

# David Peter Blecher

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## EDUCATION

1985-1988    Ph.D, University of Edinburgh, Scotland  
1984-1985    MAsT (Master of Advanced Study) Cambridge University, England  
1980-1983    B.Sc.(Hons), University of the Witwatersrand

## MISCELLANY

Associate Chair, Department of Mathematics (January 2014–).  
Research Area            Functional analysis, operator algebras, operator theory  
Nationality                USA (Born in Britain)  
Awards                      University of Houston Award for Excellence in Research and Scholarship (1996)

## ACADEMIC POSITIONS

2000-            Professor, University of Houston, Department of Mathematics  
1995-2000      Associate Professor, University of Houston  
1999             Visiting Professor, Institut Henri Poincare, Paris (September-October)  
1991-1993      Visiting Adj. Asst. Professor/NSF Postdoc, University of California, Berkeley  
Spring 1992    Visiting Asst. Professor University of Missouri, Columbia, Missouri  
1989-1995      Asst. Professor, University of Houston  
1988-1989      Visiting Asst. Professor, University of Houston

## Editorial boards

Associate Editor, Journal of Mathematical Analysis and Applications (2008-) Impact factor 1.120. 5-year impact factor 1.204.

Editor, Houston Journal of Mathematics (2010-)

## Citations

About 87 papers and books.

Citations google scholar 2572, MathScinet 1275, as of Feb 2017.

## RESEARCH GRANTS

Continuous NSF support as PI or CoPI 1991–2016.

Simons Foundation Collaborative grant	PI, Noncommutative function theory and operator algebras, 527078, \$ 42K, 2017–2022.
2016-2017 Minigrant (Math Dept):	Visiting Scholar (\$ 5000). PI's Blecher and Kalantar.
NSF	PI, Noncommutative function theory in operator algebras and operator spaces, DMS 1201506, \$ 86K, 2012-2016,
NSF	CO-PI (PI Paulsen), GPOTS 2011 and 2012, DMS1101654, \$25K, 2011-2013
NSF	PI, Noncommutative functional analysis, operator algebras, and operator spaces, DMS 0800674, \$80K, 2008-2011 (Support period extended for additional period)
NSF	PI, Structure in operator spaces and algebras, DMS 0400731, \$117,246, 2004-2007 (Support extended to 2008)
NSF	Co-PI with Paulsen, Papadakis, Operator algebras, operator spaces, frames and applications, \$174,000, 2000-2003 (Support extended to 2004)
NSF	Coinvestigator, PI's Canic and Dean, Research Experiences for Undergraduates, Topics in Geometry, Analysis, Number Theory and Numerical Analysis, \$60,000, 2000-2002
NSF	Co-PI with Paulsen, Operator algebras, modules and completely bounded maps, \$214,000, 1997-2000
NSF	Co-PI with Paulsen, Operator algebras and reproducing kernel Hilbert spaces, \$145,000, 1994-1997
NSF	Co-PI with Paulsen, Operator algebras and reproducing kernel Hilbert spaces, \$82,785, 1991-1993
NSF	Supported as postdoc, PI Paulsen, Operator algebras, \$82,785, 1989–1991

Department of Mathematics Minigrants (under \$10K): 2006, 2008.

## BOOKS

1. OPERATOR ALGEBRAS AND THEIR MODULES - AN OPERATOR SPACE APPROACH, (with C. Le Merdy), Oxford University Press (2004)
2. CATEGORIES OF OPERATOR MODULES - MORITA EQUIVALENCE AND PROJECTIVE MODULES, (with P. S. Muhly and V. I. Paulsen). *Memoirs Amer. Math. Soc.* 681 (2000)
3. THE CALCULUS OF ONE-SIDED  $M$ -IDEALS AND MULTIPLIERS IN OPERATOR SPACES, (with V. Zarikian), *Memoirs Amer. Math. Soc.* 842 (2006).

## CONFERENCE PROCEEDINGS<sup>1</sup>

4. SOME APPLICATIONS OF A RECENT CHARACTERIZATION OF OPERATOR ALGEBRAS, In “Selfadjoint and Nonselfadjoint Operator Algebras and Operator Theory”, *Contemp. Math.* 120 AMS (1991)

5. GENERALIZING GROTHENDIECK'S PROGRAM, In "Function Spaces", Lecture Notes in Pure and Applied Math. 136, Marcel Dekker (1992)
6. SOME GENERAL THEORY OF OPERATOR ALGEBRAS AND THEIR MODULES, In "Operator Algebras and Applications", Nato ASI Series C, 495, Kluwer (1997).
7. COMPLETE ISOMETRIES - AN ILLUSTRATION OF NONCOMMUTATIVE FUNCTIONAL ANALYSIS, (with D. Hay) Proceedings of 4th Conference on Function Spaces, Contemp. Math. **328**, Amer. Math. Soc. (2003)
8. ARE OPERATOR ALGEBRAS BANACH ALGEBRAS? In *Banach Algebras and Their Applications*, Contemp. Math. **363**, Amer. Math. Soc. (2004)
9. MULTIPLIERS,  $C^*$ -MODULES, AND ALGEBRAIC STRUCTURE IN SPACES OF HILBERT SPACE OPERATORS, pp. 85-128 in "Operator Algebras, Quantization, and Noncommutative Geometry: A Centennial Celebration Honoring John von Neumann and Marshall H. Stone" Contemp. Math. 365, Amer. Math. Soc., 2004.
10. VON NEUMANN ALGEBRAIC  $H^p$  THEORY (with L. E. Labuschagne), Function Spaces: Fifth Conference on Function Spaces, Contemp. Math. Vol. 435, Amer. Math. Soc. (2007).
11. ON A GENERALIZATION OF  $W^*$ -MODULES, (with J. Kraus), Banach Center Publications **91** (2010), 77-86.
12. GENERALIZATION OF  $C^*$ -ALGEBRA METHODS VIA REAL POSITIVITY FOR OPERATOR AND BANACH ALGEBRAS, pages 35-66 in "Operator algebras and their applications: A tribute to Richard V. Kadison", (ed. by R.S. Doran and E. Park), vol. 671, Contemporary Mathematics, American Mathematical Society, Providence, R.I. 2016.

