Major Awards and Publications

Books, journal articles and reports, along with conference and workshop presentations, are the primary means by which research accomplishments are communicated. Their measure, together with patents and the award of special honours, medals and distinctions, are clear indicators of the achievements of the School during the year. Some highlights of the latter are mentioned at greater length in the Director’s report. A complete list of major awards is presented below.

Over 170 papers were published in refereed journals this year, as detailed below. Also listed in this section are invited and/or keynote presentations, totalling 78 that were presented at domestic and international workshops and conferences. Details of other conference and workshop presentations may be found on the School web by department: http://rsphysse@anu.edu.au

The papers published by staff of the School are listed in this section according to the authors’ affiliation. Many papers have authors from more than one department. These have been assigned according to the affiliation of the first RSPhysSE author. In a few cases, this author has a joint appointment with two departments. In these cases, the paper appears in both lists, with the words “also listed under Theoretical Physics”, for example, following the reference.
Dr Gustave Azevedo, EME, was awarded an Australian Research Council Postdoctoral Fellowship to commence in 2002.

Dr Rowena Ball, TP, was awarded an Australian Research Council Postdoctoral Fellowship. She also received a Travelling Fellowship to the UK awarded by the Australian Academy of Science.

Ms Annette Berriman, NP, received an award for the best Oral Presentation by a Postgraduate student at the 18th Nuclear and Particle Physics Conference in Adelaide from 10–15 December 2000. Ms Berriman was the winner of the Director’s Award for the best publication by a student for her paper Unexpected Inhibition of Fusion in Nucleus-Nucleus Collisions published as a letter in Nature 413 (2001) 144–147.

Mr Scott Collis, PRL, was the winner of the Graduate Student Seminar Series “John Carver Prize” for his talk entitled Density Studies in H-1NF at 1/2 Tesla.

Dr Vince Craig, AM, was awarded an Australian Research Council Fellowship to commence in 2002.

Dr Anton Desyatnikov, DU, was awarded an Alexander von Humboldt Research Fellowship.

Professor Robert Elliman, EME, was elected a member of the International Advisory Board for the conference series entitled: “Atomic Collisions in Solids”. He was also elected a member of the Governing Council of the Electronic Materials and Processing Division (EMPD) of the International Union of Vacuum Societies and Technical Associations (IUVSTA).

Professor Neville Fletcher, EME, was appointed an Associate Editor of the Journal of the Acoustical Society of America.

Mr Tom Halstead, EME, was presented with the School’s 30-year pin for extended services to RSPhysSE.

Professor Jeffrey Harris, PRL, was elected as a Senior Member of the Institute of Electrical and Electronics Engineers (USA) and a Fellow of the Australian Institute of Physics.

Professor C. Jagadish, EME, was appointed an Associate Editor of the Journal of Nanoscience and Nanotechnology, American Scientific Publishers. He was also elected to the Fellowship of the Institute of Nanotechnology (UK) and to the Fellowship of the Institute of Electrical and Electronics Engineering (IEEE) for his contributions to “III-V Compound Semiconductor Optoelectronic Device Integration”.

Dr Anatoli Kheifets, TP, received a Visiting Fellowship from the Japan Society for Promotion of Science. He was also a Visiting Professor at the University of Paris at Orsay.

Professor Yuri Kivshar, DU, was elected Fellow of the Optical Society of America, and was appointed to the Advisory Board of the journal Chaos: An Interdisciplinary Journal of Nonlinear Science published by the American Institute of Physics.

Mr Markus Kohonen, AM, was awarded the biennial Jagadishwar Mahanty Prize for the best PhD thesis in RSPhysSE for his thesis entitled Experiments on Capillary Condensation.

Mr Sergei Kucheyev, EME, was awarded an IEEE Electron Devices Society Graduate Student Fellowship. He also received the Australian Institute of Nuclear Science and Engineering (AINE) Award for the Best Poster Presentation by a Postgraduate Student at the 12th Nuclear Techniques of Analysis Conference, Cairns, 15–20 July 2001.
Dr Sergey Kun, TP, was awarded a fellowship from the Japan Society for Promotion of Science and fellowship by the French Embassy, both in association with the Australian Academy of Sciences. He received a Visiting Professorship, Institute of Modern Physics, Lanzhou, China; a Max Planck Society Research Fellowship, Germany and a fellowship, International Center of Sciences, Cuervavaca, Mexico. For his talk at the International Symposium on Non-Equilibrium and Nonlinear Dynamics, Beijing, Dr Kun was awarded a special prize presented to him by Nobel Laureate Professor T.D. Lee.

Dr Serdar Kuyucak, TP, was elected Fellow of the American Physical Society.

Dr Brenton Lewis, AMPL, was elected as chairman of the 14th International Conference on Vacuum Ultraviolet Radiation Physics (VUV14), to be held in Cairns in 2004, following presentation of a successful competitive bid at the VUV13 meeting of the International Advisory Board in Trieste during July. In November, he was elected Fellow of the American Physical Society.

Professor Stjepan Marcelja, AM, was appointed Executive Director of the Rudjer Boskovic Institute in Zagreb, Croatia.

