Curriculum Vitae April, 2021

Kenneth Ralph Davidson

University Professor, FRSC, FIF

Citizenship Canadian

Education

Ph.D.	1976	University of California, Berkeley
B.Math.	1972	University of Waterloo

Positions Held

2007–	University Professor	University of Waterloo
2001–2004	Director	Fields Institute
1985–2007	Professor	University of Waterloo
1982–1985	Associate Professor	University of Waterloo
1978–1982	Assistant Professor	University of Waterloo
1976–1978	C.L.E. Moore Instructor	M. I. T.

Awards

2018	Canadian Mathematical Society Fellow
2014	C.M.S. David Borwein Distinguished Career Award
2013	C.M.S. G. de B. Robinson Award
2012–2013	University of Waterloo Award for Excellence in Graduate Supervision
since 2007	University Professor, University of Waterloo
since 2006	Fields Institute Fellow
1995–1997	Killam Research Fellowship
since 1992	Fellow, Academy of Science, Royal Society of Canada
1988–1990	E.W.R. Steacie Fellowship
1985	Israel Halperin Prize in Operator Algebras

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RESEARCH AND SCHOLARSHIP

Professional Societies Canadian Mathematical Society
American Mathematical Society
Royal Society of Canada (Academy of Science)

Editorial Positions

1. Journal of Operator Theory	since 2002
2. Integral Equations and Operator Theory	since 1994
3. Houston Journal of Mathematics	1998–2019
4. Complex analysis and its synergies	2014–2021
5. Fields Institute Editorial Board	2001–2021
6. CMS Tracts in Mathematics, Editor-in-Chief	2000–2004
7. Proceedings of the Edinburgh Mathematical Society	1995–1999
8. Canadian Journal of Mathematics	1990–1994
9. Canadian Mathematical Bulletin	1990–1994

External Committees

1. International Affairs Committee, NRC, member 2010–12. Chair, 2013–15.
2. Chair, Review of Math. and Stats. Dept., U. Victoria, winter 2011.
3. Chair, Publications Committee, CMS, 2010–2011. Member to 2012.
4. External Review Panel, Math. Dept., Iowa State University, 2007.
5. Chair, Finance Committee, Canadian Mathematical Society, 2007–2009.
6. Henry Marshall Tory Medal Committee, Royal Society of Canada, 2007–2009.
7. Board of Directors, UNB Centre for Noncommutative Geometry, 2005–16.
8. Director, Fields Institute for Research in Mathematical Sciences, 2001–2004.
9. Director Search Committee, AARMS, 2005.
10. Nominating Committee, MPS division, RSC, 2003–2005.
11. Scientific Advisory Committee, AARMS, 2002–2010.
12. Board of Directors, Fields Institute, 2001–2005.
13. Scientific Advisory Panel, Fields Institute, 1991–1996 and 2001–2006.
14. Canadian representative to the IMU, Shanghai, August, 2002.
15. Scientific Advisory Board, BIRS, 2001–2004.
16. Board of Directors, MITACS, 2001–2004.
17. Chair, Nominating Committee, Canadian Mathematical Society, 1998–2000.
18. Vice President, Canadian Mathematical Society, 1995–1997.
19. National Advisory Committee on Mathematics, 1995–97,(Chair 1996–97).
20. Steering Committee, Mathematics GSCs, NSERC, 1997 and 2001.
21. NSERC Strategy Implementation Task Force 1995.
22. NSERC Mathematics Grant Selection Committee, 1990–93, (Chair, 1992–93).
23. University of Waterloo Senate, 1989–1990.

Conferences Organized

1. Ninth Canadian Operator Theory Conference, Waterloo, May 11–15, 1981.
2. Special Session in Operator Theory, CMS Annual Meeting, December 1986.
3. Special Session in Operator Algebras, Ontario Math. Meeting, April 16, 1988.
4. Scientific Committee, CMS Annual Winter Meeting, December, 1990.
5. Nineteenth Canadian Operator Algebra Conference, Montreal, May, 1991.

6. Fields Institute, Organizing committee, 1994–1995 year on C*-algebras.
7. Co-chair, Scientific Committee, 50th Anniversary, CMS, Toronto, June, 1995.
8. Nonselfadjoint Operator Algebras, Fields Institute, July 8–12, 2002.
9. Canadian Operator Symposium, Waterloo, May, 2004, organizing committee.
10. 20th Operator Theory Conference, Timisoara, Rumania, July, 2004, sci. comm.
11. LMS: operator Algebras & random matrices, Ambleside, July 2004, org. comm.
12. CMS summer meeting, Waterloo, June 2005, organized special session.
13. GPOTS, Lincoln NE, May 2007, scientific advisory committee.
14. GPOTS, Cincinnati OH, May, 2008, scientific advisory committee.
15. Workshop in Multivariable operator theory, Fields Institute, August, 2009.
16. Workshop in Multivariable operator theory, BIRS, Banff, August, 2010.
17. Banach Algebras 2011, Waterloo, August, 2011, organizing committee.
18. 24th International Conference in Operator Theory, Timisoara, July, 2012, steering committee.
19. CMS winter meeting, Montreal, December, 2012; organized special session.
20. Great Plains Operator Theory Symposium (GPOTS), Berkeley CA, May 2013, scientific committee.
21. Oberwolfach Workshop on *Hilbert modules and complex geometry*, April 2014, organizer (with J. Eschmeier, R. Douglas and H. Upmeier).
22. 25th International Conference in Operator Theory, Timisoara, July, 2014, steering committee.
23. CMS winter meeting, Hamilton, December, 2014; organized special session.
24. BIRS Workshop on *Multivariate Operator Theory*, April, 2015, organizer (with J. Eschmeier, R. Douglas, W. Helton and M. Putinar).
25. Canadian Operator Symposium, University of Waterloo, June, 2015, organizer (with L. Marcoux).
26. Workshop on multivariable operator theory, Technion, Haifa, June 2017 (scientific committee).
27. Scientific Director, Canadian Mathematical Society Annual Winter Meeting, University of Waterloo, December, 2017.
28. Focus Program on Applications of Noncommutative Functions, Fields Institute, June 2019 (organizer with 4 others).

