optics and Bose Einstein Condensates
	<i>Session Chair</i>	Keith Nugent
200–152	3.00pm	Multimode quantum model of a cw atom laser Hope, J
407–422	3.15pm	Atom trapping: application to electron collision studies of metastable helium Baldwin, K
225–182	3.30pm	The physics of collapsing and exploding dilute gas Bose-Einstein condensates Savage, C
340–348	3.45pm	A self-Locked magneto-Optic trap Fletcher, C
217–171	4.00pm	Reflection of laser-cooled atoms from high quality, micron-period, grooved magnetic mirrors McLean, R
251–216	4.15pm	Dynamic detection of a tunable atom laser Lye, J
	4.30pm–5.00pm	AFTERNOON TEA
	<i>Session Title</i>	Imaging and Visible/IR Optics
	<i>Session Chair</i>	Ken Baldwin
382–398	5.00pm	Recent Advances in Diffractive- and Micro-Optics Technology Morris, M (OSA President)
496–231	5.30pm	Large three dimensional optical transfer functions for high aperture systems with non-symmetric pupils Arnison, M
168–107	5.45pm	Splitting of the focal spot of a high numerical-aperture objective Lens in free space Chon, J
113–222	6.00pm	Modulational-instability gain bands in quasi-phase-matched materials Corney, J
291–276	6.15pm–6.30pm	An investigation of the axial properties of phase only filters Sharma, M

CONTINUED

TUESDAY, 9 JULY 2002 (continued)**CMP—ROOM 4**

	<i>Session Title</i>	Novel Characterisation
	<i>Session Chair</i>	Michael Ford
389	8.30am	Synchrotron Physics and Industry: New Opportunities for Technology Transfer (sponsored by Victorian State Government) Williams, P (invited)
204–156	9.00am	Detection and micro-segregation of molecules dissolved in solids Stevens-Kalceff, M (invited)
163–100	9.30am	Mossbauer, EPR and IR studies of Fe doped dielectric materials Srivastava, KKP
500–51	9.45am	Diffuse X-ray scattering as a probe of strain-induced nanoscale structure Welberry, TR
271–248	10.00am	Development of neutron beam facilities for the Australian replacement research reactor Kennedy, S
281–263	10.15am	Industrial use of synchrotron radiation in Australia Garrett, RF
	10.30am–11.00am	MORNING TEA

	<i>Session Title</i>	Advances in Silicon
	<i>Session Chair</i>	Cathy Foley
130–57	3.00pm	High efficiency silicon light emitting diodes Green, M (invited)
373–387	3.30pm	Progress towards a revolutionary quantum computer in silicon Jamieson, D (invited)
358–373	4.00pm	The impact of impurities and defects on device downscaling in silicon IC technology Williams, J (invited)
	4.30pm–5.00pm	AFTERNOON TEA

	<i>Session Title</i>	Biophysics/Soft Condensed Matter
	<i>Session Chair</i>	Ross McKenzie
157–89	5.00pm	Semiconducting photoactive biopolymers Meredith, P (invited)
136–66	5.30pm	Biomimetic engineering: towards a self-assembled nanotechnology Braach Makysvits, V (invited)
272–249	6.00pm	Correlation energy of inhomogeneous systems from RPA-like formalisms Dobson, J
367–381	6.15pm–6.30pm	Numerical study of localized electronic states in disordered and doped conjugated polymers Shahtahmasebi, N

INDUSTRIAL PHYSICS — ROOM 2

	<i>Session Chair</i>	Ken Doolan
172–114	3.00pm	A desktop-size, tiled, computer display with uniform illumination and applications in astronomy and archaeology Bordes, N
358–405	3.30pm	Semiconductor optoelectronic devices at ANU: from cutting-edge research to commercial opportunity Williams, J
	4.00pm	Industry Poster Presentation Summaries
	4.30pm–5.00pm	AFTERNOON TEA
	<i>Session Chair</i>	Ken Doolan
391–408	5.00pm	A proposal for an Australian national proton facility Bleasel, S
434–454	5.30pm–6.00pm	How granted patents are used in different industries—why VIAGRA is different from VELCRO Old, F