## REFEREED JOURNAL ARTICLES

13. GEOMETRY OF THE TENSOR PRODUCT OF  $C^*$ -ALGEBRAS, *Mathematical Proceedings of the Cambridge Philosophical Society* **104** (1988), 119-127.
14. TRACIALLY COMPLETELY BOUNDED MULTILINEAR MAPS ON  $C^*$ -ALGEBRAS, *Journal of the London Mathematical Society* (2) **39** (1989), 514-524.
15. A CHARACTERIZATION OF OPERATOR ALGEBRAS (with Z-J. Ruan and A. M. Sinclair), *Journal of Functional Analysis* **89** (1990), 288-301.
16. INVARIANT SUBSPACES OF AN OPERATOR ON  $L^2(T)$  COMPOSED OF A MULTIPLICATION AND A TRANSLATION (with A. M. Davie,) *Journal of Operator Theory* **23** (1990), 115-123.
17. TENSOR PRODUCTS WHICH DO NOT PRESERVE OPERATOR ALGEBRAS, *Mathematical Proceedings of the Cambridge Philosophical Society* , **108** (1990), 395-403.
18. COMMUTATIVITY IN OPERATOR ALGEBRAS, *Proceedings of the American Mathematical Society* **109** (1990), 709-715.
19. TENSOR PRODUCTS OF OPERATOR SPACES (with V. I. Paulsen), *Journal of Functional Analysis* **99** (1991), 262-292.
20. EXPLICIT CONSTRUCTION OF UNIVERSAL OPERATOR ALGEBRAS AND APPLICATIONS TO POLYNOMIAL FACTORIZATION (with V. I. Paulsen), *Proceedings of the American Mathematical Society* **112** (1991), 839-850.
21. THE STANDARD DUAL OF AN OPERATOR SPACE, *Pacific Journal of Mathematics* **153** (1992), 15-30.
22. TENSOR PRODUCTS OF OPERATOR SPACES II, *Canadian Journal of Mathematics* **44** (1992), 75-90.

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<sup>1</sup>All but one of these was a refereed proceedings; many of these papers contain several new results which are unpublished elsewhere.

23. THE DUAL OF THE HAAGERUP TENSOR PRODUCT (with R. R. Smith), *Journal of the London Mathematical Society* **45** (1992), 126-144.
24. A COMPLETELY BOUNDED CHARACTERIZATION OF OPERATOR ALGEBRAS, *Math. Annalen* **303** (1995), 227-239.
25. ON QUOTIENTS OF FUNCTION ALGEBRAS, AND OPERATOR ALGEBRA STRUCTURES ON  $l^p$  (with C. Le Merdy), *Journal of Operator Theory* **34** (1995), 315-346.
26. A GENERALIZATION OF HILBERT MODULES, *Journal of Functional Analysis* **136** (1996), 365-421.
27. A NEW APPROACH TO  $C^*$ -MODULES, *Math Annalen* **307** (1997), 253-290.
28. ON SELFDUAL HILBERT MODULES, p.65-80 in "Operator algebras and their applications", *Fields Institute Communications* vol. 13, A.M.S (1997).
29. CONTINUOUS FUNCTIONS ON COMPACT GROUPS, *Proceedings of the American Mathematical Society* **125** (1997), 1177-1185.
30. FACTORIZATIONS IN UNIVERSAL OPERATOR SPACES AND ALGEBRAS, *Rocky Mountain Journal of Mathematics* **27** (1997), 151-167.
31. MORITA EQUIVALENCE OF OPERATOR ALGEBRAS AND THEIR  $C^*$ -ENVELOPES, (with P. S. Muhly and Q. Na), *Bulletin of the London Mathematical Society* **31** (1999), 581-591.
32. MODULES OVER OPERATOR ALGEBRAS AND THE MAXIMAL  $C^*$ -DILATION, *Journal of Functional Analysis*, **169** (1999), 251-288.
33. MULTIPLIERS OF OPERATOR SPACES AND THE INJECTIVE ENVELOPE, (with V. I. Paulsen) *Pacific Journal of Math.*, **200** (2001), 1-17.
34. ON MORITA'S FUNDAMENTAL THEOREM FOR  $C^*$ -ALGEBRAS, *Mathematica Scandinavica* **88** (2001), 137-153.
35. A MORITA THEOREM FOR ALGEBRAS OF OPERATORS ON HILBERT SPACE, *Journal of Pure and Applied Algebra* **156** (2001), 153-169.
36. ON FUNCTION AND OPERATOR MODULES, (with C. Le Merdy) *Proceedings of the American Mathematical Society* **129** (2001), 833-844.
37. THE SHILOV BOUNDARY OF AN OPERATOR SPACE AND THE CHARACTERIZATION THEOREMS, *Journal of Functional Analysis* **182** (2001), 280-343.
38. MULTIPLIERS AND DUAL OPERATOR ALGEBRAS, *Journal of Functional Analysis*. **183** (2001), 498-525.
39. ISOMORPHISMS OF FUNCTION MODULES AND GENERALIZED APPROXIMATION IN MODULUS (with K. Jarosz), *Trans. Amer. Math. Soc.* **354** (2002), 3663-3701.
40. ONE-SIDED M-IDEALS AND MULTIPLIERS IN OPERATOR SPACES. I. (With E. G. Effros and V. Zarikian.) *Pacific Journal of Math.*, **206** (2002), 287-319.
41. LOGMODULARITY AND ISOMETRIES OF OPERATOR ALGEBRAS, (with L. E. Labuschagne), *Trans. Amer. Math. Soc.* **355** (2002), 1621-1646.
42. COMPLETE ISOMETRIES INTO  $C^*$ -ALGEBRAS, (with D. Hay), preprint 2002. (The main result is featured in the recent book by Fleming and Jamison "Isometries on Banach spaces", Chapman and Hall/CRC).
43. MULTIPLIER OPERATOR ALGEBRAS AND APPLICATIONS, (with V. Zarikian) *Proceedings of the National Academy of Sciences of the U.S.A.* **101** (2004), 727-731.