Selected Invited Addresses at Conferences

1. Stefan Banach Mathematics Center, Warsaw, (3 lectures), , May, 1992.
2. Canadian Operator Symposium (main speaker, 3 lectures), Victoria, May, 1993.
3. Operator Theory Workshop (main speaker, 3 lectures), East China University of Science and Technology, Shanghai, China, April, 1995.
4. NATO Operator Conference, Samos, Greece, August, 1996 (plenary speaker).
5. Limit Algebras Workshop (2 one hour talks), Ambleside, U.K., July, 1997.
6. C.M.S. Summer Meeting, St. John, NB, June, 1998 (plenary speaker).
7. IWOTA, Bordeaux, France, June, 2000 (plenary speaker).
8. Great Plains Operator Symposium, College Station, May, 2004 (plenary speaker).
9. Operator Theory 20, Timisoara, Romania, July, 2004 (plenary speaker).
10. Operator algebras and random matrices, Ambleside, July, 2004.
11. Banach Algebras 2005, Bordeaux, July, 2005 (plenary speaker).

12. A.M.S. Special Session on Operator Algebras, Lincoln, NE, October, 2005.
13. LMS Regional Meeting, Leeds, July, 2006 (two lectures).
14. BIRS workshop: Operator algebras, dynamical systems & wavelets, Dec., 2006.
15. Great Plains Operator Symposium, Lincoln, NE, May, 2007.
16. Banach Algebras, Quebec City, July, 2007.
17. Noncommutative dynamical systems Workshop, Fields Institute, July, 2007.
18. Operator Theory and Function Theory Workshop, Fields Institute, Jan., 2008.
19. Canadian Operator Symposium, Toronto, May, 2008.
20. Dynamical systems and operator algebras, Leiden, Netherlands, July, 2008.
21. Hilbert Modules and Complex Geometry, Oberwolfach, Germany, April, 2009.
22. Canadian Abstract Harmonic Analysis Symposium, Edmonton, May, 2009.
23. Workshop on Multivariable Operator Theory, Fields Institute, August, 2009.
24. SUMIRFAS, College Station, August, 2010.
25. BIRS, Workshop on multivariable operator theory, August, 2010.
26. Great Plains Operator Symposium, Tempe, May, 2011.
27. Canadian Operator Symposium, Victoria, May, 2011.
28. Great Plains Operator Symposium, Houston, TX, June, 2012.
29. Workshop on the Corona Problem, Fields Institute, June, 2012.
30. Miniconference on Operator algebras, Bengurion University, Bersheva, Israel, April, 2013 (4 talks).
31. Great Plains Operator Symposium, Berkeley, CA, May, 2013.
32. Banach Algebras and Applications, Gothenburg, Sweden, August, 2013.
33. Workshop on Hilbert modules and complex geometry, Oberwolfach, April, 2014.
34. C.M.S. David Borwein Distinguished Career Award Lecture, Hamilton, December, 2014.
35. Great Plains Operator Symposium, Lafayette, IN, May, 2015.
36. Banach Algebras and Applications, Toronto, August, 2015.
37. Great Plains Operator Symposium, Lafayette, IN, May, 2015.
38. Banach Algebras and Applications, Toronto, August, 2015.
39. C.M.S. Special Session on Operator algebras, Montreal, December, 2015.
40. Canadian Operator Symposium, Centre de Recherches Mathématiques, Montreal, June, 2016.
41. International Workshop on Operator Theory and Applications (IWOTA), St. Louis, July, 2016.
42. South East Analysis Symposium, Knoxville, March, 2017
43. Complex analysis and noncommutative functions workshop, CIMI, Toulouse, France, October, 2016.
44. Canadian Operator Symposium, Thunder Bay, June, 2017
45. Multivariable Operator Theory, Technion, Haifa, Israel, June, 2017
46. Southern Ontario Operator Algebras Seminar, Waterloo, February 2018 (2 lectures)
47. Multivariable Spectral Theory and Representation Theory, BIRS, April, 2019.
48. Canadian Operator Symposium, Regina, June, 2019
49. International Workshop on Operator Theory and Applications (IWOTA), Lisbon, July, 2019.
50. Canadian Operator Symposium, Toronto, June, 2020 (online)

Selected Seminars and Colloquia

1. Zheijiang University, Hangzhou, China (4 talks) April 10–13, 1995.
2. Xian Normal University, Xian, China, 2 lecture series, April 14–16, 1995.
3. Academia Sinica, Beijing, China, Analysis Seminar (2 talks), April 18–20, 1995.
4. University of Iowa, Distinguished Lecture Series (5 talks), October 7–11, 1996.
5. Texas A & M University, Frontiers in Math. Lectures (3 talks), November 1998.
6. Wayne State U., Distinguished Lecture Series (3 talks), November, 2005.
7. University of Nebraska, Colloquium, January, 2006.
8. University of Texas, San Antonio, Colloquium, February, 2006.
9. Iowa State University, Colloquium, March, 2006.
10. University of Saskachewan, Colloquium, September, 2008.
11. Vanderbilt University, Colloquium, October, 2008.
12. University of Windsor, Colloquium, September, 2009.
13. University of Western Ontario, Colloquium, October, 2009.
14. University of Athens, Survey Lectures (3 lectures), July, 2010.
15. Bowling Green University, Colloquium, October, 2010.
16. University of Houston, Functional Analysis Seminar, February, 2012.
17. Wayne State University, Colloquium, February, 2012.
18. Fields-Carleton Distinguished Lecture Series, Ottawa, April, 2012.
19. York University, Colloquium, January, 2013.
20. Universität des Saarlandes, Analysis Seminar, April, 2014.
21. SUNY Buffalo, Analysis Seminar, September, 2014.
22. University of Virginia, Colloquium, April, 2015.
23. Texas A&M University, R.G. Douglas Lectures, October, 2015 (3 lecture series).
24. University of Manitoba, PIMS Distinguished Lecture, April, 2016.
25. Lancaster University, LMS lecture tour (2 talks), April 2017.
26. University of Newcastle, LMS lecture tour (2 talks), June 2017.
27. Queen's University Belfast, LMS lecture tour (1 talk), June 2017.
28. Carleton University, Analysis seminar, January, 2018.
29. University of Ottawa, Analysis seminar, March, 2018.
30. University of Regina, PIMS Distinguished Lecture, October, 2018.
31. University of Regina, Analysis Seminar, October, 2018.
32. Athens Functional Analysis Seminar (online), December, 2020.