CONTINUED

TUESDAY, 9 JULY 2002 *(continued)*

PEG—ROOM 2

	<i>Session Title</i>	Teaching and learning in labs
	<i>Session Chair</i>	Peter Logan
102-318	8.30am	Revitalizing undergraduate science; why some things work and most don't Tobias, Shelia
490-391	9.00am	A robust experimental setup of Ruchardt's method for measuring the ratio of specific heat in air for a first year undergraduate laboratory Tuck, Gary
366-379	9.20am	First year teaching laboratories: What's the point? Hunt, M
32-186	9.40am	Making a virtue of necessity: using pre-lab activities to enhance the practical experience Pollard, J
33-315	10.00am	Undergraduate physics laboratory—students' views of the first year Feteris, S
	10.30am-11.00am	MORNING TEA

PEG—ROOM 6

	<i>Session Title</i>	Innovative methods of teaching
	<i>Session Chair</i>	Chris Stewart
324-328	3.00pm	Context-based assessment for improved learning in an introductory service course Rayner, A
345-363	3.20pm	Integrated learning: a new teaching strategy for teaching physics to scientists and engineers Furst, J
38-188	3.40pm	Development of a new approach to teaching sports mechanics Hogg, K
40-83	4.00pm	Supply teaching in physics: Time for a fair go Kirkup, L
291-278	4.20pm	A classroom communication system for large first year physics classes Sharma, M
	4.40pm-5.00pm	AFTERNOON TEA

WIP—ROOM 6

	<i>Session Chair</i>	Suzanne Hogg
102-317	5.00pm	Confucius: One barrier down, next barrier higher Tobias, Shelia
421-436	5.30pm	The IUPAP Women in Physics International Conference: an Australian perspective Dall'Armi-Stoks, G
291-435	5.45pm	A report on various studies on Women in Physics Sharma, M
	6.00pm-6.30pm	Women in research Garnett, Helen (Guest Speaker)

PROGRAM IN DETAIL**WEDNESDAY, 10 JULY 2002****KEYNOTE/PLENARY—AUDITORIUM***Session Chair* Keith Nugent

- 9.00am** Physics—the Agony and the Ecstasy
Jones, Alun
- 9.30am** Taming individual atoms and photons
Rempe, Gerhard
- 10.00am** Atomic Collisions: applications, Advances and Challenges
Burke, Phillip
- 10.30am** **MORNING TEA**

Session Chair David Neilson

- 11.00am–12.00** Organic molecular crystals: new perspective for science and technology
Batlogg, Bertram

BRAGG MEDAL—AUDITORIUM

- 1.00pm–2.00pm** Neutrino oscillations in the early universe
Bell, Nicole

PUBLIC LECTURE—AUDITORIUM*Session Chair* P Fekete

- 4.00pm–5.00pm** The Last Man to Walk on the Moon
Harrison Schmitt

AINSE/NUPP—ROOM 5*Session Chair* K Varvell

- 390–407 **2.00pm** Recent results on charge—parity symmetry violation at the Belle experiment
Moloney, G
- 329–347 **2.30pm** Explicitly symmetrical treatment of three-body phase space
Delbourgo, R
- 178–121 **2.50pm** Chiral physics in lattice QCD
Young, RD
- 28–46 **3.10pm** Chiral extrapolation of lattice data for the hyperfine splittings of heavy mesons
Guo, Xin-Heng

3.30pm–4.00pm **AFTERNOON TEA***Session Chair* Baxter

- 71–306 **5.00pm** The future of experimental HEP in Australia
Tovey, S
- 124–49 **5.30pm** Mirror matter
Ignatiev, A
- 305–299 **5.50pm** Surface diffuseness of nuclear potential from heavy-ion fusion reactions
Dasgupta, M
- 335–341 **6.10pm–6.30pm** TROIKA—a three-stub superconducting resonator for heavy ion accelerators
Weisser, D

