
Curriculum Vitae

Warren B. Moors

B.Sc. (Physics) 1985 and M.Sc. First class Hons. (Mathematics) 1988, The University of Auckland. PhD. (Mathematics) 1992, The University of Newcastle.

Personal Details

Nationality New Zealander

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Current position Associate Professor, The University of Auckland, NEW ZEALAND

Honours and Distinctions

Fellow of the Australian Mathematical Society 2021

Fellow of the New Zealand Mathematical Society 2018

Marsden Fund Research Grant 2005-2007

New Zealand Mathematical Society Research Award 2001

NZ Science and Technology Post-Doctoral Fellowship 1995-1996

Post Doctoral Fellowship - Simon Fraser University 1994

Australian Post Graduate Research Award 1991

HECS Exemption Scholarship 1990-1991

Senior Prize in Pure Mathematics - The University of Auckland 1986

Research Publications

1. Warren B. Moors, A continuity property related to an index of non-separability and its applications, *Bull. Austral. Math. Soc.* **46** (1992), 67-79.
2. Warren B. Moors, A continuity property related to an index of non-WCG and its applications, *Mini conference on probability and analysis (Sydney, 1991)*, pp. 163-170, Proc. Centre Math. Appl. Austral. Nat. Univ. **29** *Austral. Nat. Univ. Canberra*, 1992.
3. John R. Giles and Warren B. Moors, Differentiability properties of Banach spaces where the boundary of the closed unit ball has denting point properties, *Mini conference on probability and analysis (Sydney, 1991)*, pp. 107-115, Proc. Centre Math. Appl. Austral. Nat. Univ. **29** *Austral. Nat. Univ. Canberra*, 1992.
4. Warren B. Moors, On a weak* drop property, *Bull. Austral. Math. Soc.* **47** (1993), 407-414.
5. John R. Giles and Warren B. Moors, The implications for differentiability theory of a weak index of non-compactness, *Bull. Austral. Math. Soc.* **48** (1993), 85-101.
6. John R. Giles and Warren B. Moors, A continuity property related to Kuratowski's index of non-compactness, its relevance to the drop property and its implications for differentiability theory, *J. Math. Anal. and Appl.* **178** (1993), 247-268.
7. Warren B. Moors, The relationship between Goldstine's theorem and the convex point of continuity property, *J. Math. Anal. and Appl.* **188** (1994), 819-832.
8. Warren B. Moors, A characterisation of minimal subdifferential mappings of locally Lipschitz functions, *Set-Valued Anal.* **3** (1995), 129-141.
9. P. S. Kenderov, W. B. Moors and J. P. Revalski, A generalization of a theorem of Fort, *C. R. Acad. Bulgare. Sci.* **48** (1995), 11-14.
10. Warren B. Moors, A selection theorem for weak upper semi-continuous set-valued mappings, *Bull. Austral. Math. Soc.* **53** (1996), 213-227.
11. Petar S. Kenderov and Warren B. Moors, Game characterisation of fragmentability of topological spaces, Proceedings of the **25th** Spring conference of the Union of Bulgarian Mathematicians, pp. 8-18, *Kazanlak, Bulgaria*, 1996.
12. J. R. Giles, P. S. Kenderov, W. B. Moors and S. D. Sciffer, Generic differentiability of convex functions on the dual of a Banach space, *Pacific J. Math.* **172** (1996), 413-433.
13. John R. Giles and Warren B. Moors, Generic continuity of restricted weak upper semi-continuous set-valued mappings, *Set-Valued Anal.* **4** (1996), 25-39.
14. Petar S. Kenderov and Warren B. Moors, Fragmentability of Banach spaces, *C. R. Acad. Bulgare. Sci.* **49** (1996), 9-12.