44. ONE-SIDED IDEALS AND APPROXIMATE IDENTITIES IN OPERATOR ALGEBRAS, *J. Australian Math. Soc.* **76** (2004), 425-447.
45. THE IDEAL ENVELOPE OF AN OPERATOR ALGEBRA, (with M. Kaneda) *Proc. Amer. Math. Soc.* **132** (2004), 2103-2113.
46. ONE-SIDED PROJECTIONS ON  $C^*$ -ALGEBRAS. With Roger Smith and V. Zarikian. *J. of Operator Theory* **51** (2004), 201-220.
47. A DOUBLE COMMUTANT THEOREM FOR OPERATOR ALGEBRAS, (with B. Solel) *J. of Operator Theory.* **51** (2004), 435-453.
48. DUALITY AND OPERATOR ALGEBRAS: AUTOMATIC WEAK\* CONTINUITY AND APPLICATIONS, (with B. Magajna) *Journal of Functional Analysis* **224** (2005), 386-407.
49. DUALITY AND OPERATOR ALGEBRAS II: OPERATOR ALGEBRAS AS BANACH ALGEBRAS (with B. Magajna) *Journal of Functional Analysis* **226** (2005), 485-493.
50. ORDERED  $C^*$ -MODULES, (with W. Werner) *Proceedings of the London Mathematical Society* **92** (2006), 682-712.
51. CHARACTERIZATIONS OF NONCOMMUTATIVE  $H^\infty$  (with L. E. Labuschagne), *Journal of Integral Equations and Operator Theory* **56** (2006), 301-321.
52. OPEN PARTIAL ISOMETRIES AND POSITIVITY IN OPERATOR SPACES, (with M. Neal), *Studia Math* **182** (2007), 227-262.
53. ORDERED INVOLUTIVE OPERATOR SPACES (with K. Kirkpatrick, M. Neal, and W. Werner), *Positivity* **11** (2007), 497-510.
54. NONCOMMUTATIVE FUNCTION THEORY AND UNIQUE EXTENSIONS (with L. E. Labuschagne), *Studia Math.* **178** (2007), 177-195.
55. A BEURLING THEOREM FOR NONCOMMUTATIVE  $L^p$  (with L. E. Labuschagne), *Journal of Operator Theory* **59** (2008), 29-51.
56. HEREDITARY SUBALGEBRAS OF OPERATOR ALGEBRAS, (with D. M. Hay and M. Neal), *Journal of Operator Theory* **59** (2008), 333-357.
57. APPLICATIONS OF THE FUGLEDE-KADISON DETERMINANT: SZEGÖ'S THEOREM AND OUTERS FOR NONCOMMUTATIVE  $H^p$  (with L. E. Labuschagne), *Trans. Amer. Math. Soc.* **360** (2008), 6131-6147.
58. EXTENSIONS OF OPERATOR ALGEBRAS I AND II, Part I (with M. Royce) in *J. Math. Analysis and Applns* **339** (2008), 1451-1467. A version of II is available on request.
59. MORITA EQUIVALENCE OF DUAL OPERATOR ALGEBRAS, (with U. Kashyap), *J. Pure and Applied Algebra* **212** (2008), 2401-2412.
60. A CHARACTERIZATION AND A GENERALIZATION OF  $W^*$ -MODULES, (with U. Kashyap), *Trans. Amer. Math. Soc.* **363** (2011), 345-363.
61. NUCLEARITY-RELATED PROPERTIES FOR NONSELFADJOINT ALGEBRAS (with B. Duncan), *J. Operator Theory* **65** (2011), 47-70.  
ERRATA TO NUCLEARITY-RELATED PROPERTIES FOR NONSELFADJOINT ALGEBRAS (with B. Duncan), *J. Operator Theory* **65** (2011), 471-473.
62. METRIC CHARACTERIZATIONS OF ISOMETRIES AND OF UNITAL OPERATOR SPACES AND SYSTEMS, (with Matthew Neal), *Proc. Amer. Math. Soc.* **139** (2011), 985-998.