STUDENTS and POSTDOCS

Undergraduate Summer Research Students

1. Mike van Gogh, 1983.
2. Yong Du, 1986
3. Marc Ordower, 1990, 1991.
4. Daniel Brown, 1993.
5. Jason Bell, 1995
6. Ian Vandenberg, Wai Ling Yee (jointly supervised) 1998.
7. Masoud Kargampour, 2001.
8. Geoffrey Crutwell, Colin Davidson, Sean Desaulniers (jointly supervised) 2002.
9. Michael Lipnowski, Alex Wright and Aaron Tikuisis (jointly supervised) 2005.
10. Alex Wright, 2008.
11. Eliott Lipnowski, 2010.
12. Daniel Johnstone, Zsolt Tanko and Ren Zhu (jointly supervised) 2011.
13. Edward Cho, Hui Yu (jointly supervised) and Boyu Li, 2012.
14. Dmitri Serbin and Haoran Tang (jointly supervised) 2014.
15. Shouzhen Gu, Alex Gatea and Taras Kolomatski (jointly supervised) 2016.

Masters Students

1. Salah Abou-Zaid, M. Math. 1981. (Professor, Cairo University, Egypt.)
2. Lennox Celestin, M. Math. 1982.
3. Laurent Marcoux, M. Math. 1984. (Continued as my doctoral student.)
4. Sai Wa Ng, M. Math. 1986. (Teaching mathematics in Taiwan.)
5. Allan Donsig, M. Math. 1989. (Associate Professor, University of Nebraska.)
6. Jose Correa, M. Math. 1989. (Lecturer, McGill U.)
7. David Kribs, M. Math. 1996. (Continued as my doctoral student.)
8. Phillipe Larocque, M. Math. 1999. (Continued as my doctoral student.)
9. Daniel Pollock, M. Math. January, 2004.
10. Yanqiao Zhang, M. Math. December, 2005. (Financial analyst in Toronto.)
11. Ryan Hamilton, April, 2009. (Continued as my doctoral student.)
12. Chris Ramsey, April, 2009. (Continued as my doctoral student.)
13. George Hutchinson, August, 2013. (Ph.D., 2018, U. Guelph)
14. Canlin Zhang, August, 2014. (Ph.D. student, Florida State U.)
15. Philip Rui Xiao, April, 2015 (joint with Spiro Karigiannis).
16. Samuel Kim, August, 2016. (Continued as my doctoral student.)
17. Adam Humeniuk, August, 2018. (Continued as my doctoral student.)
18. Shun Zhang, current.

Doctoral Students

1. Laurent Marcoux, Ph.D. 1988. (Professor, University of Waterloo)
2. Houben Huang, Ph.D. 1993. (Vice President, Bank of Montreal)
3. David Kribs, Ph.D. 2000. (Professor, University of Guelph)
4. Phillipe Larocque, Ph.D. 2004. (Financial analyst, National Bank, Montreal)
5. Matthew Kennedy, Ph.D 2011. (Associate Professor, University of Waterloo)
6. Adam Fuller, Ph.D. 2012. (Assistant Professor, Ohio University)
7. Ryan Hamilton, Ph.D. 2012. (Instructor, University of Calgary)

8. Chris Ramsey, Ph.D. 2013. (Assistant Professor, MacEwan University)
9. Michael Hartz, Ph.D. 2016. (Juniorprofessor, Universität des Saarlandes)
10. Adam Dor-On, Ph.D. 2017 (J.L. Doob Research Asst. Prof., U. Illinois).
11. Jasper Wiart, Ph.D. 2017 (PDF, JKU Linz, Austria).
12. Boyu Li, Ph.D. 2018 (PIMS PDF, U. Victoria).
13. Samuel Kim, Ph.D. 2020 (PDF, U. Glasgow).
14. Adam Humeniuk, current (started in 2018).

Postdoctoral Fellows

1. Sing Chong Ong, 1980–81. (Professor, Central Michigan University.)
2. Mahmood Khoshkam, 1983–84. (formerly U. Saskatchewan; deceased 2003.)
3. Hong Sheng Yin, 1988–90. (Teacher in Shanghai.)
4. Gordon MacDonald, 1988–90. (Professor, U. Prince Edward Island.)
5. Kehe Zhu, 1988. (Professor, SUNY, Albany.)
6. John Orr, 1989–1991. (Professor, University of Nebraska.)
7. Zong Yao Wang, 1990–92. (Professor, ECUST, Shanghai, China.)
8. Phillip Morenz, 1992–93. (Financial analyst, Toronto.)
9. Timothy Hudson, 1992–94. (Professor, Southeastern Louisiana U.)
10. Ileana Ionascu, 1994–96. (Associate Professor, Philadelphia University.)
11. Allan Donsig, 1995–97. (Associate Professor, University of Nebraska.)
12. Miron Shpigel, 1997–99. (Financial analyst, CIBC.)
13. Peter Friis, 1999–2001. (Banker in Copenhagen, Denmark.)
14. Jiankui Li, 2001–2003. (Professor, ECUST, Shanghai, China.)
15. Rupert Levene, 2004–2006. (Lecturer, University College, Dublin.)
16. Dilian Yang, 2006–2008. (Associate Professor, University of Windsor.)
17. Jean Roydor, 2007–2009. (Maitre de conférence, Université de Bordeau).
18. Trieu Le, 2008–2009. (Lecturer, University of Toledo.)
19. Orr Shalit, 2009–2011. (Assistant Professor, Technion).
20. Evgenios Kakariadis, 2011–2013. (Assistant Professor, University of Newcastle)
21. Raphael Clouatre, 2013–2015 (Assistant Professor, University of Manitoba)
22. Timothy Rainone, 2015–2016. (PDF, Arizona State University)
23. Chris Schafhauser, 2015–2018. (Assistnt Professor, University of Nebraska)
24. Eli Shamovich, 2017–2019. (Assistant Professor, Ben Gurion University)
25. Ben Passer, 2018–2020 (Assistant Professor, U.S. Naval Academy)
26. Guy Salomon, 2018–2020 (PDF, Weizmann Institute of Science)

