CURRICULUM VITAE (Long Form)

| Name: | Robert Leith DEWAR |
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| Date and Place | |
| of Birth: | March 1, 1944, Melbourne, Australia |
| of Death: | April 5, 2024, Cambridge, UK |
| Citizenship: | Australian |
| Academic | B.Sc. in Physics, |
| Qualifications: | conferred 18 August 1965, University of Melbourne. |
| | B.Sc. (Hons.): 1st Class Honours (equal 1st place) in examination, November 1965, University of Melbourne. |
| | M.Sc. Thesis awarded Honours, shared Kernot Scholarship in Physics. M.Sc. conferred 16 August 1967, University of |
| | Melbourne. |
| | Ph.D., December 1970, Princeton University. |
| | Ph.D. thesis title: Averaged Lagrangian methods and nearly |
| | periodic motions in plasmas. |
| Final Appointment: | Emeritus Professor, ANU, March 2011 – April 5, 2024 |
| | Mathematical Sciences Institute (MSI), College of Science |
| | The Australian National University |
| | Canberra ACT 2601, Australia |
| | and |
| | Isaac Newton Institute for Mathematical Sciences |
| | University of Cambridge |
| | 20 Clarkson Road, Cambridge, UK |
| Past Appointments: | Professor in the Institute of Advanced Studies, ANU |
| | [Level E(2) July '96 – Feb. '11; Level E(1) Oct. '92 – June '96] |
| | Coordinator, ANU Centre for Theoretical Physics/Centre for Complex |
| | Systems, August '98 – May '06. |
| | Convenor, ARC Complex Open Systems Research Network (COSNet), |
| | 2004–2009 |
| | Head, Department of Theoretical Physics, August '98 – July '01 |
| | Head, Plasma Research Lab., RSPhysSE, Jan. '95 – Feb. '97 |
| | Interim Director, National Plasma Fusion Research Facility, Feb.'96 – Feb.'97 |
| | Senior Fellow, ANU, July '82–Sep. '92 |
| | Principal Research Physicist, Princeton University Plasma |
| | Physics Laboratory (PPPL), Oct. '81-June '82. |
| | Research Physicist, PPPL, Aug. '79-Sep. '81. |
| | Research Staff Member, PPPL, July '77-Sep. '79. |

| | Senior Research Fellow, ANU, July '76–June '77. |
|-----------------------|--|
| | Research Fellow, ANU, Jan. '74–June '76. |
| | Research Associate, PPPL, Oct. '71-Dec. '73. |
| | Center for Theoretical Physics Postdoctoral Fellowship, |
| | University of Maryland, Sep. '70–Sep. '71. |
| | Assistant in Research, Sep. '67–Aug. '70, PPPL. |
| | |
| Graduate Fellowships: | Commonwealth Postgraduate Award, 1966–67, University of Melbourne. |
| | Australian-American Educational Foundation Travel Grant, 1967–1972. |
| | Thaw Fellowship in Astronomy, 1967–1968. |
| | Princeton University. |
| | |
| Outside Studies | Visiting Scientist |
| Appontments: | PPPL 24 March = 20 May 1983 |
| rippontinents. | Visiting Scientist |
| | PPPI 27 April = 25 June 1984 |
| | Participant in Program on "Stochasticity Turbulence and |
| | Long-Time Behavior in Plasmas" |
| | Institute for Theoretical Physics |
| | University of California Santa Barbara 26 March – 24 June '85 |
| | Visiting Scientist |
| | PPPI = 1 - 29 May 1987 |
| | Visiting Scientist |
| | Centre de Recherche en Physique des Plasmas |
| | Ecole Polytechnique Fédérale de Lausanne, Switzerland |
| | 1 June 21 August 1087 |
| | Senior Pasarch Fellow |
| | University of Taxas Austin USA |
| | 11 Nevember 1001 24 January 1002 |
| | Visiting Scientist |
| | Columbia University New York USA 2 25 Echrucry 1002 |
| | Cuest Lecturer |
| | Justice and Control for Theoretical Dhysics |
| | Triaste Italia 16 Mars 4 June 1002 |
| | Visiting Scientist |
| | Heinrich Heine Univ. Düggelderf. Germany |
| | 1. 0 June 1005 |
| | Visiting Defense |
| | Visiting Professor |
| | National Institute for Fusion Science, Japan, |
| | 20 redruary – 25 May 1997 Visiting Scientist |
| | VISILING SCIENTIST |
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| | VISITING SCIENTIST |
| | PPPL, 3 September – 28 November 2000 |
| | Visiting Scientist |