Dr Sergei Mingaleev, DU, shared the 2001 President Prize of the Ukraine with three other recipients for the best work in physics done by young scientists under the age of 35.

Professor John Mitchell, OSC/CfM, was presented with the School’s 30-year pin for extended services to RSPhysSE.

Professor Barry Ninham, AM, was presented with the School’s 30-year pin for extended services to RSPhysSE.

Mr Kevin Roberts, AMPL, was presented with the School’s 30-year pin for extended services to RSPhysSE.

Dr Robert Robson, AMPL and TP, was awarded an Alexander von Humboldt Fellowship in August and is spending a year at the Institut für Niedertemperatur-Plasma-Physik, Greifswald, Germany.

Dr Tim Senden, AM, was awarded an Australian Research Fellowship to commence 2002. He was also awarded a Maître de conférences at Université Louis Pasteur/Institut Charles Sadron, Strasbourg, June/July 2001.

Professor Allan Snyder, OSC, together with Bell Laboratory’s pioneering optical physicist, Dr Herwig Kogelnik, was awarded the Marconi International Prize.

The Team, Electronics Unit, was awarded the 2001 Council Medal for General Staff Excellence Team Award.

Mr Bob Turkentine, NP, was presented with the School’s 30-year pin for extended services to RSPhysSE.

Ms Tessica Weijers, EME, was awarded an AINSE Medal for the best Student Oral Presentation at the joint meeting of the Australian Conference on Nuclear Techniques of Analysis and the 15th International Conference on Ion Beam Analysis, Cairns, 15–20 July 2001. She also received a Certificate of Distinction and Finalist for the RSPhysSE Director’s Award for best student research paper.

Dr Nicholas Welham, AM and EME, was awarded the Rossiter W. Raymond Award of the American Institute of Mining, Metallurgical, and Petroleum Engineers for the best paper published by AIME in 2000. He was also elected to Fellowship of the Minerals Engineering Society.

Dr Jennifer Wong-Leung, EME, was awarded an Australian Research Council QE II Fellowship to commence in 2002.

Dr Mark Ridgway, EME, was appointed to the National Scientific Advisory Committee for the Australian Synchrotron Project.
Awards and Publications

Legends
* Member of another area of this University
† Not a member of this University
‡ Publication appearing in more than one department due to first author having a joint appointment

Applied Mathematics

Books and Book Chapters

Cox, S.*, Knackstedt, M. and Braun, J.*
Principles of Structural Control on Permeability and Fluid Flow in Hydrothermal Systems

Hyde, S.T. and Ramsden, S.
Crystals: Two-Dimensional Non-Euclidean Geometry and Topology

Hyde, S.T.
Identification of Lyotropic Liquid Crystalline Mesophases

Knackstedt, M.
Pore-Scale Characterization of Porous Rocks: Evidence of Correlated Heterogeneity and Implications to Fluid Displacement Processes

Yaminsky, V., Ohnishi, S. and Ninham, B.
Long-Range Hydrophobic Forces due to Capillary Bridging

Publications in Refereed Journals

Aletsh, L.* and Marcelja, S. and Zemb, T.*
Gaussion Random Fields with Two-Level Cuts – Model for Asymmetric Micromasculations with Nonzero Spontaneous Curvature?

Ans et al., C.H.*
Scale Compaction Characteristics of Claseds of Disordered Media

Ans et al., C.H., Knackstedt, M., Pinczewski, V.* and Mecke, K.R.
Pore-Scale Characterization of Disordered Media: Estimation of Transport Properties from Microtomographic Images

Atkins, R., Craig, V. and Biggs, S.*
Adsorption Kinetics and Structural Arrangements of Cetylpyridinium Bromide at the Silica-Aqueous Interface
Langmuir 17 (2001) 6155–6161

Bahm, M.* and Teiberg, F.* and Yaminsky, V.
Spreading Dynamics of Liquids and Surfactant Solutions on Partially Wettable Hydrophobic Substrates
Colloids and Surfaces 193 (2001) 85–96

Bostrom, M., Williams, D.R.M. and Ninham, B.
Specific Ion Effects: Why DLVO Theory Fails for Biology and Colloid Systems
Physical Review Letters 87 (2001) 168103–1–4

Bostrom, M., Williams, D.R.M. and Ninham, B.
Surface Tension of Electrolytes: Specific Ion Effects Explained by Dispersion Forces
Langmuir 17 (2001) 4475–4478

Bostrom, M.
Current-Induced Self-Energy Shift of Impurity Atoms between Metal Films
Physical Review B 64 (2001) 113410–1–4

Bostrom, M., Longdell, J. and Ninham, B.
Atom-Atom Interactions at and between Metal Surfaces at Nanoscale Temperatures
Physical Review A 64 (2001) 062702–1–9

Chen, B.*, Eldadavdi, M.*, Hyde, S.T., O’Keeffe, M.* and Yaghi, O.*
Interpenetrating Metal-Organic Framework on a Periodic Minimal Surface with Extra-Large Pores
Science 291 (2001) 1021–1023