PUBLICATIONS

Refereed Journals

1. K.R. Davidson and E. Shamovich, *Nevanlinna-Pick Families and Singular Rational Varieties*, Operator Theory, Operator Algebras and Their Interactions with Geometry and Topology, Operator Theory: Advances and Applications **278**, R. Curto et al. (eds.), Springer-Verlag, 2020, pp.129—145.
2. K.R. Davidson, A. Dor-On and Boyu Li, *Structure of free semigroupoid algebras*, J. Funct. Anal. **277** (2019), 3283–3350.
3. K.R. Davidson and E.T.A. Kakariadis, *A proof of Boca's Theorem*, Proc. A Royal Soc. Edinburgh **149** (2019), 869–876.
4. K.R. Davidson, A.H. Fuller and E.T. Kakariadis, *Semicrossed products of operator algebras: a survey*, New York J. Math. **24a** (2018), 56–86.
5. R. Clouatre and K.R. Davidson, *Ideals in a multiplier algebra on the ball*, Trans. Amer. Math. Soc. **370** (2018), 1509–1527.
6. K.R. Davidson, V.I. Paulsen and H.J. Woerdeman, *Complete spectral sets and numerical range*, Proc. Amer. Math. Soc. **146** (2018), 1189–1195.
7. K.R. Davidson, A. Dor-On, O.M. Shalit and B. Solel, *Dilations, inclusions of matrix convex sets, and completely positive maps*, International Mathematics Research Notices (IMRN) **2017** (2017), 4069–4130.
8. K.R. Davidson, A.H. Fuller and E.T. Kakariadis, *Semicrossed Products of Operator Algebras by Semigroups*, Memoirs Amer. Math. Soc. **247**, No. 1168 (2017), (97 + v pages)
9. R. Clouatre and K.R. Davidson, *Absolute continuity for commuting row contractions*, J. Funct. Anal. **271** (2016), 620–641.
10. R. Clouatre and K.R. Davidson, *Duality, approximation and absolute continuity in Drury-Arveson space*, Adv. Math. **295** (2016), 90–149.
11. R. Clouatre and K.R. Davidson, *The unit ball of the predual of $H^\infty(\mathbb{B}_d)$ has no extreme points*, Proc. Amer. Math. Soc. **144** (2016), 1575–1580.
12. K.R. Davidson and M. Kennedy, *The Choquet boundary of an operator system*, Duke Math. J. **164** (2015), 2989–3004.
13. K.R. Davidson and D.R. Pitts, *Erratum to: The algebraic structure of noncommutative analytic Toeplitz algebras*, Math. Annalen **361** (2015), 1123–1124.
14. K. Davidson, M. Hartz and O. Shalit, *Multipliers of embedded discs*, Complex Analysis and Operator Theory **9** (2015), 287–321. *Erratum*, ibid., 323–327.
15. K.R. Davidson, C. Ramsey and O.M. Shalit, *Operator algebras for analytic varieties*, Trans. Amer. Math. Soc. **367** (2015), 1121-1150.
16. K.R. Davidson and E.T. Kakariadis, *Conjugate dynamical systems on C*-algebras*, Int. Math. Res. Not. IMRN **2014** (2014), 1289–1311.
17. K.R. Davidson, *The C*-envelope of an operator algebra*, CMS Notes **46**, no.2, (2014), 15–16.

18. K.R. Davidson and E.T. Kakariadis, *Conjugate dynamical systems on C*-algebras*, Int. Math. Res. Not. IMRN **2014** (2014), 1289–1311.

19. M.D. Choi and K.R. Davidson, *A 3×3 dilation counterexample*, Bull. London Math. Soc. **45** (2013), 511–519.

20. K.R. Davidson, *The mathematical legacy of William Arveson*, J. Operator Theory **68** (2012), 307–334.

21. K.R. Davidson and E.K. Katsoulis, *Semicrossed products of the disc algebra*, Proc. Amer. Math. Soc. **140** (2012) 3479–3484.

22. K.R. Davidson and J. Roydor, *Isomorphisms of tensor algebras of topological graphs*, Indiana Univ. Math. J. **60** (2011), 1249–1266.

23. K.R. Davidson and E.K. Katsoulis, *Dilation theory, commutant lifting and semicrossed products*, Documenta Math. **16** (2011) 781–868.

24. K.R. Davidson, C. Ramsey and O.M. Shalit, *The isomorphism problem for some universal operator algebras*, Advances Math. **228** (2011), 167–218.

25. K.R. Davidson and Ryan Hamilton, *Nevanlinna-Pick Interpolation and Factorization of Linear Functionals*, Integral Equations & Operator Theory **70** (2011), 125–149.

26. K.R. Davidson and A. Wright, *Operator algebras with unique preduals*, Canad. Math. Bull. **54** (2011), 411–421.

27. K.R. Davidson and E.K. Katsoulis, *Operator algebras for multivariable dynamics*, Memoirs Amer. Math. Soc. **209** (2011) no. **982**, 53+viii pages.

