

# GEORGE ANDROULAKIS

## CURRICULUM VITAE

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### ACADEMIC CAREER

Professor	University of South Carolina	2021-present
Visitor	Georgia Tech	2008-2009
	Visiting: Prof. Jean Bellissard	
Associate Professor	University of South Carolina	2006-2020
Assistant Professor	University of South Carolina	2000-2005
Visiting Assistant Professor	Texas A & M University	1998-2000
Postdoctoral Fellow	University of Missouri at Columbia	1996-1998

### EDUCATION

Ph.D. in Mathematics	University of Texas, Austin	1990-1996
Thesis Advisor: H.P. Rosenthal		
B.S. in Mathematics	University of Crete, Greece	1985-1989

### MEMBERSHIP

American Physical Society	2019-present
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### RESEARCH

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### EDITORIAL WORK

Editor for the Annals of Functional Analysis	2010-present
Associate Editor for Quanta	2021-present

### PUBLICATIONS

#### Appeared

- [34 ] G. Androulakis, R. McGaha, *Some remarks on the entanglement number*, *Quanta* 2020; **9**: 22-36.
- [33 ] G. Androulakis, A. Wiedemann, M. Ziemke, *The induced semigroup of Schwarz maps to the space of Hilbert-Schmidt operators*, *Mathematical Physics, Analysis and Geometry*, **23**, 10 (2020).
- [32 ] G. Androulakis, D. Wright, *Optimality in Quantum Data Compression using Dynamical Entropy*. *Phys. Rev. A* **100**, (2019) 032301.
- [31 ] G. Androulakis, A. Wiedemann, *GKSL generators and digraphs: Computing invariant states* *J. Phys. A: Math. Theor.* **52** (2019) 305201.
- [30 ] G. Androulakis, D. Wright, *On the non-linearity of quantum dynamical entropy*, *J. Math. Phys.* **60**, (2019), 053504.
- [29 ] G. Androulakis, R. Musulin, *A connection between mixing and Kac's chaos*, *Dynamical Systems, An International Journal*, **34**, no. 1, (2019), 113-129.
- [28 ] G. Androulakis, R. Musulin, *Quantum Kac's chaos*, *Commun. Math. Sci.*, **16**, No. 7, (2018), 1801-1825.

- [27 ] G. Androulakis, M. Ziemke, *On the closedness of the generator of a semigroup*, Semigroup Forum **93**, no. 3, (2016), 589-606.
- [26 ] G. Androulakis, M. Ziemke, *Generators of Quantum Markov semigroups*, J. Math. Phys. **56**, (2015), 083512.
- [25 ] G. Androulakis, J. Bellissard C. Sadel, *Dissipative dynamics in semiconductors at low temperature*. J. Stat. Phys., **147**, Issue 2, (2012), 448-486.
- [24 ] G. Androulakis, A. Flattot, *Hyperinvariant subspace for weighted composition operator on  $L^p([0, 1]^d)$* , J. Operator Theory **66** No. 1, (2011), 125-144.
- [23 ] G. Androulakis, N.J. Kalton, A. Tcaciuc *On Banach spaces containing  $\ell_p$  or  $c_0$* , Houston J. Math. **37**, (3) (2011) 859-866.
- [22 ] G. Androulakis, S.J. Dilworth, N.J Kalton, *A new approach to the Ramsey-type games and the Gowers dichotomy in  $F$ -spaces*, Combinatorica **30**, (4), (2010), 359-385.
- [21 ] G. Androulakis, A.I. Popov, A. Tcaciuc, V.G. Troitsky, *Almost invariant half-spaces of operators on Banach spaces*, Integral Equations and Operator Theory **65** (2009), 473-484.
- [20 ] G. Androulakis, P. Dodos, G. Sirotkin, V.G. Troitsky, *Classes of strictly singular operators and their products*, Israel J. Math., **169**, (2009), 221-250.
- [19 ] G. Androulakis, F. Sanacory, *An extension of Schreier unconditionality*, Positivity, **12**, (2008), no. 2, 313–340.
- [18 ] G. Androulakis, K. Beanland, *Descriptive set theoretic methods applied to strictly singular and strictly cosingular operators*, Quaestiones Mathematicae, **31** (2008), 151-161.
- [17 ] G. Androulakis, F. Sanacory, *Some equivalent norms on the Hilbert space*, Banach spaces and their applications in analysis, Walter de Gruyter, Berlin, (2007), 241–250.
- [16 ] G. Androulakis, *A new method for constructing invariant subspaces*, J. Math. Anal. Appl., **333** (2007) 1254–1263.
- [15 ] G. Androulakis, K. Beanland, *A Hereditarily Indecomposable Asymptotic  $\ell_2$  Banach Space*, Glasgow Mathematical Journal, **48**, (2006) 503-532.
- [14 ] G. Androulakis, K. Beanland, S.J. Dilworth, F. Sanacory, *Embedding  $\ell_\infty$  in the space of bounded operators on certain Banach spaces*, Bull. London Math. Soc., **38**, (2006), 979-990.
- [13 ] G. Androulakis, E. Odell , Th. Schlumprecht and N. Tomczak-Jaegermann, *On the structure of the spreading models of a Banach space*, Canadian J. Math., **57**, (4), (2005), 673–707.
- [12 ] G. Androulakis and S. Dostoglou, *Space averages and homogeneous fluid flows*, Mathematical Physics Electronic Journal, Vol. **10**, no 4 (2004), 1–12.
- [11 ] G. Androulakis and P. Enflo, *A property of strictly singular 1-1 operators*, Ark. Mat. **41** (2003), 233–252.
- [10 ] G. Androulakis, *A note on the method of minimal vectors*, Trends in Banach spaces and operator theory (Memphis, TN, 2001), Contemp. Math., (Amer. Math. Soc., Providence, RI), **321**, (2003), 29–36.
- [9 ] G. Androulakis and Th. Schlumprecht, *The Banach space  $S$  is complementably minimal and subsequentially prime*, Studia Math., **156** (3), (2003), 227–242.
- [8 ] G. Androulakis and Th. Schlumprecht, *Strictly singular, non-compact operators exist on the Gowers-Maurey space*, J. London Math. Soc. (2), **64**, no 3, (2001), 655–674.
- [7 ] G. Androulakis, P. Casazza and D. Kutzarova, *Some more  $\ell_2$ -saturated weak Hilbert spaces*, Canad. Math. Bull., **43**, no. 3, (2000), 257–267.
- [6 ] G. Androulakis and S. Dostoglou, *Positivity results for the Yang-Mills-Higgs Hessian*, Pacific J. Math, **194**, no. 1, (2000), 1–17.