63. DUAL OPERATOR SYSTEMS, (with B. Magajna), Bull. London Math. Soc. **43** (2011), 311–320.
64. OPERATOR ALGEBRAS WITH CONTRACTIVE APPROXIMATE IDENTITIES, (with Charles Read), J. Functional Analysis **261** (2011), 188–217.
65. IDEALS AND STRUCTURE OF OPERATOR ALGEBRAS, (with M. Almus and S. Sharma) J. Operator Theory **67** (2012), 397–436.
66. OPEN PROJECTIONS IN OPERATOR ALGEBRAS I: COMPARISON THEORY, (with Matthew Neal), Studia Math **208** (2012), 117–150.
67. OPEN PROJECTIONS IN OPERATOR ALGEBRAS II: COMPACT PROJECTIONS, (with Matthew Neal), Studia Math **209** (2012), 203–224.
68. IDEALS AND HEREDITARY SUBALGEBRAS OF OPERATOR ALGEBRAS, (with M. Almus and Charles Read), Studia Math **212** (2012), 65–93.
69. METRIC CHARACTERIZATIONS II, (with Matthew Neal), Illinois J. Math. **57** (2013), 25–41.
70. OPERATOR ALGEBRAS WITH CONTRACTIVE APPROXIMATE IDENTITIES II, (with Charles Read), J. Functional Analysis **264** (2013), 1049–1067.
71. NONCOMMUTATIVE PEAK INTERPOLATION REVISITED, Bull. London Math. Soc. **45** (2013), 1100–1106.
72. OUTERS FOR NONCOMMUTATIVE  $H^p$  REVISITED, (with L. E. Labuschagne), Studia Math. **217** (2013), 265–287.
73. OPERATOR ALGEBRAS WITH CONTRACTIVE APPROXIMATE IDENTITIES, III (with Charles Read), Preprint (2013). This paper has now been replaced by, and subsumed into, successors listed below.
74. ON POSITIVITY AND ROOTS IN OPERATOR ALGEBRAS, (with C. A. Bearden and S. Sharma), J. Integral Equations Operator Th. **79** (2014), 555–566.
75. FINITE GENERATION IN  $C^*$ -ALGEBRAS AND HILBERT  $C^*$ -MODULES, (with Tomasz Kania), Studia Mathematica **224** (2014), 143–151.
76. OPERATOR ALGEBRAS WITH CONTRACTIVE APPROXIMATE IDENTITIES: WEAK COMPACTNESS AND THE SPECTRUM (with Charles Read), J. Functional Analysis **267** (2014), 1837–1850.
77. ORDER THEORY AND INTERPOLATION IN OPERATOR ALGEBRAS (with Charles Read), Studia Math. **225** (2014), 61–95.
78. OPERATOR ALGEBRAS WITH CONTRACTIVE APPROXIMATE IDENTITIES: A LARGE OPERATOR ALGEBRA IN  $c_0$  (with Charles Read), Trans. Amer. Math. Soc. **368** (2015), 3243–3270. Published electronically: July 29, 2015.
79. REAL POSITIVITY AND APPROXIMATE IDENTITIES IN BANACH ALGEBRAS, (with Narutaka Ozawa), Pacific Math. J. **277** (2015), 1–59. DOI 10.2140/pjm.2015.277.1
80. COMPLETELY CONTRACTIVE PROJECTIONS ON OPERATOR ALGEBRAS, (with Matthew Neal), Pacific Math. J. **283-2** (2016), 289–324. DOI 10.2140/pjm.2016.283.289
81. ROOTS IN OPERATOR ALGEBRAS AND BANACH ALGEBRAS, (with Zhenhua Wang), J. Integral Equations Operator Theory **85** (2016), 63–90; DOI 10.1007/s00020-015-2272-z.
82. UEDA’S PEAK SET THEOREM FOR GENERAL VON NEUMANN ALGEBRAS (with L. Labuschagne), Trans. Amer. Math. Soc. **370** (2018), 8215–8236.
83. QUANTUM MEASURABLE CARDINALS (with N. Weaver), J. Functional Analysis **273** (2017), 1870–1890.

84. RIGGED MODULES I: MODULES OVER DUAL OPERATOR ALGEBRAS AND THE PICARD GROUP (with U. Kashyap), *J. Pure and Applied Algebra* **221** (2017), 2827–2837.
85. RIGGED MODULES II: MULTIPLIERS AND DUALITY, *Studia Math.* **236** (2017), 85-100, doi: 10.4064/sm8671-9-2016.
86. OPERATOR \*-CORRESPONDENCES IN ANALYSIS AND GEOMETRY, (with Jens Kaad and Bram Mesland), (2017 preprint), to appear *Proc. London Math Soc*, DOI: 10.1112/plms.12129
87. JORDAN OPERATOR ALGEBRAS: BASIC THEORY, (with Zhenhua Wang), *Mathematische Nachrichten*, DOI: 10.1002/mana.201700178 **291** (2018), 1629–1654.
88. NONCOMMUTATIVE TOPOLOGY AND JORDAN OPERATOR ALGEBRAS, (with Matt Neal), revised preprint 2018, to appear *Mathematische Nachrichten*.
89.  $L^p$  OPERATOR ALGEBRAS WITH APPROXIMATE IDENTITIES I, (with N. Christopher Phillips), preprint 2018.
90. THE HOFFMAN-ROSSI THEOREM FOR OPERATOR ALGEBRAS, (with Luis Flores and Beate Zimmer), preprint 2018.
91. INVOLUTIVE OPERATOR ALGEBRAS, (with Zhenhua Wang) preprint 2018.
92. JORDAN OPERATOR ALGEBRAS REVISITED, (with Zhenhua Wang) preprint 2018.
93. ON VECTOR-VALUED CHARACTERS FOR NONCOMMUTATIVE FUNCTION ALGEBRAS (with L. Labuschagne), preprint 2019.