28. K.R. Davidson and Trieu Le, *Commutant lifting for commuting row contractions*, Bull. London Math. Society, **42** (2010), 506–516.

29. K.R. Davidson, S.C. Power and Dilian Yang, *Dilation Theory for rank 2 graph algebras*, J. Operator Theory **63** (2010), 245–270.

30. K.R. Davidson and E.K. Katsoulis, *Dilating covariant representations of the non-commutative disc algebras*, J. Funct. Anal. **259** (2010), 817–831.

31. K.R. Davidson and J. Roydor, *C*-envelopes of tensor algebras for multivariable dynamics*, Proc. Edinburgh Math. Soc. **53** (2010), 333–351. Corrigendum PEMS **54** (2011), 643–644.

32. K.R. Davidson and Dilian Yang, *Representations of Higher Rank Graph Algebras*, New York J. Math. **15** (2009), 169–198.

33. K.R. Davidson and Dilian Yang, *Periodicity in Rank 2 Graph Algebras*, Canad. J. Math. **61** (2009), 1239–1261.

34. K.R. Davidson and Y.Q. Ji, *Topological stable rank of nest algebras*, Proc. J. London Math. Soc. **98** (2009), 652–678.

35. K.R. Davidson, V.I. Paulsen, M. Raghupathi and D. Singh, *A Constrained Nevanlinna-Pick Interpolation Problem*, Indiana Univ. Math. J. **58** (2009), 709–732.

36. K.R. Davidson and E.K. Katsoulis, *Semicrossed Products of Simple C*-algebras*, Math. Annalen **342** (2008), 515–525.

37. K.R. Davidson, S.C. Power and Dilian Yang, *Atomic Representations of Rank 2 Graph Algebras*, J. Funct. Anal. **255** (2008), 819–853.
38. K.R. Davidson, L. Marcoux and H. Radjavi, *Transitive subspaces*, Integral Equations and Operator Theory **61** (2008), 187–210.
39. K.R. Davidson and E.K. Katsoulis, *Isomorphisms between topological conjugacy algebras*, J. Reine Angew. Math. **621** (2008), 29–51.
40. K.R. Davidson, L. Marcoux, R. Levene and H. Radjavi, *On the topological stable rank of non-selfadjoint operator algebras*, Math. Annalen **341** (2008), 239–253. Erratum, p. 963–964.
41. K.R. Davidson and D. Yang, *A note on absolute continuity in free semigroup algebras*, Houston J. Math. **34** (2008), 283–288.
42. K.R. Davidson and A.P. Donsig, *Norms of Schur multipliers*, Illinois J. Math. **51** (2007), 785–807.
43. K.R. Davidson and E. Katsoulis, *Nest representations of directed graph algebras*, Proc. London Math. Soc. **92** (2006), 762–790.
44. K.R. Davidson and R.H. Levene, *1-hyperreflexivity and complete hyperreflexivity*, J. Func. Anal. **235** (2006), 666–701.
45. K.R. Davidson, $\mathcal{B}(\mathcal{H})$ *is a free semigroup algebra*, Proc. Amer. Math. Soc. **134** (2006), 1753–1757.
46. K.R. Davidson and R.G. Douglas, *Generalized Berezin Transform and Commutator Ideals*, Pacific J. Math. **222** (2005), 29–56.
47. K.R. Davidson and D.Z. Djokovic, *Tridiagonal forms in low dimensions*, Linear Algebra Appl. **407** (2005), 169–188.
48. K.R. Davidson, J.K. Li and D.R. Pitts. *A Kaplansky Density Theorem for Free Semigroup Algebras*, J. Func. Anal. **224** (2005), 160–191.
49. K.R. Davidson and L.W. Marcoux, *Linear spans of unitary and similarity orbits of a Hilbert space operator*, J. Operator Theory **52** (2004), 113–132.
50. K.R. Davidson, E. Katsoulis and J. Peters, *Meet irreducible ideals and representations of limit algebras*, J. Func. Anal. **200** (2003),23–30.
51. K.R. Davidson and E. Katsoulis, *Primitive limit algebras and C*-envelopes*, Advances in Math. **170** (2002), 181–205.
52. K.R. Davidson, E. Katsoulis and D.R. Pitts, *The structure of free semigroup algebras*, J. reine angew. Math. (Crelle) **533** (2001), 99–125.
53. K.R. Davidson, D.W. Kribs and M.E. Shpigel, *Isometric dilations of non-commuting finite rank n-tuples*, Canad. J. Math. **53** (2001), 506–545.
54. K.R. Davidson and D.R. Pitts, *Invariant subspaces and hyper-reflexivity for free semigroup algebras*, Proc. London Math. Soc. **78** (1999), 401–430.
55. K.R. Davidson and J.L. Orr, *Principal bimodules of nest algebras*, J. Func. Anal. **157** (1998), 488–533.
56. K.R. Davidson, *The Russo–Dye theorem for nest algebras*, Proc. Amer. Math. Soc. **126** (1998), 3055–3059.