AMPQC —ROOM 6*Session Chair* Julian Lower

- 97–23 **2.00pm** (e,2e) experiments on water
Milne-Brownlie, D
- 232–192 **2.22pm** Analysis of TCNQ-TTF molecular diodes
Gray, X
- 328–372 **2.44pm** New method to build a sapphire probe oscillator for atomic frequency standards
Tobar, ME
- 27–48 **3.06pm–3.30pm** Electron-impact excitation in upper-atmosphere remote sensing
Campbell, L

AFTERNOON TEA*Session Chair* Igor Bray

- 419–433 **5.00pm** Characterisation of a metastable neon magneto-optical-trap
Ashmore, JP
- 420–434 **5.22pm** Low energy electron impact ionization of Krypton
Haynes, MA

CONTINUED

WEDNESDAY, 10 JULY 2002 (continued)

169-108	5.44pm	Asymmetry of polarized electrons scattered elastically from Krypton Went, MR
301-21	6.06pm-6.30pm	Electron-helium scattering within the s-wave model Plottke, C

ACOFT —ROOM 3

	<i>Session Chair</i>	David Booth
465	2.00pm	Patents in Photonics Koch, Michael
502	2.30pm	Optical coherence tomography: technology and applications Sampson, David
310-310	3.00pm	Annealing effects in optical fibres used in fluorescence-based temperature sensing Wade, R
236-196	3.15pm	Dual strain and temperature sensor using a fluorescence intensity ratio in Er ³⁺ -doped fibre combined with a fibre Bragg grating Trpkovski, S
	3.30pm-4.00pm	AFTERNOON TEA

	<i>Session Chair</i>	Adrian Carter
622	5.00pm	Automation in manufacture of photonic components Hill, Peter
495-123	5.30pm	Tapered air-silica microstructures for evanescent field sensing Gibson, B
325-329	5.45pm	Refractive index profiling of axisymmetric optical fibres using quantitative phase microscopy Ampem-Lassen, E
342-350	6.00pm	Low-loss, ultra-tight bends using tapered optical fibres Katsifolis, J
223-178	6.15pm-6.30pm	Numerical simulation of a speciality optical fibre drawing process Lyytikainen, K

AOS—AUDITORIUM

	<i>Session Title</i>	X-ray and Synchrotron Science and VUV Optics
	<i>Session Chair</i>	Halina Rubinsztein-Dunlop
303-295	2.00pm	Quantum dots, near-UV & X-ray physics, and spectroscopy of highly charged ions at the NIST electron beam ion trap facility Gillaspy, J
331-333	2.30pm	Glass-ceramic based X-ray storage phosphors Williams, GVM
307-302	2.45pm	Quantitative X-ray projection ultramicroscopy using an SEM Wilkin, S
148-77	3.00pm	Developments in the precise determination of Im(f) for medium-Z Metals: Molybdenum De Jonge, M
116-38	3.15pm	Spatial coherence measurement of hard X-ray undulator radiation using uniformly redundant arrays (URA) Lin, John
	3.30pm-4.00pm	AFTERNOON TEA

JOINT AOS/ASGRG —AUDITORIUM

	<i>Session Title</i>	Hanbury-Brown, 1916-2002
	<i>Session Chair</i>	Duncan Butler
286-269	5.00pm	The Hanbury Brown—Twiss Interferometer: A 46-year perspective Chantler, C
139	5.15pm	Hanbury Brown and gravity waves Barish, B
106-95	5.30pm	Interference fringes from four-time correlations of wave fields Hamilton, M
321-334	5.45pm	Geometric Phase Modulation for Stellar Interferometry Roy, M
120-43	6.00pm	Future Prospects for Stellar Intensity Interferometry Lake, R

CONTINUED

WEDNESDAY, 10 JULY 2002 (continued)

230-214	6.15pm	Experimental demonstration of a squeezing enhanced power recycled Michelson interferometer for gravitational wave detection McKenzie, K
249-213	6.30pm	Experimental demonstration of a variable reflectivity signal recycled Michelson interferometer for gravitational wave detection De Vine, G
559-284	6.45pm-7.00pm	Wavefront distortion in optical cavities for gravitational wave interferometers Brooks, A