Christenson, H.K. and Claesson, P.M.*
Direct Measurements of the Force between Hydrophobic Surfaces in Water
Advances in Colloid and Interface Science 91 (2003) 391–436

Christenson, H.K. and Claesson, P.M.*
Direct Measurements of the Force between Hydrophobic Surfaces in Water
Physical Review Letters 87 (2001) 054504–1–4

Kjellandsbo, R.* and Lyubartsev, A.* and Marcelja, S.
Journal of Chemical Physics 114 (2001) 9565–9577

Knackstedt, M., Marrink, S., Sheppard, A., Pinczewski, V.* and Sahimi, M.*
Invasion Percolation on Correlated and Elongated Lattices: Implications for the Interpretation of Residual Satuations in Rock Cores

Knackstedt, M., Sheppard, A. and Sahimi, M.*
Pore Network Modelling of Two-Phase Flow in Porous Rocks: The Effect of Correlated Heterogeneity

Large, D.* and Fortey, N.* and Mildowski, A. and Christy, A. and Dodd, J.*
Petrographic Observations of Iron, Copper, and Zinc Sulfides in Freshwater Canal Sediment

Maeda, N. and Yaminsky, V.
Experimental Observations of Surface Freezing

Meldrum, F.* and Hyde, S.T.
Morphological Influence of Magnesium and Organic Additives on the Precipitation of Calcite

Nagas, Y. and Maddess, T.* and Anikiewicz, A.
Discrete Algebras on Cellular Automata and Binary Textures
Memoirs of the Koskshikan University Center for Information Science 22 (2001) 51–64

Neto, C. and Craig, V.
Colloid Probe Characterization: Radius and Roughness Determination
Langmuir 17 (2001) 2977–2999

Research School of Physical Sciences & Engineering 2001

110
Publications in Refereed Journals

A. Anikievicz, and Nagui, Y.
Suction-Type Effects in Three-Level Cellular Automata
Memories of the Kozhukhovsk University Center for Information Science 22 (2001) 1-9

Cusack, B.J., Alexander, T.J., Ostrovskaya, E.A. and Kivshar, Y.S.
Existence and Stability of Coupled Atomic-Molecular Bose-Einstein Condensates
Physical Review A 65 (2001) 016699–1–4

de Steurk, M.*; Salitl, S.M.* and Kivshar, Y.S.
Efficient Collinear Fourier-Harmonic Generation in Two-Channel Multistep Cascading in a Single Two-Dimensional Nonlinear Photonic Crystal
Optical Letters 26 (2001) 559-561

Deyanatkov, A.S. and Kivshar, Y.S.
Necklace Ring Vector Solitons
Physical Review Letters 87 (2001) 033901–1–4

Deyanatkov, A.S., Neshch, D., Ostrovskaya, E.A., Kivshar, Y.S., Kollokwi, W., Luther-Davies, B., Garcia-Ripoll, J.J.* and Perzo-Garcia, VM.*
Multiple Solitary Vector Solitons

Duminov, S.V.*, Kivshar, Y.S. and Shegman, T.*
Fractal Structures and Multiparticle Effects in Soliton Scattering
Physical Review E 64 (2001) 056613–1–4

Grandpre, A.G.*; Christodoulides, D.N.*; Cusick, T.I.*; Segre, M.* and Kivshar, Y.S.
Gray Soliton Spots in Biased Photorefractive Media

Kivshar, Y.S., Alexander, T.J. and Turysyn, S.K.*
Nonlinear Modes of a Macroscopic Quantum Oscillator

Kivshar, Y.S. and Ostrovskaya, E.
Optical Vortices: Folding and Twisting Waves of Light
Optical and Photonics News 12 (2001) 24-29

Mingalrov, S.F. and Kivshar, Y.S.
Self-Trapping and Stable Localized Modes in Nonlinear Photonic Crystals

Neshef, D., Krolikowski, W., Pelinovsky, D.E.*, McCarthy, G. and Kivshar, Y.S.
Transverse Instability of Vector Solitons and Generation of Dipole Arrays

Neshef, D., McCarthy, G., Krolikowski, W., Ostrovskaya, E.A., Kivshar, Y.S., Calvo, G.P.* and Atillo-Lopez, E.*
Dipole-Move Vector Solitons in Anisotropic Nonlocal Self-Focusing Media
Optical Letters 26 (2001) 1185-1187

Neshef, D., Nepomnyashchyi, A. and Kivshar, Y.S.
Nonlinear Abnormal-Bohm Scattering by Optical Vortices
Physical Review Letters 87 (2001) 049901–1–4

Ostrovskaya, E.A., Mingalrov, S.F., Kivshar, Y.S., Gaididei, Y.B.* and Christiansen, P.L.*
Multi-Soliton Energy Transport in Anharmonic Lattices

Robinson, N.P.; Zhang, W.P.; Ostrovskaya, E.A. and Kivshar, Y.S.
Mode-Dependent Instability of Spinor Condensates
Physical Review A 64 (2001) 021601–1–4

Robinson, N.*; Savage, C.** and Ostrovskaya, E.A.
Atom-Laser Dynamics
Physical Review A 64 (2001) 045605–1–4