- [5 ] G. Androulakis and E. Odell, *Distorting mixed Tsirelson spaces*, Israel J. Math. **109** (1999), 125–149.
- [4 ] G. Androulakis and S. Dostoglou, *On the stability of monopole solutions*, Nonlinearity **11** No 3 (1998), 377–408.
- [3 ] G. Androulakis, C. D. Cazacu and N. J. Kalton, *Twisted sums, Fenchel-Orlicz spaces and property (M)*, Houston J. Math. **24** No 1 (1998), 105–126.
- [2 ] G. Androulakis, *A counterexample to a question of R. Haydon, E. Odell and H. Rosenthal*, Proc. Amer. Math. Soc., **126** No 5 (1998), 1425–1428.
- [1 ] G. Androulakis, *A subsequence characterization of sequences spanning isomorphically polyhedral Banach spaces*, Studia Math. **127**, No 1, (1998), 65–80.
- [0 ] G. Androulakis, *Isomorphically polyhedral Banach spaces and mixed Tsirelson spaces of arbitrary distortion*, Ph.D. dissertation, University of Texas, Austin, TX, 1996.

### Ph.D. STUDENT SUPERVISION

- Ryan McGaha, (current PhD student).
- Duncan Wright. Ph.D. in 5/19. Title: *Dynamical entropy of quantum random walks*. Current position: Post-doctoral Research Scholar, Worcester Polytechnic Institute.
- Alexander Wiedemann. Ph.D. in 5/19. Title: *On the generators of quantum dynamical semigroups*. Current position: Visiting Assistant Professor, Rudolph-Macon College.
- Rade Musulin; Ph.D. in 05/18. Title: *Classical and Quantum Kac’s chaos*. Current position: Lecturer, Rowan University.
- Matthew Ziemke; Ph.D. in 05/15. Title: *Pettis integration with applications to generators of Quantum Markov Semigroups*. Current position: Assistant Teaching Professor, Drexel University.
- Frank Sanacory; Ph.D. in 06/07. Title: *The richness of the space of operators on a Banach space*. Current position: Associate Professor in College of Old Westbury SUNY.
- Kevin Beanland; Ph.D. in 08/06. Title: *A Hereditarily Indecomposable Banach space and Embeddings of  $\ell_\infty$  into spaces of operators*. Current position: Professor in Washington and Lee University.

### POSTDOCTORAL FELLOW SUPERVISION

- Dr. Tiju Cherian John, (Fulbright Fellow), 2/23/2021-2/23/2023.
- Dr. Antoine Flattot, AY 2006-2010.
- Dr. Bünyamin Sari; AY 2004-2005 (co-advised by Prof. S.J. Dilworth).