CMP—ROOM 4

		<i>Session Title</i>	<i>Polymers (sponsored by Dupont)</i>
		<i>Session Chair</i>	Stephen Collocot
428-444	2.00pm	Nanotechnology—the key to unlocking the intrinsic properties of inherently conducting polymers Wallace, G (invited)	
280-262	2.30pm	Percolation model for electron conduction in films of metal nanoparticles linked by organic molecules Muller, KH (invited)	
190-140	3.00pm	Synchrotron X-ray studies of the statics and dynamics of fluctuations at the surfaces of polymer films Sinha, S (invited)	
	3.30pm-4.00pm	AFTERNOON TEA	

		<i>Session Title</i>	<i>Electronic devices (sponsored by Prodigital)</i>
		<i>Session Chair</i>	David Jamieson
349-360	5.00pm	High temperature superconducting SQUID applications Foley, C (invited)	
425-441	5.30pm	Fast read-out for semiconductor based quantum computation Hamilton, AR (invited)	
179-122	6.00pm	Conductance structure in a 1-D quantum contact: dependence on the longitudinal magnetic field Sushkov, O	
348-359	6.15pm	Density dependent spin polarisation in ultra low-disorder quantum wires Reilly, DJ	
138-70	6.30pm	The dependence of fractal conductance fluctuations on the discrete level spectrum and soft-wall potential profile in semiconductor billiards Micolich, A	

MEDICAL PHYSICS—ROOM 2

		<i>Session Chair</i>	Brian Hutton
354-368	2:00pm	Development of a coded aperture SPECT system for non-invasive functional imaging of laboratory animals Meikle, SR	
355-369	2:20pm	Motion compensation in list-mode emission tomography Fulton, R	
273-253	2:40pm	Development of new detector module for use in positron emission tomography Lerch, M	
243-207	2:55pm	Lymphoscintigraphy and lymphobiopsy utilising the gamma probe Munoz-Ferrada, C	
89-59	3:15pm	Special type plastic scintillator dosimetry of low energy alpha and beta particles Geso, M	
	3.30pm-4.00pm	AFTERNOON TEA	

		<i>Session Chair</i>	To be confirmed
122-45	5:00pm	Neurophysical modelling of brain dynamics Robinson, PA	
49-76	5:20pm	Wave dynamics in a neurophysiological model of electroencephalography Rowe, DL	
212-166	5:40pm	Topographic organisation of nonlinear interdependence in multichannel human EEG Breakspear, M	
250-215	6:00pm	A system for the treatment of cancer by magnetically mediated arterial embolisation hyperthermia Jones, S	
396-414	6:15pm-6.30pm	Preclinical studies and clinical trial of targeted alpha therapy for cancer Allen, BJ	

PROGRAM IN DETAIL

THURSDAY, 11 JULY 2002

KEYNOTE/PLENARY—AUDITORIUM

Session Chair Michelle Simmons

- 9.30am** Physics and Engineering—Breaking Down the Barriers
William, Sir Peter
- 10.00am** LIGO and the Search for Gravitational Waves
Barish, B
- 10.30am** Measuring the Universe with Supernovae
Schmidt, Brian

Session Chair Anatoly Rozenfeld

- 11.00am** **MORNING TEA**
- 11.30am–12.30pm** Hedron Therapy
Maughan, Richard

AINSE/NUPP—ROOM 5

Session Chair Williams

- 294–307 **2.30pm** Observation of excited states in the near-dripline nucleus ^{125}Pr
Wilson, AN
- 309–309 **2.50pm** Geometrical effects in fusion cross sections for deformed nuclei
Gontchar, I
- 214–168 **3.10pm** Accelerated chiral symmetry on the lattice
Kamleh, W
- 293–281 **3.30pm** Shape coexistence and isomeric states in ^{187}Ti
Byrne, AP
- 164–101 **3.50pm** Leptons in hot and dense media
Masood, SS
- 4.15pm–4.45pm** **AFTERNOON TEA**

