

Matthew Davis

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Date of birth: 6th September 1975
Nationality: British / New Zealand
Marital status: Married
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Skills

- Strong problem solving abilities, analytical mind.
- Fast learner, highly motivated, works well both unsupervised and in a team.
- Enjoys responsibility and leadership opportunities.
- High level of computer literacy, in both administering and using Unix/Windows platforms.
- Experience with the numerical solution of partial differential equations (PDEs).
- Very good at rapidly coding and debugging algorithms.
⇒ Specific languages include: C, Fortran 77/90/95, MATLAB, Mathematica.

Education

- 1997 –** St John's College, University of Oxford, United Kingdom.
Commonwealth Scholarship, North Senior Scholarship.
Doctorate (D. Phil.) in Atomic and Laser Physics, supervisor Professor Keith Burnett.
Theoretical topics in Bose-Einstein Condensation (BEC).
- 1993 – 6** University of Otago, Dunedin, New Zealand.
B.Sc. (Hons), first class in physics, 1996 Prince of Wales Prize, 1996 Royal Society Prize.
Dissertation – 'Evaporative Cooling and BEC', supervisor Associate Professor Rob Ballagh.
- 1988 – 92** Marlborough Boys' College, Blenheim, New Zealand.
NZ Top Scholar in Bursary Physics Exam, 1992. Dux Litterarum, Marlborough Boys' College.
'A' Bursary, Scholarship grades in calculus, statistics, physics, chemistry, economics.

Relevant Experience

- **Computing** System administrator for ~20 Unix/Windows machines, Clarendon Laboratory, University of Oxford, 1998–2000. Installation and upkeep of hardware, O/S, software and printing. Experience with Cray-T3E supercomputer, numerical fast Fourier transform methods.
- **Teaching** Lab demonstrator for first year physics, University of Otago, 1997.
Tutor for first year physics at four halls of residence, University of Otago, 1994–6.
Tutor for second year engineering mathematics, University of Otago, 1994.
- **Committees** Sports Officer and Excursions Officer, St John's College MCR 1998–2000.
Class Representative, Departments of Maths and Physics, University of Otago, 1994-6.

Other Interests

- **Sport** Participates in tennis, squash, badminton (Oxford University team, Otago and Marlborough representative), soccer and rowing. Keen supporter of rugby union, cricket.
- **Photography**
- **Reading** Modern and classic fiction, current affairs, science.
- **Technology** Enjoys new gadgets, consumer electronics.

University Prizes and Scholarships

1998 • North Senior Scholarship, St John's College, University of Oxford.

1997 • Commonwealth Scholarship to St John's College, University of Oxford.
• William Georgetti Scholarship.
• TV2 Young Achievers Award.

Declined: Frank Knox Memorial Fellowship to Harvard University, Sproull Fellowship to University of Rochester, Supplemental Fellowship to University of Colorado at Boulder, Fulbright Graduate Student Award.

1996 • Prince of Wales Prize.
"Awarded annually by the University ... to the most outstanding student completing an undergraduate degree. Qualities in addition to academic performance may be taken into account in awarding the prize."
• Otago Branch of the Royal Society of New Zealand Prize.
"Awarded annually ... to the student adjudged to have demonstrated outstanding ability in the final year of the course of Bachelor of Science with Honours ... as measured by performance in the annual examinations and in particular the research component."
• University of Otago Postgraduate Scholarship (declined).

1995 • Beverly Bursary in Physics, Beverly Scholarship in Physics, Staff Prize in Mathematics.

1994 • Beverly Bursary in Physics, Robert Jack/New Zealand Institute of Physics Prize.

1993 • New Zealand Institute of Chemistry Prize.

Publications

"Quantum Kinetic Theory VII: The effect of vapor dynamics on condensate growth"
M. J. Davis, C.W. Gardiner and R. J. Ballagh, submitted to Physical Review A. (2000)

"Effects of temperature upon the collapse of a Bose-Einstein condensate in a gas with attractive interactions"
M.J. Davis, D.A.W. Hutchinson and E. Zaremba, Journal of Physics B, **32**, 3993-9 (1999)

"Quantum Kinetic Theory of Condensate Growth: Comparison of Theory and Experiment"
C.W. Gardiner, M.D. Lee, R.J. Ballagh, M.J. Davis, and P. Zoller,
Physical Review Letters, **81**, 5266-9 (1998)

"Kinetics of Bose-Einstein Condensation in a Trap"
C.W. Gardiner, P. Zoller, R.J. Ballagh, and M.J. Davis, Physical Review Letters, **79**, 1793-7 (1997)

Conference Presentations

"Mixing and the Gross-Pitaevskii Equation" (poster)
European Conference on Bose-Einstein Condensation, San Feliu de Guixols, Spain. (Sep 1999)

"Bose-Einstein Condensates with Attractive Interactions" (talk)
Euroconference on Slow Collisions between Laser manipulated systems, Crete, Greece. (May 1999)

"Growth of a Bose-Einstein Condensate from Evaporative Cooling" (poster)
Australasian Conference on Optics, Lasers and Spectroscopy, Christchurch, New Zealand. (Dec 1998)