| | Max Planck Inst. for Plasma Physics, 17 Sept. – 25 Oct. 2002 |
|-----------------------|--|
| | Visiting Professor |
| | University of Tokyo, 9 February – 10 June, 2003 |
| | Exchange Visitor |
| | University of Texas at Austin 16 May – 4 June 2004 |
| | Visiting Scientist |
| | DDDI 5 10 June 2004 |
| | Visiting Drofessor |
| | |
| | University of Tokyo, 31 August – 29 November, 2008 |
| | Visiting scientist and Rapporteur for a PhD thesis defence at CNRS |
| | Centre for Theoretical Physics (CPT), Marseille-Luminy, France, |
| | 20 Sep – 20 Oct 2010 |
| | Visiting Professor |
| | University of New Hampshire, 19 Sep – 2 Dec 2011 |
| | Visiting Scientist |
| | PPPL, 7 May – 28 Jun 2012 |
| | Project Professor |
| | University of Tokyo, 18 Mar – 18 May 2013 |
| | Visiting Scientist |
| | PPPI = 17 Oct = 1 Nov 2013 |
| | Visiting Scientist |
| | University of Takwa 25 Jan 1 Eab 2014 |
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| | visiting Scientist |
| | PPPL, 12 - 25 Oct 2014 |
| | Visiting Scientist |
| | PPPL, 20 Mar – 6 May 2016 |
| | Guest Lecturer at Nonlinear Science Seminar |
| | University of Tokyo, 12 – 30 Mar 2017 |
| | Visiting Scientist |
| | Nat. Inst. for Fusion Sci., Toki, Japan, 31 Mar – 10 Apr 2017 |
| | Guest Lecturer in Physics |
| | UNSOED University, Purwokerto, Indonesia, 3 – 5 Mar 2017 |
| | Research Member |
| | Math. Sciences Research Institute (MSRI) Berkeley, CA, USA |
| | 18 Aug – 30 Nov 2018 |
| | Visiting Scientist |
| | $\mathbf{PPDI} 1 10 \text{Apr} 2010$ |
| | 111L I - 17 Apr 2017 |
| Elective Fellowships | American Physical Society (elected November 1980) |
| of Learned Societies: | Member of the Division of Plasma Physics |
| | + Topical Group in Plasma Astrophysics. |
| | Australian Academy of Science (elected April 1992). |
| | |
| Memberships | Australian Institute of Physics (AIP Fellow 1988_present) |
| of Learned Societies | Australian Mathematical Society (AustMS 1903—) Fellow 2015 |
| or Dearnea Societies. | Australian Machematical Society (Austrils 1995—, Fellow 2015—), |
| | |

| | + AustMS Division of Applied Mathematics etc (ANZIAM) |
|---------------------------|--|
| | Association of Asia-Pacific Physical Societies |
| | Division of Plasma Physics (AAPPS DPP) |
| International | Chair, International Advisory Committee, International |
| Committees: | Congress on Plasma Physics (ICPP), 2000–02 (Member 1996–present) |
| | Member/Alternate, Executive Committee on the IEA Implementing Agreement on the Development of the Stellarator Concept, 1995– 2011 |
| | Member, International Advisory Committee, Asia Pacific Plasma Theory Conference (APPTC), 1996–2012 |
| | Member, C16: Commission on Plasma Physics, International Union Pure and Applied Physics (IUPAP), 1999–2005. |
| | Member, International Advisory Committee for the Korean superconducting tokamak KSTAR, 2006. |
| | Member, General Council of the Asia Pacific Center for Theoretical Physics (APCTP — Pohang, Korea) 2008–2010. |
| | Member, International Honorary Advisory Committee, AAPPS DPP, 2014–present. |
| Editorial Boards: | |
| | Member, Editorial Board, Australian Journal of Physics, 1997–2001. Member, Editorial Board, Plasma and Fusion Research (Japan Soc. of Plasma Science and Nuclear Fusion Research), 2005–2009. Divisional Associate Editor (Division of Plasma Physics, American Phys. Soc.), Physical Review Letters, 2006–2009. Associate Editor, ANZIAM Journal, 2008–. |
| National Committees: | Member, Australian Fusion Research Group, 1995–2005 Member, Sectional Committee 2, Academy of Science, 1996–99 |
| | (Chair '98-'99). Member, National Committee for Physics, Australian Academy of Science, 2000-03. |
| | Member, Interviews with Australian Scientists Committee, Australian Academy of Science, April 2010–2012 |
| Local | Member, Executive Committee, ANU Staff Association, 1976. |
| Committees | Member, Executive Committee, ANU Staff Association, 1992–5. Member, ACT Branch C'tee of the Australian Institute of Physics 1993–2004. Associate editor of <i>The Physicist</i> for the ACT,2000–01. Chair, ACT Branch, Australian Institute of Physics 2002–03. |
| University Committees: | Convenor, Research School of Physical Sciences (ANU) |
| Committees. | Chairman, Postdoctoral Search Committee, PPPL 1980–1. Research School of Physical Sciences Tenure Subcommittee |