Session Chair S Tovey

- 415–453 **4.30pm** The Neutrino world: present and future
Kayser, B
- 431–449 **5.10pm** The evolution of shape co-existence in Z82 nuclei
Kibédi, T
- 159–92 **5.30pm** Monte Carlo study of Abelian Lattice Gauge theory on anisotropic lattices in (2+1) dimensions
Loan, M
- 296–283 **5.50pm–6.30pm** Isomeric states in ^{191}Pb
Baxter, AM

AMPQC—ROOM 3

Session Chair Julian Lower

- 88–19 **2.30pm** Photo double excitation of helium in a strong DC electric field
Sullivan, J
- 156–86 **3.00pm** X-ray extended-range technique for precision measurement of the X-ray mass attenuation coefficient and $\text{IM}(f)$ for SLICON using synchrotron radiation
Tran, CQ
- 345–355 **3.30pm–4.00pm** Photoluminescence in conjugated polymers
Furst, JE

ASGRG—ROOM 6

Session Chair To be confirmed

- 139–72 **2.30pm** The status and prospects for LIGO
Barish, B
- 107–290 **3.25pm** Progress report from ACIGA
McClelland, D
- 319–390 **3.50pm** Gravitational wave astronomy strategies and AIGO
Scott, S
- 4.15pm–4.45pm** **AFTERNOON TEA**

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THURSDAY, 11 JULY 2002 (continued)

	<i>Session Chair</i>	To be confirmed
228-187	4.45pm	Global correlations in physical environment monitors for gravitational wave detection Cusack, B
194-145	5.03pm	Spectral lines removal for GW astronomy Searle, A
328-332	5.20pm	Microwave frequency standards: tools for testing the foundations of physics in the laboratory and on board in the international space station Tobar, M
283-265	5.38pm	Direct measurement of thermal noise of a flexure suspension Slagmolen, B
80-342	5.55pm	A direct measurement of the spectrum of thermalelastic noise in sapphire Hollitt, C
253-219	6.13pm-6.30pm	Vibration isolation and test mass suspension for laser interferometer gravitational wave detector Ju, L

JOINT ACOFT/AOS—AUDITORIUM

	<i>Session Title</i>	<i>Session Chair</i>
	Propagation in Fibre Optics	Stephen Collins
385-400	2.30pm	Optical fibre sensors for temperature and strain determination: applications to industrial monitoring Grattan, Ken
416-431	3.00pm	New directions in optical fibre characterisation Roberts, A
375-389	3.15pm	Dispersion and structural losses in photonic crystal fibres White, T
188-138	3.30pm	Propagation in straight and bent photonic crystal waveguides Botten, L
211-164	3.45pm	Photonic bandgaps in woodpile structures Botten, L
96-25	4.00pm	2D array structures in planar waveguides using periodic hypersensitisation Canning, J
	4.15pm-4.45pm	AFTERNOON TEA

AOS 1—AUDITORIUM

	<i>Session Title</i>	<i>Session Chair</i>
	Applications of Lasers and Optical Technology	Chris Walsh
422-438	5.15pm	Quantitative phase-amplitude microscopy: from ARC research project to public company Nugent, K ISTEHS A DOUBLE UP
186-136	5.30pm	Feasibility of photonic sigma-delta analog-to-digital conversion Clare, B
302-293	5.45pm	Quantitative real-time imaging of high-temperature superconductors Paganin, D
156-87	6.00pm	Accurate determination of the thickness of thin specimens and applications in x-rays attenuation measurements Tran, CQ
237-198	6.15pm	Alignment and controlled rotation of microparticles in Gaussian beam laser traps Nieminen, T
191-141	6.30pm	Thermal expansion model of dry laser cleaning applied to alumina/glass system Pleasants, S
324-337	6.45pm-7.00pm	Practical considerations for laser refrigeration of solids Rayner, A

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THURSDAY, 11 JULY 2002 (continued)
AOS 2—ROOM 3