## Conferences Organized

Co-organizer/Local Organizer Mini-workshop on the Cuntz semigroup University of Houston, June 18 - 20, 2018. Funded mainly by NSF (Leonel Robert PI).

## Chapters in books (refereed)

94. Positivity in operator algebras and operator spaces, pp. 27-71 in *Positivity*, Trends in Mathematics series, Birkhauser (2007).

## Internet disseminations:

- **Noncommutative functional analysis for undergraduates.**  
This can be downloaded from <http://www.math.uh.edu/~dblecher/canisius.pdf>
- **Lectures on operator spaces and duality.** This can be downloaded from <http://www.math.uh.edu/~dblecher/op.pdf>

## INVITED PRESENTATIONS/LECTURE SERIES/ETC (1996-2016)

2019: Positivity X, Plenary speaker, July (South Africa).

- 2018: Co-organizer Mini-workshop on the Cuntz semigroup University of Houston, June 18 - 20, 2018.  
 One hour invited workshop lecture “Operator space structure and noncommutative topology for Jordan Operator Algebras”, *Interactions between Operator Space Theory and Quantum Probability with Applications to Quantum Information*, Workshop, Oberwolfach Germany, 6 May - 12 May.  
 Invited visitor, Max Planck Institute Bonn, May 2018.  
 Invited one hour talk University of Bonn, Germany May 2018.
- 2017: • Inaugural Brazos Analysis Seminar, March, Texas A & M, Full length invited conference talk.  
 • Applications of Model Theory to Operator Algebras, July 31 - August 4, 2017, University of Houston, 50 minute talk.  
 • East Coast Operator Algebras Symposium University of Louisiana at Lafayette, October. Full length invited talk.  
 • 45 minute talk in Analysis session at South African Mathematical Society congress November. Two generalizations of noncommutative topology.
- 2016: • One hour workshop lecture plus invited full length conference talk at *Operator Spaces and NCG interaction*, Workshop, Oberwolfach Germany, February.  
 • Invariant subspaces and Banach algebras conference, invited lecture, Leeds, England (September).  
 • Linear analysis seminar TAMU *von Neumann algebraic Hardy spaces, quantum measure theory, and peak sets*, September.  
 • *Quantum cardinals*, 30 minute talk at Texas Analysis and Mathematical Physics Symposium, Rice University, October.  
 • Five one hour workshop lectures, and full length invited conference talk at *Recent Advances in Operator Theory and Operator Algebras*, Indian Statistical Institute, Bangalore, December.
- 2015: • *The generalization of C\*-algebra methods*, AMS Special Session on Operator Algebras and Their Applications: A Tribute to Richard V. Kadison. January, San Antonio.  
 • Colloquium, *Noncommutative function algebraic topology*, University of North Texas, March.  
 • Banach Algebras and applications 2015, August, Fields Institute, Ontario (Plenary)  
 • *Generalizing positivity techniques in Banach and operator algebras*, Seminar Baylor University October.
- 2014: • *Aspects of positivity for operator algebras*, Special session on Banach and Operator Algebras over Groups, Fields Institute (Toronto), April-March 2014 (50 minute talk).  
 • *Positivity and interpolation in noncommutative spaces and operator algebras*, 7th Conference on Function Spaces, S. Illinois University Edwardsville (Plenary).  
 • Minicourse on Operator Spaces, Fields Institute, May 2014.  
 • *Interpolation and order in operator algebras and Banach algebras*, Summer Workshop in Analysis and Probability, Texas A & M University, Seminar talk, July 2014.  
 • *Interpolating between Hilbert space operators, and real positivity for operator algebras*, Canadian Annual Symposium on Operator Algebras and Their Applications (COSy), June Fields Institute (Plenary).
- 2013: • 29th Southeastern Analysis Meeting (special session talk) (Blacksburg, VA, March).  
 • Seminar, *Generalized invertibility and outers in noncommutative  $H^p$  spaces*, University of Virginia (March).  
*Noncommutative  $H^p$  spaces*, Yorkshire Functional Analysis Group Seminar, Leeds (April, Leeds UK).  
 • Colloquium, *Prescribing behaviour of noncommutative functions on noncommutative subsets*, (April, University of Warwick, UK).  
 • QOP network meeting (Banach and operator spaces), one of the plenary talks, (April, University of Lancaster, UK). Title: *Noncommutative peak interpolation: prescribing behaviour of noncommutative functions on noncommutative subsets*.  
 • *Algebras of operators on a Hilbert space*, (Invited) Aberdeen-Glasgow Operator Algebras Meeting, Aberdeen, Scotland, May.  
 • *Arveson’s von Neumann algebraic Hardy spaces*, GPOTS (Great Plains Operator Theory Symposium) University of California, Berkeley (May).  
 • *Operator algebras with contractive approximate identities*, Linear analysis seminar, Texas A & M University (September).