57. K.R. Davidson and D.R. Pitts, *Nevanlinna–Pick Interpolation for non-commutative analytic Toeplitz algebras*, Integral Eqtns. & Operator Thy. **31** (1998), 321–337.
58. K.R. Davidson and D.R. Pitts, *The algebraic structure of non-commutative analytic Toeplitz algebras*, Math. Ann. **311** (1998), 275–303.
59. K.R. Davidson and G. Popescu, *Noncommutative disc algebras for semigroups*, Can. J. Math. **50** (1998), 290–311.
60. K.R. Davidson, *Nest algebras are hyperfinite*, Illinois J. Math. **42** (1998). 107–122.
61. K.R. Davidson, A.P. Donsig and T.D. Hudson, *Norm-closed bimodules of nest algebras*, J. Operator Thy. **39** (1998), 59–87.
62. K.R. Davidson and V.I. Paulsen, *Polynomially bounded operators*, J. Reine Angew. Math. **487** (1997), 153–170.
63. K.R. Davidson, *Normalizers of finite multiplicity nests*, Proc. Edin. Math. Soc., **39** (1996), 337–344.
64. K.R. Davidson, J.L. Orr and D.R. Pitts, *Connectedness of the invertibles in certain nest algebras*, Can. Math. Bull.**38** (1995), 412–420.
65. K.R. Davidson, K.H. Harrison, and J.L. Orr, *Epimorphisms of nest algebras*, Int'l. J. Math., **6** (1995), 657–687.
66. K.R. Davidson, K.H. Harrison, and U.A. Mueller, *Rank decomposability in incidence spaces*, Lin. Alg. Appl. **230** (1995), 3–19.
67. K.R. Davidson, *When locally contractive representations are completely contractive*, J. Func. Anal. **128** (1995), 186–225.
68. K.R. Davidson and J.L. Orr, *The invertibles are connected in infinite multiplicity nest algebras*, Bull. London Math. Soc. **27** (1995), 155–161.
69. K.R. Davidson and D.R. Pitts, *Approximate unitary equivalence of completely distributive commutative subspace lattices*, J. Integral Equations & Operator Thy. **22** (1995), 196–211.
70. K.R. Davidson and J.L. Orr, *The Jacobson radical of a CSL Algebra*, Trans. Amer. Math. Soc. **344** (1994), 925–947.
71. K.R. Davidson and M. Ordower, *Some Exact Distance Constants*, Lin. Alg. Appl. **208/209** (1994), 37–55.
72. K.R. Davidson and H. Huang, *Universal factorization of positive operators*, Indiana U. Math. J. **43** (1994), 131–142.
73. K.R. Davidson and F. Zarouf, *Incompatibility of compact perturbations with the Sz. Nagy—Foiaş functional calculus*, Proc. Amer. Math. Soc. **121** (1994), 519–522.
74. K.R. Davidson, V.I. Paulsen, and S.C. Power, *Tree algebras, semidiscreteness, and dilation theory*, Proc. London Math. Soc.(3) **68** (1994), 178–202.
75. K.R. Davidson and N. Salinas, *Joint quasitriangularity of essentially unitary pairs*, Amer. J. Math. **115** (1993), 861–879.

76. I.D. Berg and K.R. Davidson, *A quantitative version of the Brown-Douglas-Fillmore Theorem*, Acta. Math. **166** (1991), 121–161.
77. K.R. Davidson, *Ideal perturbations of nest algebras*, J. Operator Thy. **26** (1991), 241–253.
78. K.R. Davidson and S.C. Power, *Isometric automorphisms and homology for nonself adjoint operator algebras*, Quarterly J. Math. (2) **42** (1991), 271–292.
79. K.R. Davidson, *Lifting positive elements in C*-Algebras*, J. Integral Equations & Operator Thy. **14** (1991), 183–191.
80. K.R. Davidson, *Domingo Herrero: his theorems and problems*, Houston J. Math. **17** (1991), 453–476, (special memorial issue).
81. K.R. Davidson and D.A. Herrero, *The Jordan form of a bitriangular operator*, J. Func. Anal. **94** (1990), 27–73.
82. K.R. Davidson and D.R. Pitts, *Compactness and complete distributivity for commutative subspace lattices*, J. London Math. Soc. (2) **42** (1990), 147–159.
83. K.R. Davidson, *The relationship between distance formulae and compact perturbations of reflexive algebras*, Canadian Math. Bull. **33** (1990), 489–493.
84. K.R. Davidson, *Problems in reflexive algebras*, Proc. GPOTS 1987, Rocky Mountain Math. J. **20** (1990), 317–330.
85. K.R. Davidson and K.J. Harrison, *A distance formula for subspace lattices*, J. London Math. Soc. (2) **39** (1989), 309–323.
86. K.R. Davidson and D.A. Herrero, *Quasisimilarity of nests*, Pacific J. Math. **138** (1989), 243–257.
87. K.R. Davidson, D.A. Herrero and N. Salinas, *Quasidiagonal operators, approximation, and C*-algebras*, Indiana Univ. J. Math. **38** (1989), 973–998.
88. C. Apostol and K.R. Davidson, *Isomorphisms of Nest algebras modulo the compact operators II*, Duke J. Math. **56** (1988), 101–127.
89. K.R. Davidson, T. Feeman and A. Shields, *Extreme points in quotients of operator algebras*, in Topics in Operator Theory, C. Apostol Memorial Issue, Operator Theory Adv. Appl. **32**, Birkhauser Verlag 1988, pp.67–91.
90. K.R. Davidson, *Estimating the distance between unitary orbits*, J. Operator Theory **20** (1988), 21–40.
91. K.R. Davidson, *Normal operators are diagonal plus Hilbert-Schmidt*, J. Operator Theory **20** (1988) 241–250.
92. K.R. Davidson and J.A.R. Holbrook, *Numerical radii of zero-one matrices*, Mich. J. Math. **35** (1988), 261–267.
93. K.R. Davidson, *The distance to the analytic Toeplitz operators*, Illinois J. Math. **31** (1987), 265–273.
94. I.D. Berg and K.R. Davidson, *Almost commuting matrices and the Brown-Douglas-Fillmore Theorem*, Bull. Amer. Math. Soc. **16** (1987), 97–100.
95. K.R. Davidson, *Banach spaces antiproximinal in their biduals*, J. Approximation Theory **47** (1986), 203–213.