| | (Strategic Planning), 1986. |
|----------------------|---|
| | ANU Supercomputer Facility Management Committee, |
| | 1987 - 8. |
| | ANU Supercomputer Facility Time Allocation Committee, 1988–92. |
| | Chairman of Faculty, Research School of Physical Sciences and |
| | Engineering (and member Faculty Board), 1991-3. |
| | Member, Working Party on Advanced Computation services of ANU |
| | Information Technology Directions Study, 1992-3. |
| | Faculty representative on Board of the Institute of Advanced Studies, 1992–1994. |
| | Member of Committee on General Policy, Board of the Institute of Advanced Studies, 1992–1994. |
| | NTEU-Academic representative on ANU General Staff Consultative |
| | Committee 1993–1994. |
| | Faculty representative on Faculty Board, RSPhysSE, 1993-4. |
| | Deputy Chair, ANU High Performance Computing Advisory Committee, 1995–9. |
| | Member, Mount Stromlo & Siding Springs Observatories Non- tenured Appointments Committee, 1995–7. |
| | Faculty Board representative on Board of the Institute of Advanced Studies, 1999–2001. |
| | IAS representative on ANU Education C'tee, 2001-2002. |
| Conferences etc. | Convenor of the ANU RSPhysS Department of Theoretical Physics' Fourth Physics Summer School Nonlinear |
| 0 | Dynamics and Chaos held 7–25 January, 1991. |
| | President of 19th AINSE Plasma Science and Technology |
| | Conference / E. & F. White Workshop, 12–15 July, 1993. |
| | Organiser of Australia/Japan workshop on Plasma Theory and |
| | Computation, Robertson, NSW, 15-17 Nov. 1995. |
| | Co-organiser of NCTP Research Workshop on 2D Turbulence in Plasmas & Fluids, ANU, June–July 1997. |
| | Organiser of Australia/Japan/US Workshop on <i>High-Performance</i> Computing and Visualisation in Plasma Physics Research |
| | Magnetic Island, O'land, July 1–3, 1999 |
| | Chair, Local Organising Committee for the International Congress on Plasma Physics (ICPP2002) 1998–2002 |
| | Co-Chair, Program Committee for Complex'07, 8th Asia-Pacific Complex Systems Conference, 2–5 July 2007, Gold Coast, |
| | Australia |
| | Complex Physical Riophysical and Econophysical Systems |
| | The Australian National University, Canberra, 8–19 Dec. 2008. |
| Teaching Experience: | |
| Tutoring: | University of Melbourne, 1965–1966. |

| Lecturing: | Introductory Physics, Univ. of Maryland (1st semester 1971). Theor. Phys. B01, Sch. of Gen. Studies, ANU (2nd sem. 1975) Lecturer in Department of Astrophysical Sciences, Princeton University (1979–1981). Lecturer with rank of Professor, Princeton Univ. (1981–1982). Mathematics C31H (Topics in Applied Math.: Fluid Dynamics) Faculty of Science, ANU, (1st semester 1986 and 1992). Mathematics C34H (Topics in Applied Math.: Nonlinear Dynamics) Faculty of Science, ANU, (2nd semester 1993). Physics C01/PHYS 3001 (Classical Mechanics segment) Faculty of Science, ANU, (1st semester 1998–2002). Physics PHYS 3002 (Classical Mechanics/Nonlinear Dynamics) |
|------------------|--|
| Ph D. Students | Segment), Faculty of Science, ANU, (2 nd semester 2006) |
| Supervised or | E. Rosengaus (Princeton U. 1982) |
| Advised: | H.J. Gardner (ANU 1986) |
| | R.D. Parker (ANU 1988) |
| | G.J. Cooper (ANU 1989) |
| | A. Pletzer (ANU 1992) |
| | K.P. Wessen (ANU 1993) |
| | Z. Meglicki (ANU, 1996) |
| | S.R. Hudson (ANU, 1997) |
| | P. Cuthbert (ANU, 1999) |
| | A.B. Khorev (ANU, 2002) |
| | B.F. McMillan (ANU, 2005) |
| | M. McGann (ANU, 2013) |
| | R.F. Abdullatif (ANU, 2017) |
| | A.M. Wright (ANU, 2021) |
| Thesis Titles: | |
| A. Bhattacharjee | Energy Principle with Global Invariants |
| E. Rosengaus | Renormalization of Perturbation Theories for Action-Angle Transformations |
| H.J. Gardner | The Free-Boundary Equilibrium Problem for Helically Symmetric Plasmas |
| R.D. Parker | Nonlinear Behaviour of the Resistive Tearing Instability in Plasmas |
| G.J. Cooper | Stability of Helical Plasmas |
| A. Pletzer | Two-dimensional Computations of the Outer Matching Data in Resistive Stability |
| K.P. Wessen | Application of the Invariant Manifold Reduction to Plasma Instabilities |
| Z. Meglicki | Analysis and Application of Smoothed Particle Magnetohydrodynamics |
| S.R. Hudson | Generalized Magnetic Coordinates for Toroidal Magnetic Fields |