- Colloquium University of Louisiana Lafayette, October.
- 2012:
- Organizing committee GPOTS 2012 (Houston.)
  - Organizing committee Operator Spaces, Quantum Probability and Applications, Wuhan (China) June 2012.
  - Applications of a kind of positivity in operator algebras, Linear analysis seminar, Texas A & M University (September).
- 2011:
- AMS National meeting special session talk, *Operator algebras with contractive approximate identities*, New Orleans (January).
  - Banach Algebras 2011, August, Waterloo, Ontario (Plenary).
  - Colloquium, *Matrices and the process of mathematical discovery*, The Citadel (October).
  - Special session on Operator and Banach algebras, and non-commutative analysis, SAMS/AMS International congress, Port Elizabeth, South Africa (November–December).
  - SAMS/AMS Satellite meeting on abstract analysis, Pretoria, South Africa (December).
  - Colloquium, *Noncommutative topology and noncommutative function algebras*, Northwest University Potchefstroom, South Africa
- 2010:
- Colloquium, *Duality for Spaces of Hilbert Space Operators*, University of Virginia (March).
  - Seminar, *Noncommutative  $H_p$  spaces and von Neumann algebras*, University of Virginia (March).
  - Seminar, *One-sided ideals and structure of operator algebras*, SUNY Buffalo (April).
  - *Noncommutative function theory and HSA's*, Operator Spaces, Noncomm.  $L_p$  Spaces and Applns, BIRS, Banff (June-July, 2010)
- 2009:
- Banach Algebras 2009, Banach Center, Poland (Plenary).
  - *Dual operator algebras and systems*, Yorkshire Functional Analysis Group Seminar, Leeds, December.
  - *Unital operator spaces and operator systems: metric characterization and duality*, Seminar, Texas A & M University (March).
  - Analysis seminar, Leeds, U.K. (December).
- 2008:
- International Advisory Committee, International Conference on Operator Theory (Delhi Univ. India, January)
  - GPOTS (Great Plains Operator Theory Symposium) University of Cincinnati (June).
  - West Coast Operator Algebras Seminar, Flagstaff (September) (Plenary).
  - Graduate student seminar, University of Houston (twice in 2008).
- 2007:
- GPOTS (Great Plains Operator Theory Symposium) University of Nebraska (Plenary).
  - CIRM Conference on Operator Spaces, Noncomm.  $L_p$  Spaces and Applns, Luminy, France, June (Plenary; also member of Scientific Organizing Committee).
  - Workshop on operator spaces and quantum groups, Fields Institute.
  - *Operator spaces and operator algebras*, Colloquium, North Dakota State University (October).
  - Banach Algebras 2007, Quebec City, Canada (Plenary).
  - Operator spaces and group algebras, Banff (August).
  - *Noncommutative function theory*, Colloquium, U. Texas at San Antonio (March).
- 2006:
- *Duality for spaces of Hilbert space operators*, Colloquium, East Carolina University (March).
  - Fifth Conference on Function Spaces, S. Illinois University Edwardsville (Plenary).
  - GPOTS (University of Iowa).
  - CARTHAPOS Workshop-Conference on Positivity, Carthage, Tunisia (Plenary).
  - International Workshop on Operator Theory and Applications (Seoul, Korea)
  - Lecture series, Seoul National University, Korea.
  - Recent Advances in Operator Algebras, Rome, Italy (Semi-plenary).
  - *Von Neumann algebraic  $H^p$  theory*, Linear Analysis Seminar Texas A & M November 2006.
- 2005:
- Quantum methods in modern analysis, Ottawa (April) (Plenary).
  - *On the necessity of operator space methods*, University of California Santa Barbara (May).