Saltiel, S.M. and Kivshar, Y.S.
Spatial Solitons
Physical Review A 64 (2001) 045605–1–4

Saltiel, S.M.* and Kivshar, Y.S.
Phase-Matching for Nonlinear Optical Parametric Processes with Multistep Cascading

Saxena, A.*, Kivshar, Y.S. and Bishop, A.R.*
Optical Nonlinearities in Polymers: Role of Intrinsic Localized Modes

Sukhorukov, A.A. and Kivshar, Y.S.
Nonlinear Localized Waves in a Periodic Medium
Physical Review Letters 87 (2001) 013901–1–4

Sukhorukov, A.A.; Alexander, T.J., Kivshar, Y.S. and Saltiel, S.M.*
Multistep Cascading and Fourth-Harmonic Generation

Sukhorukov, A.A., Anikievicz, A. and Akhmediev, N.
Multisoliton Complexes in a Sea of Radiation Modes
Optical Communications 195 (2001) 293–302

Sukhorukov, A.A.; Kivshar, Y.S., Bang, O., Rasmussen, J.* and Christiansen, P.L.*
Nonlinearity and Disorder: Classification and Stability of Nonlinear Impurity Modes

Sukhorukov, A.A. and Kivshar, Y.S.
Self-Trapped Optical Beams: Spatial Solitons

Sukhorukov, A.A., Kivshar, Y.S., Bang, O. and Soukoulis, C.M.*
Parametric Localised Modes in Quadratic Nonlinear Photonic Structures

A New Recursion Method for Fiber Geating Analysis
Microwave and Optical Technology Letters 31 (2001) 308–313

Refereed Conference Proceedings


Kheifets, A.S.*; Ipatov, A.** and Bray, I.*
Recent Progress in Theory of Atomic Double Photoionisation

Mazaret, S.*, Brirakar, J.L.*, Lower, J. and Weigold, E.
Ionization of Laser Oriented Sodium Atoms by Polarized Electrons

Weigold, E. and Vous, M.

Director's Unit

Books and Book Chapters

Kivshar, Y.S. and Sukhorukov, A.A.
Stability of Spatial Optical Solitons
In Spatial Solitons, Springer Verlag, Germany (2001) 211–268

Mingalrov, S.F.; Kivshar, Y.S. and Sammut, R.A.*
Discrete Spatial Solitons in Photonic Crystals and Waveguides

Mingalrov, S.F. and Kivshar, Y.S.
Self-Trapping and Localized Modes in 2-D Photonic Crystals

Saltiel, S.M.*; Kozyn, K.*; Deyanatkov, Y.* and Kivshar, Y.S.
Two-Color Multistep Cascading – Second Order Cascading with Two Second-Harmonic Generation Processes

Sukhorukov, A.A.
Analytical Description of Quadratic Parametric Solitons

Sukhorukov, A.A. and Kivshar, Y.S.
Nonlinear Impurity Modes in Homogeneous and Periodic Media

Torrellas, W.*, Kivshar, Y.S. and Stegman, G.I.*
Quadratic Solitons
In Spatial Solitons, Springer Verlag, Germany (2001) 127–166

Solubility Limit and Precipitate Formation in Al-Doped Si:

Awards & Publications

Awards and Publications

Publications in Refereed Journals

Books and Book Chapters

Laser Physics Centre

Books and Book Chapters

Bar, B.S.* and Park, D.H.* and Charters, R.B., Luther-Davids and Atkins, O.R.*

Direct Laser Writing of Self-Developed Waveguides in Boron-doped Silica


Organometallic Complexes for Nonlinear Optics.


Generation of 5-fs Pulses and Octave-Spanning Spectra Directly from Ti:Sapphire Lasers

Optics Letters 26 (2001) 373-375


Synthesis, Structure and Optical-Limiting Properties of Heterometallic [M,Cu]x(2) Cubic Clusters (M=W or Mo) with Terminal Phosphine Ligands

Inorganic Chemistry 40 (2001) 6312-6318

Gumuly, G.E., Rode, A.V., Perrone, A.* and Zecchi, A.*


Generation of 5-fs Pulses and Octave-Spanning Spectra Directly from Ti:Sapphire Lasers

Optics Letters 26 (2001) 373-375

Kallberg, W. and Bang, O.*

Solitons in Nonlinear Media: Exact Solutions

Physical Review E 63 (2001) 016610-1-6

Kallberg, W. and Bang, O.* and Rasmussen, J.* and Wyller, J.*

Mutational Instability in Nonlinear Kerr Media

Physical Review E 64 (2001) 016612-1-7

Kallberg, W.

Multi-Component Spatial Solitons in Photorefractive Materials

ACTA Physica Polonica A 99 (2001) 66-76

Kallberg, W. and Luther-Davids, B.* and Krolikowski, W.


Kallberg, W.

Multi-Component Spatial Solitons in Photorefractive Materials


Kallberg, W.

Multi-Component Spatial Solitons in Photorefractive Materials


Kallberg, W.

Multi-Component Spatial Solitons in Photorefractive Materials


Kallberg, W.