	<i>Session Title</i>	Quantum Computation/Quantum Information Processing
	<i>Session Chair</i>	Murray Hamilton
295-282	5.15pm	Building a high efficiency quantum interrogation detector Wang, Q
279-261	5.30pm	Using quantum process tomography in optics Langford, N
304-298	5.45pm	Single Rail Quantum Logic in Optics Lund, A
336-343	6.00pm	Hamiltonian simulation, entanglement and universal quantum computers Bremner, MJ
346-356	6.15pm	Experimental implementation of efficient linear optics quantum computation O'Brien, J
282-264	6.30pm-7.00pm	Photon Fishing Gilchrist, A

CMP—ROOM 4

	<i>Session Title</i>	Low Dimensional Systems
	<i>Session Chair</i>	Jaan Oitmaa
269-246	2.30pm	Excitonic condensation in a symmetric electron-hole bilayer Senatore, G (invited)
312-312	3.00pm	Generation of acoustic phonons from quasi-two-dimensional hole gas Singh, J (invited)
379-395	3.30pm	Quantum heat engines with carnot efficiency Humphrey, T
221-181	3.45pm	In search of a quasi-zero dimensional quantum spin-switching device Hancock, Y
259-233	4.00pm	Magnetic polarisation currents in double quantum dot interferometers Cho, SY

4.15pm-4.45pm AFTERNOON TEA

	<i>Session Title</i>	Nanotechnology sponsored by Talbot Street and Associates Pty. Limited
	<i>Session Chair</i>	Chris Pakes
152-80	4.45pm	Atomic force microscope images of nanobubbles on a hydrophobic surface Tyrell, J (invited)
371-385	5.15pm	Nano-scale structures, reactivities and catalyses at TiO ₂ and CeO ₂ single crystal surfaces by STM and NC-AFM Iwasawa, Y(invited)
69-227	5.45pm	Investigation of split-off dimers on the Si(001)2x1 surface Schofield, S
549-397	6.00pm-6.15pm	Nanoscan of piezoelectric activity using an atomic force microscope Zheng, Z

MEDICAL PHYSICS—ROOM 2

	<i>Session Chair</i>	Anthony Rozenfeld
315-316	2:30pm	Intensity-Modulated Radiotherapy—the state of the art Ling, C
109-110	3:15pm	Intensity Modulated Radiation Therapy (IMRT) for better dose targeting Metcalfe, P
61-103	3:35pm	Comparison of measured and calculated doses for narrow MLC defined fields Lydon, J
81-144	3:55pm	Rectal Dose During Radiotherapy: how much is too much? Booth, J
	4.15pm-4.45pm	AFTERNOON TEA

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THURSDAY, 11 JULY 2002 (continued)

Session Chair		Peter Metcalfe
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|---------|----------------------|---|
| 248-252 | 4:45pm | MOSFET dosimetry of the radiation therapy Microbeams at the European Synchrotron Facility
Rozenfeld, A |
| 77-251 | 5:05pm-5.25pm | Dose distribution determination of Ruthenium-106 Ophthalmic applicators
Takam, R |

Session Chair		Richard Maughan
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|---------|----------------------|---|
| 406-421 | 5:25pm | The Australian National Proton Facility
Jackson, M |
| 268-245 | 6:00pm | Neutron Field Characterization and Dosimetry at the TRIUMF Proton Therapy Facility
Mukherjee, B |
| 193-143 | 6:15pm-6.30pm | Improvement of SOI microdosimeter performance using pulse shape discrimination techniques
Cornelius, I |

POSTER SESSION 2—FOYER 1.30PM-2.30PM (sponsored by School of Physics, UNSW)