- Operator algebras, operator spaces, and noncomm. probability, Besancon France (June) (Plenary).
  - West Coast Operator Algebras Seminar, Banff (September) (Plenary).
- 2004:
- *Automatic weak\* continuity and applications*, Seminar, Texas A & M University (July).
  - *Dual operator algebras: what they are*, Seminar, Texas A & M University (September).
  - GPOTS (Texas A & M University) (Plenary).
  - REU lecture series “New Mathematical Topographies”, Canisius College, September 2004.
  - *Noncommutative linear analysis*, Public lecture, Canisius College, Buffalo (September).
  - *Automatic weak\* continuity and applications*, Seminar, SUNY Buffalo (September).
- 2003:
- AMS Special session, January (Baltimore).
  - *Algebraic structure in spaces of Hilbert space operators*, Colloquium, Rice University (January).
  - GPOTS (Univ. of Illinois) (Semi-plenary).
  - CIRM Conference on Operator Spaces, Luminy, France (June) (Plenary).
  - Ecole d’Ete (Summer School) Univ. Paris VI, Jussieu, Lecture course for European grad. students.
  - *Structure in operator spaces*, Functional analysis seminar, University of Illinois (November).
- 2002:
- Workshop ‘Non-commutative Banach spaces’ Muenster, Germany (Lecture series)
  - 4th Conference on function spaces, S. Illinois University Edwardsville, May (45 minute talk).
  - GPOTS (UNC Charlotte) (May).
  - Workshop on Nonself-adjoint Operator Algebras, Fields Institute Toronto (Plenary).
  - Operator Space Workshop (College Station, July) (Plenary).
  - Regional Functional Analysis conference (College Station, July) (Plenary).
  - Non-commutative phenomena and random matrices (August) PIMS (Vancouver).
  - Journees du Groupement de Recherche Conference, Besancon, France (September) (Plenary).
  - *The double commutant theorem and generators*, Seminar, Texas A & M University (October).
  - *On the general theory of operator algebras*, Seminar, University of Texas, Austin (December).
- 2001:
- Noncommutative Banach space workshop, M.S.R.I. Berkeley (Plenary).
  - GPOTS (New Hampshire).
  - AMS Special session (Irvine).
  - *Operator spaces and applications*, Colloquium, University of South Africa (December).
- 2000:
- Conference on Operator Spaces (Institut Henri Poincare, Paris). (50 minute talk).
  - Operator function theory and semigroups, (45 minute talk). (Ambleside, U. K., September).
  - A.M.S. Regional Meeting, Birmingham Alabama (November).
  - Annual Informal Analysis Seminar (Kent State University, Ohio) (Plenary).
  - *A generalization of Functional Analysis*. Colloquium, University of Houston (February).
  - *Adjointable maps on operator spaces*, Seminar, Texas A & M University (July).
  - *Noncommutative M-structure*, Seminar, Texas A & M University (August).
  - *A ‘generalization of functional analysis*, Colloquium, Washington University, St. Louis (October).
  - *Multipliers and noncommutative M-structure*, Seminar, Washington University, St. Louis (October).
- 1999:
- AMS January meeting (San Antonio)
  - Operator Space Workshop (Urbana, March) (Plenary).
  - AMS Special Meeting (Urbana, March).
  - Canadian Operator Symposium, Prince Edward Island., May (Plenary)
  - Joint Analysis Seminar, Pretoria (July).
  - Regional Functional Analysis conference (College Station, July-Aug (Plenary)
  - Semester on free probability and operator spaces, Institut Henri Poincare, Paris (September).
  - *Noncommutative Functional Analysis and Noncommutative Spaces*. Texas A & M University (May).
  - *The Shilov boundary of an operator space*. Univ. de Franche-Comte, Besancon, France (September).
  - *Hilbert  $C^*$ -modules as the boundary of an operator space*. Inst. Henri Poincare, Paris (September).
- 1998:
- Conference on Operator Spaces, CNRS, Luminy, France. On Scientific Organizing Committee.

- Summer Workshop in Linear Analysis (Texas A&M).
  - *The maximal  $C^*$ -dilation and Morita equivalence*, Seminar, SUNY Buffalo (November).
- 1997:
- AMS January meeting (San Diego)
  - Functional Analysis Meeting (U.N.C. Charlotte) (Plenary)
  - Great Plains Operator Theory Seminar/Canadian Operator Symposium, Kingston, ON (May)
  - Joint Meeting of A.M.S. and South African Math Soc. (June, Pretoria, South Africa).
  - Coorganizer of special session on Functional Analysis and Operators, at AMS/SAMS meeting.
  - Operator Spaces Workshop (August, Texas A&M) (1 hour speaker).
  - *Operator algebras and their equivalence*, Seminar, University of Texas at San Antonio (February).
  - *On  $C^*$ -modules*, Colloquium, Oakland University, Michigan (March).
  - *Characterizations of Operator Algebras*. Colloquium, University of Houston.
  - *An introduction to operator spaces*. Lecture series, University of Pretoria, S. Africa (July).
  - *Advances in Operator Algebra*. Colloquium, Texas Christian University (October).
- 1996:
- AMS January meeting (Orlando)
  - South Eastern Analysis Meeting 12, Richmond, Virginia
  - Canadian Operator Symposium, Saskatoon, May 16-21 (Plenary)
  - 2nd Intl. Conference in Africa on Abstract Analysis, Kruger National Park, Africa (Plenary)
  - Operator Algebras and Quantum Field Theory, Rome, Italy (July 1-6) (1 hour invited talk)
  - Aegean Conference on Operator Theory and Applications (Samos, Greece) (Plenary)
  - *Operator Algebras*. Colloquium; Brown University, Rhode Island (April).
  - *Hilbert  $C^*$ -modules and operator spaces*. Colloquium, University of Pretoria (S. Africa).
  - *Advances in operator spaces*. Colloquium, University of Cape Town (S. Africa).
  - Colloquium, University of the Witwatersrand (S. Africa).
  - *Hilbert  $C^*$ -modules and operator spaces*. Seminar, University of Leipzig (Germany).
  - *Operator algebras*. Seminar, University of Kiel (Germany).
  - *Operator spaces and Operator Algebras*. Seminar, University of Saarbruecken (Germany).
  - *On Operator Modules*. Texas A & M University Seminar (November).

## GRADUATE RESEARCH DIRECTED

Damon Hay (Ph.D, May 2006, now a tenure track Asst. Prof. at Sam Houston State University)  
 Upasana Kashyap (Ph.D, December 2008, first position tenure track Asst. Prof. at The Citadel)  
 Sonia Sharma (Ph.D, December 2009, first position a tenure track Asst. Prof. at SUNY Cortland; now a data analyst/scientist)  
 Melahat Almus (Ph.D, April 2011), Departmental Lecturer.  
 M. Royce (Ph.D, August 2013, <http://www.math.uh.edu/dblecher/ROYCEthesisfinal.pdf>), Lone Star College.  
 Clifford Alex Bearden (graduated May 2017, now in tenure track position at UT Tyler).  
 Zhenhua Wang (began advising in 2015).  
 Worawit Tepsan (began advising in 2017).  
 Partly advised M. Kaneda (Ph.D 2003) and Da Zheng (Ph.D 2016)  
 Many Masters projects supervised.  
 External examiner and project mentor, Masters thesis of Luis Flores, TAMUCC (2017-2018).