15. Warren B. Moors, A characterisation of weak compactness in Banach spaces, *Bull. Austral. Math. Soc.* **55** (1997), 497-501.
16. John R. Giles and Warren B. Moors, Generically continuous selections and the differentiability of locally Lipschitz functions, Proc. Optim. Miniconference **III**, (*The Uni. Melbourne, 1996*), pp. 39-44, eds. B. M. Glover, B. D. Craven and D. Ralph, Ballarat, Vic.: Uni. Ballarat 1997.
17. Jonathan M. Borwein and Warren B. Moors, Lipschitz functions with minimal Clarke subdifferential mapping, Proc. Optim. Miniconference **III**, (*The Uni. Melbourne, 1996*), pp. 5-12, eds. B. M. Glover, B. D. Craven and D. Ralph, Ballarat, Vic.: Uni. Ballarat 1997.
18. Jonathan M. Borwein, Warren B. Moors and Wang Xianfu, Lipschitz functions with prescribed derivatives and subderivatives, *Nonlinear Anal.* **29** (1997), 53-64.
19. Zhibao Hu, Warren B. Moors and Mark A. Smith, On a Banach space without a weak mid-point locally uniformly rotund norm, *Bull. Austral. Math. Soc.* **56** (1997), 193-195.
20. Warren B. Moors and John R. Giles, Generic continuity of minimal set-valued mappings, *J. Austral. Math. Soc. Ser. A* **63** (1997), 238-262.
21. Jonathan M. Borwein and Warren B. Moors, Essentially smooth Lipschitz functions, *J. Funct. Anal.* **149** (1997), 305-351.
22. Jonathan M. Borwein and Warren B. Moors, Essentially smooth Lipschitz functions: Compositions and Chain Rules, Foundations of Computational Mathematics, (*Rio de Janeiro, 1997*), pp. 16-22, F. Cucker and M. Shub eds. Springer-Verlag, 1997.
23. P. S. Kenderov, W. B. Moors and S. D. Sciffer, Norm attaining functionals on $C(T)$, *Proc. Amer. Math. Soc.* **126** (1998), 153-157.
24. Jonathan M. Borwein and Warren B. Moors, A chain rule for essentially smooth Lipschitz functions, *SIAM J. Optim.* **8** (1998), 300-308.
25. Jonathan M. Borwein and Warren B. Moors, Null sets and essentially smooth Lipschitz functions, *SIAM J. Optim.* **8** (1998), 309-323.
26. P. S. Kenderov, W. B. Moors and J. P. Revalski, Generic continuity and generically defined selections of set-valued mappings, *Serdica Math. J.* **24** (1998), 49-72.
27. J. M. Borwein, W. B. Moors and Y. Shao, Subgradient representation of multifunctions, *J. Austral. Math. Soc. Ser. B* **40** (1999), 301-313.
28. Petar S. Kenderov and Warren B. Moors, Fragmentability and sigma-fragmentability of Banach spaces, *J. London Math. Soc.* **60** (1999), 203-223.
29. John R. Giles and Warren B. Moors, Exposing conditions implying uniformity of rotundity, *Mini conference on analysis (Newcastle, 1998)*, pp. 49-52, Proc. Center Math. Appl. Austral. Nat. Uni. **36** Austral. Nat. Univ. Canberra, 1999.

30. Jiling Cao, Warren B. Moors and Ivan Reilly, On the Choquet-Dolecki theorem, *J. Math. Anal. and Appl.* **342** (1999), 1-5.
31. J. M. Borwein, W. B. Moors and X. Wang, Generalised subdifferentials: A Baire categorical approach, *C. R. Math. Acad. Sci. Soc. R. Can.* **21** (1999), 132-138.
32. Jonathan M. Borwein and Warren B. Moors, Separable determination of integrability and minimality of the Clarke subdifferential mapping, *Proc. Amer. Math. Soc.* **128** (2000), 215-221.
33. Petar S. Kenderov, Ivailo and Warren B. Moors, Topological games and topological groups, *Topology Appl.* **109** (2001), 157-165.
34. Petar S. Kenderov, Ivailo Kortezov and Warren B. Moors, Continuity points of quasi-continuous mappings, *Topology Appl.* **109** (2001), 321-346.
35. Petar S. Kenderov, Ivailo Kortezov and Warren B. Moors, Weakly continuous mappings into Banach spaces, *C. R. Acad. Bulgare. Sci.* **52** (2001), 7-10.
36. J. M. Borwein, W. B. Moors and X. Wang, Generalised subdifferentials: a descriptive integration approach, *Trans. Amer. Math. Soc.* **353** (2001), 3875-3893.
37. John R. Giles and Warren B. Moors, A selection theorem for quasi-lower semi-continuous set-valued mappings, *J. Nonlinear Convex Anal.* **2** (2001), 345-350.
38. P. S. Kenderov, W. B. Moors and S. D. Sciffer, A weak Asplund space whose dual is not weak* fragmentable, *Proc. Amer. Math. Soc.* **129** (2001), 3741-3747.
39. Warren B. Moors and Scott D. Sciffer, Sigma-fragmentable spaces that are not countable unions of fragmentable spaces, *Topology Appl.* **119** (2002), 279-286.
40. Warren B. Moors and Sivajah Somasundaram, Usco selections of densely defined set-valued mappings, *Bull. Austral. Math. Soc.* **65** (2002), 307-313.
41. Warren B. Moors, Closed graph theorems and Baire spaces, *New Zealand J. Math.* **31** (2002), 55-62.
42. Jiling Cao, Warren B. Moors and Ivan Reilly, Topological properties defined by topological games and their applications, *Topology Appl.* **123** (2002), 47-55.
43. Warren B. Moors and Sivajah Somasundaram, Some recent results concerning weak Asplund spaces, *Acta Univ. Carolin. Math. Phys.* **43** (2002), 67-86.
44. Warren B. Moors and Sivajah Somasundaram, A weakly Stegall space that is not a Stegall space, *Proc. Amer. Math. Soc.* **131** (2003), 647-654.
45. Jiling Cao and Warren B. Moors, Separate and joint continuity of homomorphisms defined on topological groups, *New Zealand J. Math.* **33** (2004), 41-45.
46. Petar S. Kenderov and Warren B. Moors, A dual differentiation space without an equivalent locally uniformly rotund norm, *J. Austral. Math. Soc. Ser. A* **77** (2004), 357-364.