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|-------------------|------------------|---|
| AINSE/NUPP | T-001-AINSE/NUPP | Effects of ion implantation on thin films of poly(styrene-co-acrylonitrile) (SAN)
George, L |
| | T-002-AINSE/NUPP | Gamma ray detector with lead scintillating tiles and WLS fibre readout for the GDH—
Experiment at SPRING8—Japan
Geso, M |
| | T-003-AINSE/NUPP | Excitation and decay paths in $^{180\text{m}}\text{Ta}$, nature's rarest isotope
Dracoulis, G |
| | T-004-AINSE/NUPP | A new silicon sensor for use in radiation damage monitoring systems
Rozenfeld, A |
| | T-005-AINSE/NUPP | Theoretical fission times for U and Pb Nuclei Excited up to 250 MeV
Gontchar, II |
| | T-006-AINSE/NUPP | Searches for violation of the combined space reflection (P) and time reversal (T) symmetry
in solid state experiments
Sushkov, OP |
| | T-007-AINSE/NUPP | Consistency conditions on Dirac wavefunctions in diverse dimensions
Legg, G |
| | T-008-AINSE/NUPP | Laser-plasma interaction for application to fusion energy
Osman, F |
| | T-009-AINSE/NUPP | Compton Scattering from the K Shell electrons of Ta and Pb
Thanomngam, P |
| | T-010-AINSE/NUPP | Neutrinos in the Magnetic Field
Masood, SS |
| | T-011-AINSE/NUPP | The nuclear Schiff moment
Ginges, JSM |
| | T-012-AINSE/NUPP | Commissioning the 150 keV radioactive ion implanter for materials studies
Timmers, H |
| | T-013-AINSE/NUPP | GRID Computing for Experimental High Energy Physics
Moloney, G |
| AMPQC | T-014-AMPQC | Measuring positron scattering cross sections in a magnetic field
Sullivan, J |
| | T-015-AMPQC | Positron interactions with one and two-electron atoms
Bromley, MWJ |
| | T-016-AMPQC | Breit interaction correction to the hyperfine constant of an external s-electron in many-electron atom
Sushkov, OP |
| | T-017-AMPQC | Electronic relaxations followed by shake up and shake off processes near K threshold
photoionisation of copper atom
Dhal, BB |

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THURSDAY, 11 JULY 2002 (*continued*)

AOS	T-018-AOS	Cr4+: YAG laser design and optimisation Liu, H
	T-019-AOS	Cavity design of A Yb:YAl ₃ (BO ₃) ₄ Kerr Lens mode-locked laser Song, Y
	T-020-AOS	Two-section semiconductor lasers subject to optical feedback Coyle, R
	T-021-AOS	Optimization of chirped pulse amplification systems using Martinez Stretcher Song, Y
	T-022-AOS	Tunable yellow Yb:YAB laser operation Dawes, J
	T-023-AOS	Frequency-converted Nd:YAG laser producing output at 599nm Pask, H
	T-024-AOS	Improving the quality of output beams produced with Unstable Laser resonators (ULRs) employing on-axis spot reflector Saghafi, S
	T-025-AOS	Dependence of the fluorescence lifetime with dopant concentration and pump power in erbium-doped optical fibres Nguyen, T
	T-026-AOS	Numerical modelling of surface plasmon enhanced transmission of light through sub-wavelength apertures in thin metal films Allan, R
	T-027-AOS	Integration of forward light transport and lateral illumination of polymer optical fibre Deller, C
	T-028-AOS	Effects of disorder in photonic crystal waveguides Langtry, T
	T-029-AOS	Use of optical signals in analogue-to-digital conversion Grant, K
	T-030-AOS	Considerations for an expansion method used to calculate leaky modes in microstructured optical fibres Issa, N
	T-031-AOS	Silicon nanocrystal photonics: luminescence, waveguides and microcavities Elliman, R
	T-032-AOS	Fabrication of Bragg grating in highly germanium-doped planar waveguide Ganeshkumar, G
	T-033-AOS-A	Linear optics quantum logic gates in the real world Bell, T
	T-033-AOS	Detector and spectrometer development for QED measurements using an EBIT Christodoulou, G
	T-034-AOS	Infrared overtone spectroscopy of ammonia—Development of a Near Infrared Sensor based on Laser Absorption Spectroscopy Englich, FV
	T-035-AOS	Quantitative determination of the effect of harmonic component in monochromatised synchrotron X-ray beam experiments Tran, CQ
	T-036-AOS	Improved resolution phase imaging using a hybrid TIE/Oversampling method Mancuso, A
	T-037-AOS	Systematics and precision in energy calibration in atomic form factor experiments for Cu, Ag and Au at the Photon Factory (Tsukuba) Dhal, BB
	T-038-AOS	Simultaneous phase and amplitude extraction from a single defocused image of a homogeneous object Paganin, D
	T-039-AOS	Upgrades to X-ray data collection system leading to absolute measurements of mass attenuation coefficients and sub-micro thickness variation detection using a local source Kinnane, MN
	T-040-AOS	The use of radiation for the study of Aboriginal artefacts Creagh, D
	T-041-AOS	Do final state relaxation channels contribute to Extended X-ray Absorption Fine Structure (EXAFS)? Dhal, BB
	T-042-AOS	Measurement of meteor speeds using a Fresnel transform Campbell, L