Multi-Component Spatial Solitons in Photorefractive Materials

Optical Sciences Centre

Books and Book Chapters

Akhmediev, N.

Peierls and localization in solitons

Akhmediev, N., Christiansen, P., Egorov, V., Hasegawa, A.

Bazilevsky, A., Egorov, V.

Optical Solitons
New York: Springer

2004

Procedures: Application to the Chronology of Rotokau Ash, New Zealand

Friedler, L., Bird, M., Tuney, C., Hásun, P., dos Santos, G. and Tada, M.

Radio Carbon Dating of the Human Occupation of Australia prior to 40 ka BP – Successes and Pitfalls


Plasma Research Laboratory

Publications in Refereed Journals

Aulisio, A. and Fredricksen, A.*

Pressure Dependent Mode Transition in an Electron Cyclotron Resonant Mass Spectrometer

Blackwell, B.D.

Results from Helix Annular Solarators
Physical of Plasmas 8 (2001) 2238–2244


Algorithms for Real-time Map Matching and Tracking
Computer Physics Communications 142 (2001) 243–247

Howard, J., Michael, C.A., Glass, F. and Cheetham, A.D.*

Optical Coherence Techniques for Plasma Spectroscopy

Li, W.T., McKenzie, D.R.*, McFall, W.D.* and Zhang, Q.C.

Effect of Spattering-Gas Pressure on Properties of Silicon Nitride Films Produced by Helicon Plasma Sputtering


Applications of Tetrahedral Amorphous Carbon in Limited Volatility Memory and in Field Programmable Gate Arrays

Michael, C.A., Howard, J. and Blackwell, B.D.

The More Efficient H-1 Heliac

Nagasaka, K.*, Ishi, Y.*, Sakamoto, K.*, Ozaki, T.*


Polarization with Non-Rectangular Grooves for High Power Millimeter Waves
Fusion Engineering and Design 53 (2001) 491–497

Nagasaka, K.*, Shats, M.G., Smith, H.B.* and Punzmann, H.

Power Absorption Calculation for Electron Resonance Heating in H-1 Helicat
Journal of the Physical Society of Japan 70 (2001) 617–620

Rudakov, D.L.*, Shats, M.G., Harris, J.H. and Blackwell, B.D.

Dynamic Behaviour of the Low to High Confinement Transitions in the H-1 Helicat
Plasma Physics and Controlled Fusion 43 (2001) 559–570

Shats, M.G., Solomon, W.M. and Talmadge, J.N.*

Radial Force Balance and Radial Current Generation in the H-1 Helicat

Shi, X-H.*, Boman, J.* and Shats, M.G.

Application of the Continuous Waveform Transfer to the Fluctuations and Electric Field Analysis in the H-1 Helicat

Solomon, W.M. and Shats, M.G.

Fluctuation Studies Using Combined Mach/Triple Probe

Solomon, W.M. and Shats, M.G.

Non-stationarity of Fluctuation Driven Flows and Its Effect on the Radial Electric Field
Physical Review Letters 87 (2001) 09503–1–4

Shats, M.G.* and Koronev, D.* and Nagasaka, K.*

Collective Microwaves Scattering Diagnostic on the H-1 Helicat

Soto-Crespo, J.M.*, Akhmediev, N. and Town, G.*


Soto-Crespo, J.M.*, Akhmediev, N. and Ankiewicz, A.

Erupting Solitons in Fiber Lasers
Theoretical Physics

Books and Book Chapters

Das, M.P. and Green, F.*
Shot Noise in Fractional Quantum Hall Systems

Das, M.P. and Green, F.*
Shot Noise in Mesoscopic Quantum Systems

Green, F. and Das, M.P.
Aspects of Transport and Noise for Mesoscopic Charge Detectors

Referred Journals

Ball, R.
Understanding Critical Behaviour through Visualisation: A Walk around the Fichfork
Computer Physics Communications 161 (2001) 71–75

Barker, F.C.
“The Bogs, of ‘Li and the (p, d) Cross Sections at Low Energy”
Nuclear Physics A 688 (2001) 959–974

Baxter, R.J.
Dichromatic Polynomials and Potts Models Summed over Rooted Maps

Biazounov, V.V.
Anisotropies of the Electron Momentum Density Graphite Studied by \((e,e')\) and \((e,e'')\) Scattering

Bisaha, A.†, Bulc, P.
Density Matrix Renormalization Group Algorithm and the Two-Dimensional 1/s Model
Philosophical Magazine B 81 (2001) 1603–1613

Bisaha, A.†, Bulc, P.
Total Spin in the Density Matrix Renormalization Group Algorithm

Bisaha, A.†, Bulc, P.
The Stabilities of a near-Adiabatic Endore ButCH CSTR Reactor
ANZIAM Journal 43 (2001) 59–75

Robson, B.A. and Satatou, S.H.
Relativistic Wave Equations and Hydrogenic Atoms

Robson, B.A. and Satatou, S.H.
Relativistic Wave Equations and Compton Scattering