47. Warren B. Moors, Some more recent results concerning weak Asplund spaces, *Abstr. Appl. Anal.* **2005** (2005), 307-318.
48. Jiling Cao and Warren B. Moors, Quasicontinuous selections of upper continuous set-valued mappings, *Real Anal. Exchange* **31** (2005/2006), 63-72.
49. Petar S. Kenderov and Warren B. Moors, Separate continuity, joint continuity and the Lindelöf property, *Proc. Amer. Math. Soc.* **134** (2006), 1503-1512.
50. Warren B. Moors, The product of a Baire space with a hereditarily Baire metric space is Baire, *Proc. Amer. Math. Soc.* **134** (2006), 2161-2163.
51. Warren B. Moors and Sivajah Somasundaram, A Gâteaux differentiability space that is not weak Asplund, *Proc. Amer. Math. Soc.* **134** (2006), 2745-2754.
52. Jiling Cao and Warren B. Moors, A survey on topological games and their applications in analysis, *RACSAM, Rev. R. Acad. Cienc. Exactas Fís. Nat. Ser. A. Mat.* **100** (2006), 39-49.
53. Petar S. Kenderov, Ivailo Korteov and Warren B. Moors, Norm continuity of weakly continuous mappings into Banach spaces, *Topology Appl.* **153** (2006), 2745-2759.
54. Warren B. Moors, Separate continuity, joint continuity, the Lindelöf property and p -spaces, *Topology Appl.* **154** (2007), 428-433.
55. Jonathan M. Borwein and Warren B. Moors, Non-smooth Analysis, Optimization Theory and Banach Space Theory, p.549-559, in **Open Problems in Topology II**, edited by Elliot Pearl, North-Holland, Amsterdam, 2007.
56. Warren B. Moors and Evgenii A. Reznichenko, Separable subspaces of affine function spaces on convex compact sets, *Topology Appl.* **155** (2008), 1306-1322.
57. Peijie Lin and Warren B. Moors, Rich families, W -spaces and the product of Baire spaces, *Math. Balkanica (N.S.)* **22** (2008), 175-187
58. Warren B. Moors and Jiří Spurný, On the topology of pointwise convergence on the boundaries of L_1 -preduals, *Proc. Amer. Math. Soc.* **137** (2009), 1421-1429.
59. Jonathan M. Borwein and Warren B. Moors, Stability of closedness of convex cones under linear mappings, *J. Convex Anal.* **16** (2009), 699-705.
60. Jonathan M. Borwein and Warren B. Moors, Stability of closedness of convex cones under linear mappings II, *J. Nonlinear Anal. and Optim.* **1** (2010), 1-7.
61. Warren B. Moors and Julia C. Novak, Order matters when choosing sets, *Math. Inequal. Appl.* **14** (2011), 439-444.
62. Warren B. Moors, An elementary proof of James' characterisation of weak compactness, *Bull. Austral. Math. Soc.* **84** (2011), 98-102.
63. Petar S. Kenderov and Warren B. Moors, Fragmentability of groups and metric-valued function spaces, *Topology Appl.* **159** (2012), 183-193.