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- T-043-CMP Quantum trajectories and quantum measurement theory in solid-state mesoscopics
Goan, H-S
- T-044-CMP The Hubbard model with external fields: an application to inhomogeneous quasi-zero dimensional devices at zero and finite temperature
Hancock, Y
- T-045-CMP Kondo correlation and persistent currents in quantum dot coupled to Aranov-Bohm rings
Cho, SY
- T-046-CMP Polaronic transport through molecules and quantum dots
Lundin, U
- T-047-CMP On the conductance properties of a molecular wire: a tight binding study
Shahtahmasebi, N
- T-048-CMP Low temperature properties of 2D electrons in weakly disordered materials
Neilson, D
- T-049-CMP Universal phase diagram in the floating up of quantum Hall extended states as $B \rightarrow 0$ and the apparent 'metal'-insulator transition at $B=0$
Yasin, C
- T-050-CMP Study of weak localisation in high quality 2D p-GaAs systems
Yasin, C
- T-051-CMP Superconductivity mediated by charge fluctuations in layered molecular crystals
McKenzie, R
- T-052-CMP Heterogeneous aging in spin glasses
Kennett, M
- T-053-CMP Generalised stability law for Josephson arrays
Mukesh, D
- T-054-CMP Phase diagram of the spin-orbital model on the square lattice
Zasinas, E
- T-055-CMP Spontaneous spin stripe dimerisation in the doped t-J model and pseudogap in cuprate superconductors
Sushkov, O
- T-056-CMP Critical dynamics of singlet and triplet excitations in strongly frustrated spin systems
Sushkov, O
- T-057-CMP The doped t-J ladder via series expansions
Hamer, C

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- T-058-CMP Phosphine interaction with Si(100): the processes of adsorption, dissociation and incorporation in relation to quantum computer fabrication
Curson, N
- T-059-CMP Atomistic modelling of solid state quantum computer fabrication
Wilson, H
- T-060-CMP Encapsulation of phosphorus via epitaxial silicon growth for the fabrication of a solid state quantum computer
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- T-061-CMP Radio frequency single electron transistors: read-out for a solid state quantum computer
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- T-062-CMP Decoherence in the Kane quantum computer
Fowler, A
- T-063-CMP Twin-SET architecture for increased fault-tolerance during quantum bit read-out
Brenner, R
- T-064-CMP Voltage dependence of coupling strengths in the Kane quantum computer
Wellard, C
- T-065-CMP Analytical bounds on SET charge sensitivity for qubit readout in a SSQC
Green, F
- T-066-CMP Applications of TCAD in the Australian Centre for Quantum Computer Technology
Pakes, C

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	T-068-CMP	Top-down nanofabrication of single ion implanted silicon quantum computer devices Stanley, F
	T-069-CMP	DLTS studies of charge traps introduced in Si by channeling ion implantation of phosphorus McCallun, J
	T-070-CMP	Electron beam lithography and nanofabrication techniques for optimisation and minaturisation of a SSQC Chan, V
	T-071-CMP	Demonstration of single ion implantation detection for quantum computer fabrication Yang, C
MEDICAL PHYSICS	T-072-MP	Spatial Frequency Analysis of the Human Electrocardiogram O'Conner, SC
	T-073-MP	Radiation Shielding and Health Physics Instrumentation for PET Medical Cyclotrons Mukherjee, B
	T-074-MP	Readout and Characterisation of New Silicon Pixel Photodiode Array for use in PET Hooper, P
	T-075-MP	Radiation safety and operational health physics of hospital based medical cyclotrons Mukherjee, B