Sudan, V.* Bolonsardziel, M.* Kheifets, A.S.† and Ford, M.J.
Conduction Band Electronic Structure of Metallic Beryllium
Journal of Physics C 13 (2001) 4203–4219 (Also listed under AMPL)

Satler, T., Tschentscher, Th.†, Schneider, J.†, Vos, M., Kheifets, A.S.†, Lan, D.R., Weigold, E., Dollinger, G.,* Bros, H. and Bell, F.
Anisotropies of the Electron Momentum Density Graphite Studied by \((e,e')\) and \((e,e'')\) Spectroscopy
Physical Review B 63 (2001) 115204–1–17 (Also listed under AMPL)

Talanim, I. and Strick, M.C.
Wannier–Fock Analysis of Light Propagation in Linearly Chirped Superstructure Bragg Gratings
Physical Review A 63 (2001) 053802–1–6

Vos, M., Kheifets, A.S.† and Weigold, E.
Momentum Profiles of Aluminum

Vos, M., Kheifets, A.S.† and Weigold, E.
The Spectrum Momentum Density of Aluminum Measured by Electron Momentum Spectroscopy
Journal of Physics and Chemistry of Solids 62 (2001) 2215–2221 (Also listed under AMPL)

Vos, M., Kheifets, A.S.†, Weigold, E. and Arrueetxaur, F.
Electron Correlation Effects in the Spectral Momentum Density of Graphite
Physical Review B 63 (2001) 033108–1–4 (Also listed under AMPL)

White, R.D.†, Robson, R.E.† and New, K.F.*
Visualization of Ion and Electron Velocity Distribution Functions in Electric and Magnetic Fields
Journal of Physics D 34 (2001) 2205–2210 (Also listed under AMPL)

Referred Conference Papers

Ball, R., Dewar, R.L. and Sagana, H.*
Symmetry and Singularities in a Low-Dimensional Model of a Complex System. A Back Door Approach to the Physics of L-H Transitions

Kheifets, A.S.†, Japtov, A.† and Bray, L.*
Recent Progress in Theory of Atomic Double Photoionization
Many-Particle Spectroscopy of Atoms, Molecules, Clusters and Surfaces, Halle (Saale), Germany, 26–29 July 2000, Klower Academic/Plenum Publishing (2001) 215–230 (Also listed under AMPL)

Kim, S.Y.
Spontaneous Coherence and Non-Equilibrium Correlation Phase Transitions in Mesoscopic and Mesoscopic Systems

Experimental Test of Slow Phase Randomization and Quantum Chaos in Finite Highly Excited Mono-Body Systems
## Invited Conference Presentations and Lectures

**Legend:**
- * External to the University
- # Former member of the University
- Presenter of contributed paper is underlined

### Applied Mathematics

**CTP Workshop, Biophysics: From Proteins to Cells, Physical Perspectives on the Emerging Molecular Structure of Biosystems, Canberra, 15–26 January**

Senden, T. — Force Microscopy

**Stochastic and Statistical Geometry Conference, Wuppertal, Germany, 4–9 March**

Knackstedt, M. — Reconstruction and Properties of Complex Media

**French Physics Society workshop “Recent Developments in Foams”, Les Houches, France, 6–10 June**

Hyde, S. — Novel Foam Geometries

**Senden, T. — Micro-X-ray Tomography. Developing an Integrated Approach to Characterisation and Modelling of Complex Materials**

**First Australian Workshop on Astrobiology, Macquarie University, Sydney, 12–13 July**

Hyde, S. — Biological vs. Inorganic Morphologies: Animal, Vegetal or Mineral

**European Colloid and Surface Science Meeting, Coimbra, Portugal, 16–21 September**

Ninham, B. — Specific Ion Effects in Colloid Science

**Nobel Centennial Symposium in Chemistry, Öresundsbro, Sweden, 4–7 December**

Ninham, B. — Flaws in the Fabric of Physical Chemistry

### Atomic and Molecular Physics Laboratories

**1st Australian Workshop on Nanotubes and Fullerenes, Canberra, 3–4 May**

Chadderton, J.T. and Chen, Y. — Thermodynamics and the Capillarity of Solids: Growth of Bamboo and Skeletal Nanotubes

**Integrated Optics and Optical Fibre Communication and Optoelectronics and Communications Conference, Sydney, 2–6 July**


**XXII International Conference on Photonic, Electronic and Atomic Collisions, Santa Fe, USA, 18–24 July**


Sullivan, J.P.* — Novel Foam Geometries

**Senden, T. — Micro-X-ray Tomography. Developing an Integrated Approach to Characterisation and Modelling of Complex Materials**

**13th International Conference on Vacuum Ultraviolet Radiation Physics, Trieste, Italy, 23–27 July**


**11th International Workshop on Low-Energy Positron and Positronium Physics, Santa Fe, USA, 25–27 July**

Buckman, S.J., Sullivan, J.P.*, Marlet, J.P.*, Gilbert, S.J.* and Surko, C.M.* — Opportunities for Collision Studies with High-resolution Positron Beams