## EXAMPLES OF UNDERGRADUATE RESEARCH DIRECTED

- Seth Hain, ‘Algebra and matrix normed spaces’, Rose-Hulman Undergrad. Math. J. **2** (2) (2001). Seth went on to be a grad student at Wisconsin or Minnesota.
- Kay Kirkpatrick, ‘Shilov boundary and M-structure of operator spaces’. Note: A few months after this REU summer project, Kay was co-winner of the Alice T. Schafer Prize for Excellence in Mathematics by an

Undergraduate Woman, given by the Association for Women in Mathematics. Kay, now holds a tenure track position at the University of Illinois.

- REU series “New Mathematical Topographies”, a week-long course of undergraduate lectures and projects on Research in Mathematics, Canisius College, Buffalo, September 2004. The aim of the series is to introduce undergraduate math majors to new research-level mathematics.
- *External Examiner*, Senior Honours thesis, Elena Caffarelli, Canisius College, Buffalo (2010).
- REU projects with Sepehr Morajev, Grant Getselmann 2011, Hasti Sajedi 2015.

## Examples of international Minicourses aimed at graduate students

Workshop on Operator Spaces and NCG interaction (February 2016, Oberwolfach Germany), Indian Statistical Institute (Bangalore, December 2016), Fields Institute (Toronto, May 2014). For older international graduate courses see above (e.g. at Univ. Paris VI, Muenster Germany, Seoul Korea, South Africa).

## EXAMPLES OF PROFESSIONAL SERVICE (LAST TEN YEARS)

- Co-organizer Mini-workshop on the Cuntz semigroup University of Houston, June 18 - 20, 2018.
- Chair, Hiring Committee (IAP) Fall 2017.
- Undergraduate director, Sept 2017– .
- Departmental Graduate Studies Committee 2017– .
- Departmental Undergraduate Studies Committee 2017– .
- NSM Undergraduate Studies Committee, Sept 2017– .
- External examiner and project mentor, Masters thesis of Luis Flores, TAMUCC (2017-2018).
- By-laws subcommittee member 2017-2018.
- Nontenure track promotion committee 2016– (reviewing promotion cases and helping prepare portfolios by soliciting external letters, etc.
- Hiring Committee (Postdoctoral) 2016-2017.
- Hiring Committee (Asst Prof) 2014-2015, 2016-2017.
- Chair, Teaching Awards Committee 2013-2017.
- Chair, Research Awards Committee 2013-2017.
- Ad-hoc-grievance committee. APR subcommittee, etc.
- Hiring Committee 2014-2015.
- Organizer, Analysis seminar Spring 2015.
- Hiring Committee for Departmental Business Administrator, 2014.
- Associate Chair, Department of Mathematics (January 2014–Aug 2017).
- Executive Committee (January 2014–).
- Undergraduate Studies Committee, 2013–2014.

- National Science Foundation panelist.
- Ad Hoc committee on Undergraduate Curriculum (2012). Chair of "Course content" subcommittee.
- Promotion, tenure, merit review committee 2012.
- Departmental Graduate Studies Committee 2011-2013.
- Functional analysis seminar organizer, Fall 2012 and Fall 2011.
- Organizing committee GPOTS 2012 (Houston.)
- Scientific committee Operator Spaces, Quantum Probability and Applications, Wuhan (China) June 2012.
- Special session organizer, SAMS/AMS International congress, Port Elizabeth, South Africa (November–December 2011).
- Scientific Committee, SAMS/AMS Satellite meeting on abstract analysis, Pretoria, South Africa (December).
- Coorganizer, SAMS/AMS Satellite meeting on abstract analysis, Pretoria, South Africa (December).
- Promotion and tenure committee 2010.
- Editor, Houston Journal of Mathematics, 2010-
- Departmental Teaching Effectiveness Committee 2010
- PALS program volunteer, UH, 2009–2010.
- Scientific Organizing Committee, CNRS Conference on Noncommutative  $L_p$ -spaces, operator spaces and applications, Luminy, France (2009)
- Editor, Journal of Mathematical Analysis and Applications (2008-) Impact factor 1.120. 5-year impact factor 1.204.
- Promotion and tenure committee 2007-2008?
- International Advisory Committee, International Conference on Operator Theory (Delhi Univ. India, 2008)
- Scientific Organizing Committee, CNRS Conference on Noncommutative  $L_p$ -spaces, operator spaces and applications, Luminy, France (2007)
- College Policy committee 2006-2009
- Faculty Senator (2000-2006)
- Frequent organizer of Functional Analysis Seminar
- Referee for dozens of journals, grant awarding agencies, etc.
- Referee for (full) Professor search, Finland 2006.
- Faculty Affairs Committee (2000-2006)
- Executive Committee (2004-2005)
- Faculty Senate Taskforce member: Principles of progress (2004)
- Faculty Development Leave Committee (2004)
- Post-tenure and Merit Review Committee (2003)
- Scientific Organizing Committee, CNRS Conference on Operator Spaces, Luminy, France (2003)