64. Jiling Cao, Heikki Junnila and Warren B. Moors, Wijsman hyperspaces: subspaces and embeddings, *Topology Appl.* **159** (2012), 1620-1624.
65. M. Choban, P. S. Kenderov and W. B. Moors, Pseudo-compact semitopological groups. Proceedings of the 41st Spring conference of the Union of Bulgarian Mathematicians, pp. 53-59, *Borovetz, Bulgaria*, 2012.
66. Warren B. Moors, A note on Fort's theorem, *Topology Appl.* **160** (2013), 305-308.
67. Warren B. Moors and Isaac Namioka, Furstenberg's structure theorem via CHART groups, *Ergod. Th. & Dynam. Sys.* **33** (2013), 954-968.
68. Warren B. Moors, Semitopological groups, Bouziad spaces and topological groups, *Topology Appl.* **160** (2013), 2038-2048.
69. Warren B. Moors, Any semitopological group that is homeomorphic to a product of Čech-complete spaces is a topological group, *Set-Valued Var. Anal.* **21** (2013), 627-633.
70. M. Choban, P. S. Kenderov and W. B. Moors, Eberlein theorem and norm continuity of pointwise continuous mappings into function spaces, *Topology Appl.* **169** (2014), 108-119.
71. Warren B. Moors, Invariant means on CHART groups, *Khayyam J. Math.* **1** (2015), 36-44.
72. James Fletcher and Warren B. Moors, Chebyshev Sets, *J. Austral. Math. Soc.* **98** (2015), 161-231.
73. Warren B. Moors, Fragmentability by the discrete metric, *Bull. Austral. Math. Soc.* **91** (2015), 303-310.
74. M. Choban, P. S. Kenderov and W. B. Moors, Fragmentability of function spaces $C_p(T)$ for pseudocompact spaces T , *Matematički Bilten Union of Mathematicians of Macedonia* **39** (LXV) No.2 (2015), 5-11.
75. Warren B. Moors, Fragmentable mappings and CHART groups, *Fund. Math.* **234** (2016), 191-200.
76. Warren B. Moors and Samuel J. White, An elementary proof of James' characterization of weak compactness II, *Bull. Aust. Math. Soc.* **95** (2017), 133-137.
77. Warren B. Moors, On a one-sided James' theorem, *J. Math. Anal. Appl.* **449** (2017), 528-530.
78. Warren B. Moors, Weak compactness of sublevel sets, *Proc. Amer. Math. Soc.* **145** (2017), 3377-3379.
79. Warren B. Moors, Some Baire semitopological groups that are topological groups, *Topology Appl.* **230** (2017), 381-392.
80. Martin Dolezal and Warren B. Moors, On a certain generalization of W -spaces, *Topology Appl.* **231** (2017), 1-9.

81. Warren B. Moors, Nearly Chebyshev sets are almost convex, *Set-Valued Var. Anal.* **26** (2018), 67–76.
82. Warren B. Moors, A gentle introduction to James’ weak compactness theorem and beyond, *Methods Funct. Anal. Topology* **25** No. 1 (2019), 35–83.
83. Warren B. Moors and Neset Tan, Dual differentiation spaces, *Bull. Austral. Math. Soc.* **99** (2019), 467–472.
84. Warren B. Moors and Neset Tan, An abstract variational theorem, *J. Convex Anal.* **26** (2019), no. 4, 1125–1144.
85. David J. Farrell and Warren B. Moors, An application of the generalised James’ weak compactness theorem, *J. Convex Anal.* **28** (2021), to appear.
86. L. Hola, D. Holy and W. B. Moors, Usco and Qusaicontinuous mappings, 300 pages, in De Gruyter, *Studies in Mathematics*, ISBN 978-3-11-075015-7, to appear.

Preprints

- 87 Warren B. Moors, An application of the generalised James’ weak compactness theorem part(II), submitted to *J. Convex Anal.*
- 88 J. Cao and W. B. Moors, Separate and Joint Continuity, 200 pages, in preparation.
- 89 P. S. Kenderov, W. B. Moors and J. Revalski, Topological Games and their Application, 250 pages, in preparation.

Other Publications

1. Warren B. Moors and Donald A. Nield, Qualification from Round Robin Tournaments, *NZ Math. Mag.* **29** (1992), 39-41.
2. Warren B. Moors, Ph.D Abstract, *Bull. Austral. Math. Soc.* **47** (1993), 347-348.
3. Warren B. Moors and Jiling Cao, Foreword “International Conference on Analytic Topology and its Applications”. Held in Rotorua, July 10–14, 2006. *New Zealand J. Math.* **37** (2008).