**International Symposium on (e,2e) Double Photoionization and Related Topics, Rolla, USA, 25–28 July**

Lower, J. — (e,2e) Collisions with Polarized Electrons and Excited, Oriented and Spin Polarized Targets

Nin, M., Kheifets, A. and Weigold, E. — Electron Correlation Effects in Materials as Observed by Electron Momentum Spectroscopy

**Workshop on Non-Neutral Plasmas 2001, San Diego, USA, 30 July–2 August**


**International Laser Science Conference XVII, Long Beach, USA, 14–18 October**

Director’s Unit

Guided Wave Photonics Workshop, Oxford University, UK, 29–30 March
Lever J.D. — Design & Modelling of Optical Fibres, Waveguides & Devices

Photonic Korea 2001, Gwangju, Korea, 11–14 September
Lever J.D. — Optical Fibres, Waveguides & Devices for Optical Communications Applications

International Workshop: Localized Excitations on Lattices, Dresden, Germany, 24–28 September
Koschel Yu S. — Nonlinear Localized Modes in Periodic Media

Annual Meeting of the Optical Society of America, Long Beach, USA, 14–17 October
Koschel Yu S. — Making “Molecules” from Light

International Symposium on Photonics & Applications, Singapore, 26–30 November
Lever J.D. — Modelling & Design of Planar Waveguides

Australian Conference in Optics and Laser Science ACOLS2001, Brisbane, 1–5 December
Koschel Yu S. — Nonlinear Photonic Crystals

Electronic Materials Engineering

Advanced Research Workshop on Semiconductor Nanostructures, Queenstown, New Zealand, 5–9 February
Jagadish C. — Self Organised Growth of Quantum Wires and Quantum Dots for Optoelectronic Applications

19th Meeting of the Electrochemical Society – 6th International Symposium on Silicon Nitride and Silicon Oxide Thin Insulating Films, Washington DC, USA, 25–30 March
Kuchevski S.O. — Ion Beam Damage Processes in GaN

Petravic M. — Low Energy Ion Irradiation of Silicon: Compound Formation and Segregation of Impurities

2001 Beijing International Conference of Nanotechnology, Beijing, China 16–18 July
Chen Y. — Large Quantity Production of Nanotube Materials

22nd International Conference on Photonic, Electronic and Atomic Collisions, ICPEAC 2001, Santa Fe, USA, 18–24 July
Connet G., Dujardin G., Hellner L. & Petravic M. — Photon-Induced Fabrication of Atomic Scale Structures on Surfaces

International Symposium on Physical Acoustics, Perugia, Italy, 10–14 September
Pitches N., Hollenstein L.* Smith J.* and Wolfe J.* — The Didjeridu and the Vocal Tract

Australian institute of Physics ACT Branch Meeting, ANU, 18 October
Fillman R.G. — Ion Beam Modification and Analysis of Materials

Materials Research Society Fall Meeting, Boston, USA, 26–30 November

International Workshop on Physics of Semiconductor Devices, New Delhi, India, 11–15 December

Workshop on MEMS and Photonics, DSTO, Salisbury, 20 December

Laser Physics Centre

Asia-Pacific Polymer Optical Fibers Workshop, Sydney, 4–5 January


SPIE Conference, Photonics West: Optical Pulse and Beam Propagation III, San Jose, USA, 20–26 January
Krolikowski W. — Vector Incoherent Solutions

CLEO 2001, Baltimore, USA, 6–11 May

Nonlinear Science Festival, Technical University of Denmark, 12–15 June
Krolikowski W. — Spatial Optical Solutions

Integrated Optics and Optical Fiber Communication and Optoelectronics and Communications Conference (DOOC/OECC Incorporating ACDF), Sydney, 1–6 July
Samoc M., Samoc A., Rode A. and Luther-Davies B. — Short Laser Pulse Induced Nonlinear Optical Phenomena in Novel Materials and Structures

Dall R.G., Hoogerland M.D.* Buckman S.J. and Baldwin K.G.H. — Atom Optics and Single-Mode Fibres

The 2001 Workshop on Laser Physics and Quantum Optics, Wisconsin, USA, 28 July–2 August
Sellars M. — Quantum Computing with Rare Earth Doped Crystals

SPIE Annual Meeting, San Diego, CA, USA, 29 July–3 August

International Laser Science Conference(I LS) XVII, Long Beach, USA, 14–18 October
Dall R.G., Hoogerland M.D.* Buckman S.J. and Baldwin K.G.H. — Guiding Metallic Helium Atoms through Hollow Optical Fibers

Nuclear Physics

Symposium on Critical Issues in Nuclear Dynamics (ACS National Meeting), San Diego, USA, 1–5 April

3rd Biennial Nuclear Structure Workshop: Physics Near the Coulomb Barrier, Yale University, USA, 14–16 June
Dracoulis G.D. — Isomers and Shape Co-existence in the Light Pb Isotopes

Stinchbury A.E. — Electromagnetic Moments in Transitional Nuclei from Mass 80 to Mass 180

International Nuclear Physics Conference, Berkeley, USA, 30 July–3 August

Nuclear Structure 2001, East Lansing, USA, 15–19 August

XXIV Brazilian Workshop on Nuclear Physics, Aguas de Lindóia, Brazil, 1–5 September
Dasgupta M. — Near-barrier Fusion: New Probes, Results and Applications