| P. Cuthbert | Ballooning Instabilities in Three-Dimensional |
|------------------|--|
| | Toroidal Plasmas |
| A.B. Khorev | The Concept of Approximate Action-Angle Variables |
| | for Nonintegrable Hamiltonian Dynamics |
| B.F. McMillan | Global wavemodes of dissipative fluid models in |
| | strongly three dimensional plasmas: Calculation and |
| | Interpretation |
| M. McGann | Hamilton-Jacobi theory for connecting equilibrium |
| | magnetic fields across a toroidal surface supporting a |
| | plasma pressure discontinuity. |
| R. F. Abdullatif | Zonal Flow Generation in Toroidally Confined Plasmas through |
| | Modulational Instability of Drift Waves |
| A. M. Wright | On the existence, stability and relaxation of discontinuous |
| | magnetohydrodynamic states |

Masters Students Supervised or co-Supervised: Thesis Titles:

> J. Bertram (ANU, 2011—M.J. Hole principal supervisor) *A Theoretical Study of Macroscopic Wave Activity in H-1 Plasmas*D. Barmaz (EPFL, Lausanne, Switzerland 2010) *High-n Stability of a pressure discontinuity in a three-dimensional plasma*A.M. Gibson (ANU, 2012) *Reconciliation of Almost-Invariant Tori in Chaotic Systems*

Honours Students Supervised or co-Supervised:

A.L. Fairhall (ANU Physics 1990–91, University Medal) Centre Manifold Reduction of Tearing Modes in a Plasma Current Sheet
V. Robins (ANU Mathematics 1994, University Medal) Periodic Orbits and Invariant Tori in Symplectic Maps

External grants obtained: \$ = AUD unless specified otherwise

CSIRO Computing Grants Scheme: Merit grant for project 3D Plasma Equilibria
R.L. Dewar, W.N-C. Sy and H.J. Gardner
1984–85 \$15,000 (CSIRO computing resources)
1986\$15,000 (CSIRO computing resources)
Australian Atomic Energy Commission: Research Grant 86/A/6 MHD Theory of Plasma
Equilibrium and Stability 1986–87 R.L. Dewar and H.J. Gardner \$2,125
Australian Research Council Research Fellowships Scheme: A Research Fellowship award of \$31,244 for three years was allocated to R.L. Dewar in November 1988.
Lefèbvre Foundation: \$5,000 for 1991 ANU Physics Summer School
Department of Industry, Technology and Commerce: \$5,000 for 1991 ANU Physics Summer School