96. K.R. Davidson, *The distance between unitary orbits of normal operators*, Acta. Sci. Math. (Szeged) **50** (1986), 213–223.
97. M.D. Choi and K.R. Davidson, *Perturbations of finite dimensional algebras*, Michigan J. Math. **33** (1986), 273–287.
98. K.R. Davidson, *Perturbations of reflexive operator algebras*, J. Operator Theory **15** (1986), 289–305.
99. K.R. Davidson, *Approximate unitary equivalences of continuous nests*, Proc. Amer. Math. Soc. **97** (1986), 655–660.
100. K.R. Davidson and D.A. Herrero, *Decomposition of Banach space operators*, Indiana Math. J. **35** (1986), 333–343.
101. K.R. Davidson and S.C. Power, *Best approximation in C*-algebras*, J. Reine Angew. Math. **368** (1986), 43–62.
102. K.R. Davidson, *Continuous nests and the strange behaviour of Ext*, Bull. London Math. Soc **18** (1986), 485–492.
103. K.R. Davidson, *Almost commuting Hermitian matrices*, Math. Scand. **56** (1985), 222–240.
104. K.R. Davidson, *Similarity and compact perturbations of nest algebras*, J. Reine Angew. Math. **348** (1984), 72–87.
105. K.R. Davidson and D. O'Donovan, *Isometric images of C*-algebras*, Can. Math. Bull. **27** (1984), 286–294.
106. K.R. Davidson and B. Wagner, *Automorphisms of quasitriangular algebras*, J. Func. Anal. **59** (1984), 612–627.
107. K.R. Davidson, *Approximate unitary equivalence of power partial isometries*, Proc. Amer. Math. Soc. **91** (1984), 81–84.
108. J. Barria and K.R. Davidson, *Unicellar operators*, Trans. Amer. Math. Soc. **284** (1984), 220–246.
109. K.R. Davidson, *The distance between unitary orbits of normal elements of the Calkin algebra*, Proc. A, Royal Soc. Edinburgh **99A** (1984), 35–43.
110. K.R. Davidson, *Berg's technique and irrational rotation algebras*, Proc. Royal Irish Acad. **84A** (1984), 117–123.
111. K.R. Davidson and S.C. Power, *Failure of the distance formula*, J. London Math. Soc. (2) **32** (1984), 157–165.
112. K.R. Davidson and M. Vidyasagar, *Causal invertibility and feedback stability of half plane two dimensional digital filters*, IEEE Trans. ASSP **31** (1983), 195–201.
113. K.R. Davidson, *Pointwise limits of analytic functions*, Amer. Math. Monthly **90** (1983), 391–394.
114. K.R. Davidson, *Quasitriangular algebras are maximal*, J. Operator Theory **10** (1983), 51–56.
115. K.R. Davidson, *The essential commutant of CSL algebras*, Indiana Univ. Math. J. **32** (1983), 761–771.

116. K.R. Davidson, *Essentially spectral operators*, Proc. London Math. Soc. **46** (1983), 547–560.
117. K.R. Davidson, *Lifting commuting pairs of C^*-algebras*, J. Func. Anal. **48** (1982), 20–42.
118. K.R. Davidson, *Invariant operator ranges and reflexive algebras*, J. Operator Theory **7** (1982), 101–107.
119. K.R. Davidson, *Compact perturbations of reflexive algebras*, Can. J. Math. **33** (1981), 685–700.
120. K.R. Davidson, *A proof of the boundary theorem*, Proc. Amer. Math. Soc. **82** (1981), 58–60.
121. K.R. Davidson, *Quadratic forms and sums of squares*, Glasnik J. Math. **16** (1981), 199–204.
122. J. Baker and K.R. Davidson, *On the cosine equation*, Glasnik J. Math. **16** (1981), 269–276.
123. K.R. Davidson and C.T. Ng, *Information measures and cohomology*, Utilitas Math. J. **20** (1981), 27–34.
124. C. Cowen, K.R. Davidson and R.P. Kaufman, *Rearranging the alternating harmonic series*, Amer. Math. Monthly **87** (1980), 817–819.
125. K.R. Davidson, *Commutative subspaces lattices*, Indiana Univ. Math. J. **27** (1978), 479–490.
126. K.R. Davidson, *On operators commuting with Toeplitz operators modulo the compact operators*, J. Func. Anal. **24** (1977), 291–302.
127. K.R. Davidson and C.K. Fong, *An operator algebra which is not closed in the Calkin algebra*, Pacific J. Math. **72** (1977), 57–58.
128. K.R. Davidson, *Compact perturbations of operator algebras*, dissertation, University of California, Berkeley, 1976.

Reviews

129. K.R. Davidson, *Review of* The Pea and the Sun *by L.M. Wapner*, C.M.S. Notes **38**, no.1, 5.
130. K.R. Davidson, *Review of* Limit algebras: an introduction to subalgebras of C*-algebras, *by S.C. Power*, Bull. London Math. Soc. **27** (1995), 93–94.
131. K.R. Davidson, *Review of* Approximation of Hilbert Space Operators, vol. I and II, *by D. Herrero, C.Apostol, L. Fialkow and D. Voiculescu*, Bull. Amer. Math. Soc. **15** (1986), 91–98.

Refereed Conference Proceedings

132. K.R. Davidson, R.G. Douglas, J. Eschmeier and H. Upmeier, *Hilbert modules and complex geometry*, Oberwolfach Reports, OWR **11** (2014), 1139–1219.
133. K.R. Davidson and E.K. Katsoulis, *Biholomorphisms of the unit ball of $\mathbb{C}^n$ and semicrossed products*, Operator Theory Live: conference proceedings, Timisoara, July 3–8, 2008, pp. 69–80, Theta Foundation, 2010.