Plenary Lectures

1. *Weak Compactness, Fragmentability and Variational Analysis*, Workshop on Variational Analysis and Optimization, (British Columbia, Canada), August 2019.
2. *An abstract variational theorem - II*, 14th International Workshop on Well-Posedness of Optimization Problems and Related Topics, (Borovets, Bulgaria), August 2018.
3. *An abstract variational theorem*, Jonathan M. Borwein Commemorative Conference, (Newcastle, Australia), September 2017.

4. *Applications of topological games to analysis*, 1st Pan Pacific International Conference on Topology and Applications, (Guangdong Province, China), November 2015.
5. *Semitopological groups versus topological groups*, Workshop on Analysis and its Applications, in Honour of Brailey Sims, (Newcastle, Australia), August 2015.
6. *Applications of topological games to analysis*, Minnan Normal University, (Guangdong Province, China), December 2014.
7. *An elementary proof of James' characterisation of weak compactness*, Minnan Normal University, (Guangdong Province, China), December 2014.
8. *Fixed point theorems and applications*, Minnan Normal University, (Guangdong Province, China), December 2014.
9. *A survey on topological games and their applications in analysis*, International Conference on Topological Methods in Analysis and Optimization, (Sofia, Bulgaria), June 2013.
10. *Topological groups and topological games*, Fall Central Sectional Meeting of the AMS, (Akron Ohio), October 2012.
11. *Pseudo-compact semitopological groups*, The 41st Spring Conference of the Union of Bulgarian Mathematicians, (Borovetz, Bulgaria), 2012.
12. *An elementary proof of James' characterisation of weak compactness*, Functional and Nonlinear Analysis Workshop, CARMA, Newcastle, 2010.
13. *On the topology of pointwise convergence on the boundaries of L_1 -preduals*, Opening ceremony for CARMA (Computer Aided Research Mathematics and its Applications), Newcastle, 2009.
14. *Metrizability of compact convex sets*, 10th Prague Topology Symposium (Czech-Republic), 2006.
15. *Applications of topological games to Analysis*, (Special session dedicated to Petar Kenderov) International Congress MASSEE, (Borovets, Bulgaria), 2003.
16. *A Gâteaux differentiability space that is not weak Asplund*, International Congress MASSEE, (Borovets, Bulgaria), 2003.
17. *Small sets associated with weak Asplund spaces*, The Technion (Haifa, Israel), 2003.
18. *Some recent results concerning weak Asplund spaces*, 30th Winter School in Abstract Analysis (Czech-Republic) - Lecture Series, 2002.
19. *A Baire categorical approach to integration*, West Coast Optimisation Conference, The University of Washington, 1999.
20. *Stokes' Theorem for Lipschitz vector fields*, Pacific Institute of the Mathematical Sciences, (Vancouver, Canada), 1997.

21. *Game characterisation of fragmentability of topological spaces*, The 25th Spring Conference of the Union of Bulgarian Mathematicians, (Kazanlak, Bulgaria), 1996.
22. *Fragmentability and sigma-fragmentability of Banach spaces*, Université de Bordeaux I, 1996.
23. *A chain rule for Lipschitz functions*, West Coast Optimization Conference, The University of Washington, 1995.
24. *Recent results concerning Fort's theorem*, Miami University (Oxford Ohio), 1994.
25. *When is the embedding of the closed unit ball B_X of a Banach space X residual in $(B_{X^{**}}, weak^*)$?*, Kent State University, 1994.
26. *A topological characterization of the convex point of continuity property*, Rainwater Seminar, The University of Washington, 1994.
27. *On a new characterization of the Radon-Nikodým Property*, The University of Newcastle, 1992.

I have also presented over 60 contributed papers.

Positions Held

February 2011-present	Associate Professor The University of Auckland
February 2005-January 2011	Senior Lecturer The University of Auckland
January 2003-January 2005	Lecturer The University of Auckland
January 2002-December 2002	Senior Lecturer The University of Waikato
July 1999-December 2001	Lecturer The University of Waikato
July 1997-June 1999	Research Fellow Victoria University of Wellington
March 1997-July 1997	Assistant Lecturer The University of Auckland
March 1995-March 1997	Post-Doctoral Fellow The University of Auckland
December 1993-March 1995	Post-Doctoral Fellow Simon Fraser University
March 1992-December 1993	Assistant Lecturer The University of Auckland
March 1990-March 1992	Tutor The University of Newcastle