- Department of Industry, Technology and Rural Development: \$5,000 for visit of V. Petrzilka under Bilateral Science & Technology Collaboration Program with Czech Republic, July-September 1993
- Elizabeth and Frederick White Research Conference Fund of the Australian Academy of Science: \$5,000 for conference workshop on *Fundamental Problems in the Physics of Magnetically Confined Plasmas*, July 1993
- Australian Institute of Nuclear Science and Engineering : \$14,000 for 19th AINSE Plasma Science and Technology Conference, July 1993.
- Dept. of Industry, Technology and Rural Development: \$18,000 for Japan/US/Australia workshop on New Concepts in MHD, Nov. 1993.
- Department of Industry, Science and Technology: \$5,000 for visit of V. Petrzilka under Bilateral Science & Technology Collaboration Program with Czech Republic, July–September 1994
- Department of Industry, Science and Technology: \$6,600 for visit of R. Shurygin under Bilateral Science & Technology Collaboration Program with Kurchatov Institute, Russia, Nov. 1994–Feb.1995.
- Dept. of Industry, Science and Technology: \$7,640 for Australia/Japan workshop on *Plasma Theory and Computation*, November 1995.
- Dept. of Industry, Science and Technology: \$10,200 for Bilateral S&T collaboration with Natl. Inst. for Fusion Science, Japan, Jan.-June 1996 and a further \$10,200 Jan.-June 1997.
- Dept. of Industry, Science and Technology: \$5,000 for Bilateral S&T collaboration with General Physics Institute, Russia, Jul.-Dec. 1996, and a further \$4,500 Jul.-Dec. 1997
- Dept. of Industry, Science and Technology: \$8.7M for Major National Research Facility for Fusion Plasma Physics, December 1995 (8 year program).
- Australian Research Council: Research Infrastructure Equipment and Facilities Program: Fusion Related Plasma Physics Research Program Centred on the H-INF Heliac (lead organisation, AINSE) \$120,000 for 1996 and \$250,000 for 1997.
- 1998: ANU PI for ACSF RIEFP grant
- 1998: \$5k from DISR ICSS for presentation of case for Australia to host ICPP2002
- 1999: \$14k from DISR IRAP for Australia/Japan/US Workshop on *High-Performance Computing* and Visualisation in Plasma Physics Research, Magnetic Island, July 1-3, 1999
- 2002: \$9k from Australian-German Joint Research Co-operation Scheme for Turbulence and Transport in Fusion Plasmas: Towards a Paradigm for Computational Modelling of Complex Systems (with R. Ball)
- 2003: \$605k over 5 years from ARC for DP0343765: Studies of turbulence and coherent structures in quasi two-dimensional plasma and fluids (with R. Ball & J.S. Frederiksen)
- 2003: \$9k over 2 years from ARC for LX0347292: Low-order dynamical models for non-linear fluid behaviour in quasi two-dimensional plasmas (with R. Ball and F.L. Waelbroeck)
- 2003: \$10k over 2 years from ARC for SR0354716: Energetically Open Systems Research Network Study (Convenor)
- 2004: \$255k over 3 years from ARC for DP0452728: Existence & Stability of a Model for Three-Dimensional Toroidal Plasma Equilibria (with S.R. Hudson)
- 2004: \$1.5M over 5 years from ARC for RN0460006: Complex Open Systems Network (COSNet) (Convenor)
- 2008: \$436k over 3 years from DIISR International Science Linkages for CG130047: Model/Data Fusion: using Bayesian inversion to constrain equilibrium and stability theory of

advanced magnetic confinement experiments ahead of the International Thermonuclear Experimental Reactor (M.J. Hole, R.L Dewar, J. Howard, B.D. Blackwell, L. Appel, J. Svensson)

- 2009: \$20k over 1 year from DFAT Australia-Korea Foundation for: Feasibility study of Australia-Korean research in fusion science centred on the KSTAR superconducting tokamak
- 2010: \$5k from the Cultural Division, Taipei Economic and Cultural Office in Australia for a 2010 Taiwan Research Visiting Scholar Grant
 - \$285k over 3 years from ARC for DP1093797: Burning Plasmas: Resolving Energetic particle physics for the International Thermonuclear Experimental Reactor (M.J. Hole, K. McClements, R.L Dewar, S.D. Pinches, S. Sharapov)
- 2011: \$255k over 3 years from ARC for DP110102881 Emergence and control of selforganisation in fusion plasmas: through ITER and beyond (M.J. Hole, R.L. Dewar, R.O. Dendy, D.F. Escande, S.R. Hudson, B.D. Blackwell)
- 2013: \$270,000 over 3 years from ARC for DP140100790 Anisotropy and flow in fast-particle dominated and burning tokamak plasmas: stability of ITER and the coming demonstration fusion power plant (M.J. Hole, R.L. Dewar, B.N. Breizman and S.E. Sharapov)
- 2017: \$353,500 over 3 years from ARC for DP170102606 Multi-Region Relaxation Dynamics in Fusion and Stellar Plasmas
- 2018: \$375,529 (USD) over 4 years from Simons Foundation for ANU component of grant SFARI (560651, AB) as a Founding Participant in Collaboration on *Hidden Symmetries and Fusion Energy*
- 2022: \$269,574 (USD) over 3 years from Simons Foundation for ANU component of grant SFARI (560651, AB) extension of *Hidden Symmetries and Fusion Energy* Collaboration

Full List of Publications

Web of Science

https://www.webofscience.com/wos/author/record/B-1300-2008

ORCID

https://orcid.org/0000-0002-9518-7087

Google Scholar

https://scholar.google.com.au/citations?user=m-hrp8sAAAAJ&hl=en&oi=ao