134. K.R. Davidson and E.K. Katsoulis, *Nonself-adjoint operator algebras for dynamical systems*, in Operator Structures and Dynamical Systems, M. de Jeu, S. Silvestrov, C. Skau, and J. Tomiyama, eds., Contemporary Math. **503** (2009), pp. 39–51.
135. K.R. Davidson, *Free semigroup algebras, a survey*, Systems, approximation, singular integral operators, and related topics (Bordeaux, 2000), 209–240, Oper. Theory Adv. Appl., **129**, Birkhauser, Basel, 2001.
136. K.R. Davidson, *Polynomially bounded operators*, NATO ASI Proceedings, Samos, Greece, August, 1996, *Operator algebras and applications*, pp. 145–162, Kluger Acad. Pub., Dordrecht, 1997.
137. K.R. Davidson, *Commutative subspace lattices, complete distributivity, and approximation*, Cont. Math. **185** (1995), 89–107.
138. K.R. Davidson, *Isomorphisms of nest algebras and their quotients*, Proc. AMS Summer Inst. in Operator Theory, Durham, N.H., July 1988, Proc. Symp. Pure Math. **51** (1990), Part 1, 171–178.
139. K.R. Davidson, *Finite dimensional problems in operator theory*, The Gohberg Anniversary Collection, Operator Theory: Advances and Applications **40**, 187–201. Birkhauser Verlag Basel, 1989.
140. K.R. Davidson, *A survey of nest algebras*, Analysis at Urbana, vol II, 221–242, London Math. Soc. Lecture Notes **138**, Cambridge University Press, 1989.
141. J. Barria and K.R. Davidson, *Examples of chains of invariant subspaces*, Operator Theory: Advances and Applications **17**, 51–54, Birkhauser Verlag Basel, 1986.
142. K.R. Davidson, *Commuting pairs of C*-algebras in the Calkin algebra*, Proc. Symp. Pure Math. **38**, part 2 (1980), 606–607.

Books and Chapters

143. A. Borichev, K. Davidson, S. Kupin, G. Pisier, F. Vasilescu, and V. Vasyunin, editors, Recent Trends in Analysis: Proceedings of the Conference in Honor of Nikolai Nikolski, Bordeaux, 2011, Theta Foundation, Bucharest, 2013.
144. K.R. Davidson, *Essentially normal operators*, in A glimpse of Hilbert space operators: Paul R. Halmos in memoriam, S. Axler, P. Rosenthal and D. Sarason, eds., Springer Verlag, 2010.
145. K.R. Davidson and A.P. Donsig, Real Analysis and Applications: Theory in Practice, Undergraduate Texts in Mathematics , Springer Verlag, New York, 2010.
146. K.R. Davidson, D. Gaspar, S. Stratila, D. Timotin and F.H. Vasilescu, editors, Operator Theory 20, The Theta Foundation, Bucharest, 2006.
147. K.R. Davidson and A.P. Donsig, Real Analysis with Real Applications, 624 pages, Prentice Hall, Saddle River, NJ, 2002.
148. K.R. Davidson and S.J. Szarek, *Local operator theory, random matrices and Banach spaces*, Handbook of the Geometry of Banach Spaces, Vol. I, chapter 8, 317–366, W.B. Johnson and J. Lindenstrauss, editors; North-Holland, Amsterdam, 2001.

149. K.R. Davidson and S.J. Szarek, *Addenda and corrigenda to: "Local operator theory, random matrices and Banach spaces"*, Handbook of the Geometry of Banach Spaces, Vol. 2, 1819–1820, North-Holland, Amsterdam, 2003.
150. K.R. Davidson, C*-Algebras by Example, Fields Institute Monograph Series **6**, American Mathematical Society, Providence, RI, 1996.
151. K.R. Davidson, Integer and Polynomial Algebra, Course notes, University of Waterloo, Faculty of Mathematics, 1994.
152. K.R. Davidson, Nest Algebras, Pitman Research Notes in Mathematics Series **191**, Longman Scientific and Technical Pub. Co., London, New York, 1988.

To Appear in Refereed Journals

153. K.R. Davidson and B. Passer, *Strongly Peaking Representations and Compressions of Operator Systems*, IMRN, Accepted Aug. 2020 (28 pages)

Papers Submitted

154. K.R. Davidson and M. Kennedy, *Noncommutative Choquet theory*, Inventiones, submitted June 2019 (79 pages).
155. K.R. Davidson and M. Hartz, *Interpolation and duality in algebras of multipliers on the ball*, J.E.M.S., submitted April, 2020 (43 pages)
156. K.R. Davidson and M. Kennedy, *Choquet order and hyperrigidity for function systems*, Adv. Math., submitted Sept. 2020 (30 pages).

TEACHING

Undergraduate Courses

I have taught a wide variety of courses in analysis and algebra.

Analysis: calculus at all levels, multivariable calculus, real analysis at various levels, differential equations, complex analysis, Fourier analysis, point set topology, measure theory, topics in complex analysis, functional analysis.

Algebra: introductory algebra, linear algebra at various levels, group theory, rings and fields, non-commutative rings and group representations.

Course Development and Undergraduate Texts

Course notes for Math 145. This is an introductory course in algebra dealing with integers and polynomials, including modular arithmetic and the rudiments of finite fields. A lower level course for the majority of first year Waterloo math students follows a text written by W.G. Gilbert. These notes are intended as a more challenging course for the top students.

Real Analysis and Applications: Theory in Practice (with Allan Donsig). This is an undergraduate textbook on real analysis which, in addition to developing all of the standard results and techniques, is roughly 50% aimed at applications, with a view to demonstrating where the tools of real analysis are used. It is designed for students in applied mathematics and computer science primarily.

Graduate Courses (some taught multiple times)

1. Measure Theory
2. Functional Analysis
3. Harmonic Analysis
4. Operator Theory
5. Banach Algebras
6. Nest Algebras
7. C*-algebras
8. Completely Bounded Maps
9. Topics in Operator Theory
10. Dilation Theory
11. Topological dynamics
12. Nonself-adjoint operator algebras
13. H^p spaces

Graduate Texts

Nest Algebras. This is a graduate/research treatise on nest algebras, the class of nonself-adjoint operator algebras which generalizes the algebra of upper triangular matrices. It starts assuming a basic course in functional analysis and operator theory, and provides both students and researchers with a complete picture of the state of the art up to 1987. This is the standard reference for everyone in the field.

C*-Algebras by Example. This is a graduate level text designed to introduce graduate students to the modern approach to C*-algebras. As the title suggests, the focus is on an analysis of concrete examples, through which many of the important concepts are developed. This is consistent with the development of the discipline in the past 25 years. It has proven to be a popular textbook in the subject.