The 10th Workshop on RF Superconductivity, Tsukuba, Japan, 6–11 September
Lobaskin N.B., Weiss D.C., Kibédi T. et al. — Superconducting RF Activities at ANU

The 2nd International Symposium on Advanced Science Research: Advances in Heavy Element Research, JAEER, Tokai, Japan, 13–15 November

Nuclear Science Colloquium, Michigan State University, USA, 5 December
Dracoulis G.D. — Isomers and Shape Co-existence

Scientific FWO Research Network – Nuclear Physics under Extreme Conditions: Exotic Nuclei and Nuclear Astrophysics, University of Gent, Belgium, 10–12 December
Dracoulis G.D. — Importance of Non-treat Structures in Evacuating Nuclear Structure

Research School of Physical Sciences & Engineering 2001 (Conference Proceedings) 119
Optical Sciences Centre

Optical Soliton Workshop, University of Central Florida, USA, 22–24 March
Akhmediev, N. — Solitons in Cavities

Workshop on The Legacy of IST in Nonlinear Wave Propagation, Mount Holyoke College, USA, 17–21 June
Akhmediev, N. — Multi-Soliton Complexes

Plasma Research Laboratory

Transport Task Force Meeting, Fairbanks, Alaska, 16–19 May
Shats, M.G. — Non-ambipolarity of Fluctuation-driven Transport and its Effect on Plasma Confinement

15th International Symposium on Plasma Chemistry, Industrial Workshop, Orleans, France, 7 July
Boswell, R.W. — Communication Systems and the Role of Plasma Processing

Charles, C. — The Role of Ions in SiO2 Deposition with Pulsed and Continuous Helicon Plasmas

Apple Users Consortium, Academic and Developers Conference, Townsville, 23–26 September
Boswell, R.W. and Gardner, H. — The Wedge Virtual Reality Theatre

43rd American Physical Society, Division of Plasma Physics, Mini-Conference on Helicon Plasma Sources, Long Beach, USA, 29 October–2 November
Boswell, R.W. — A Perspective on Current Helicon Source Science Issues

Shats, M.G. — Turbulence, Transport and Electric Field Studies on the H-1 Heliac

International Symposium on Photonics and Applications, Singapore, 26–30 November
Boswell, R.W. — Fabrication of Planar Waveguides using PECVD/RIE

Theoretical Physics

International Conference on Science and Technology of Nanostructured Materials, Puri, India, 4–8 January
Das, M.P. — Shot Noise in Fractional Quantum Hall Systems

Mathematical Physics Odyssey 2001, Hayasahara Foundation, Okayama and the Research Institute for the Mathematical Sciences, Kyoto, Japan, 19–23 February
Baxter, R.J. — Dichromatic Polynomials and Potts Models Summed over Rooted Maps

Baxter Meeting on Integrable Models in Statistical Mechanics, University of York, UK, 19 April
Baxter, R.J. — Solvable Lattice Models and the Chiral Potts Model

Australian Workshop on Nanotubes and Fullerenes, Canberra, 3–4 May
Kun, S.Yu., Vagov, A.V. and Greiner, W. — Quantum-Classical Transition and Critical Phenomena in Fullerene Collisions

International Symposium on Non-Equilibrium and Non-Linear Dynamics in Finite Systems, Beijing, China, 22–25 May
Kun, S.Yu. — Quantum Chaos and Critical Phenomena in Finite Non-Equilibrium Systems

International Centre for Theoretical Physics, Trieste, Italy, 9 July
Das, M.P. — Noise and Fractional Charges

Sixth International Workshop on Interrelationship between Plasma Experiments in Laboratory and Space (IPLELS2001), Niseko, Hokkaido, Japan, 2-6 July
Dewar, R.L. and Ball, R. — Symmetry and Singularities in Low-Dimensional Dynamical Models of Complex Systems

2nd University of Queensland Mathematical Physics Workshop, Coolangatta, 5–8 July
Baxter, R.J. — Invariants in the Star-Triangle Relation

Photonic, Electronic and Atomic Collisions (XXICPEAC), Santa Fe, USA 18–24 July
Kheifets, A.S. — Close-Coupling Calculations of Two-Electron Atomic Ionization by Photon and Electron Impact

Dynamics, excitations and Magnetism Workshop, ANSTO, Sydney, 27–28 August
Das, M.P. — Dynamics, Excitations and Magnetism

Second International Summer School on Strongly Correlated Systems, Debrecen, Hungary, 4–9 September
Galasci, M. — Luttinger Liquid Properties at Finite Temperatures

25th Annual Conference of the Australian Society for Biophysics, Katoomba, 5–7 September
Chung, S.H. and Kuyucak, S. — Conducting-state Properties of the Potassium Channel: Molecular and Brownian Dynamics Simulations

Werner Heisenberg 100 Years, Bamberg, Germany, 26–30 September
Hall, M.J.W. — Schrödinger Equation from an Exact Uncertainty Principle