### RESEARCH GRANTS AND OTHER AWARDS

Fulbright Foundation coPI in the application of Dr. Tiju Cherian John.		2021-2023
CAS, Dean's initiative for travel	\$ 1,500	For participating in QIP2020
CAS, Dean's initiative for research	\$ 5,000	01/2019-12/2019
No cost extension of the grant below		07/2002-07/2003
National Science Foundation (DMS-9970547) PI, " <i>Isomorphic Theory of Banach Spaces</i> "	\$ 56,709	06/1999-07/2002
National Science Foundation (DMS-9623260) NSF Young Investigator	\$ 7,000	07/1998-08/1998

### INVITED AND SUPPORTED PARTICIPATION IN WORKSHOPS

QPIDA40 Quantum Probability and Infinite dimensional Analysis  
Ohio State University, August 11-16, 2019  
Invited participant.

BIRS Workshop on Quantum Transport Equations and Applications  
Oaxaca Mexico, September 2-9, 2018  
Co-organizer.

QMath 13 Mathematical Results in Quantum Physics  
Georgia Tech, October 8-11, 2016  
Invited participant.

BIRS Workshop on Quantum Markov Semigroups and Quantum Probability  
Oaxaca, Mexico, August 23-28, 2015.  
Invited participant.

NSF Workshops in Linear Analysis and Probability  
Texas A&M University; College Station, TX  
Invited participant  
Summers: 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2004, 2005, 2008, 2013.

Program on Convex geometry and Geometric Functional Analysis  
Mathematical Sciences Research Institute; Berkeley, CA  
Invited Participant and member of the MSRI  
January 1996

### PARTICIPATION IN OTHER MEETINGS

Virtual APS March Meeting 2020

Contributed a virtual talk “Optimal quantum data compression using dynamical entropy”  
March 2020

The Quantum Wave in Computing Boot Camp

Simons Institute of Computing, UC-Berkeley  
January 2020

QIP 2020 Quantum Information Processing (poster presentation)

Southern Univ. of Sci. and Techn., Institute of Quantum Sci. and Eng., Peng Cheng Lab.  
January 2020

QSC 2019 Quantum Simulation & Computation

ICMAT; Ignacio Cirac Lab, Madrid, Spain  
October 2019

### INVITED SEMINAR ADDRESSES

6. Analysis seminar, University of Crete 6/2019  
*The role of entropy in quantum communications*
5. General seminar, Technical University of Crete 6/2019  
*The role of entropy in quantum communications*
4. General seminar, National and Kapodistrian University of Athens 5/2019  
*The role of entropy in quantum communications*
3. Computational and Applied Mathematics seminar, University of South Carolina 3/2019  
*From quantum random walks to quantum data compression*
2. Computational and Applied Mathematics Seminar, University of South Carolina 2/2019  
*From quantum random walks to quantum computations*
1. Differential Equations Seminar, University of Missouri-Columbia 3/2014  
*Generators of Quantum Markov semigroups*

### CONTRIBUTED SEMINAR ADDRESSES (UofSC SEMINARS)

April 2021 (1 talk), November 2018 (1 talk), October 2017 (1 talk), October-November 2014 (6 talks), February 2013 (2 talks), January-February-November 2011 (4 talks), November 2010 (1 talk), September 2009 (3 talks), February-April 2008 (3 talks), April-October 2006 (3 talks), August-September 2005 (2 talks), January 2004 (1 talk), January-December 2003 (2 talks), January-February 2002 (2 talks).

### INVITED COLLOQUIUM ADDRESSES

14. University of Crete 7/2014  
*Generators of Quantum Markov semigroups*
13. Georgia State University 2/2011  
*Dissipative dynamics in semiconductors at low temperature*
12. University of Tennessee at Chattanooga 6/2009  
*The invariant subspace problem*
11. University of Alberta, (seminar) 3/2008  
*A simple proof of a theorem of Gowers*
10. University of Crete 6/2007  
*An new proof of Gowers' dichotomy*

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| 9. University of North Texas   | 10/2006 |
| <i>Games in Banach spaces</i>  |         |
| 8. University of Mississippi   | 04/2004 |
| <i>Some Ramsey type results in Banach spaces</i>   |         |
| 7. East Carolina University  | 10/2000 |
| <i>Spreading models in Banach spaces</i>   |         |
| 6. University of South Carolina  | 03/2000 |
| <i>Towards a positive solution of the invariant subspace problem in Banach spaces</i>                    |         |
| 5. Kent State University   | 03/2000 |
| <i>Existence of strictly singular non-compact operators in Hereditarily Indecomposable Banach spaces</i> |         |
| 4. Miami University of Ohio  | 02/2000 |
| <i>On the stability of Yang-Mills-Higgs Hessian</i>  |         |
| 3. Bowling Green State University  | 02/2000 |
| <i>On a question of Gowers and Maurey</i>  |         |
| 2. University of Texas; San Antonio  | 10/1999 |
| <i>New classes of weak Hilbert spaces</i>  |         |
| 1. Miami University of Ohio  | 09/1997 |
| <i>Distortion of Banach spaces</i>   |         |

### INVITED CONFERENCE ADDRESSES

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|---|---------|
| 34. QPIDA41, Quantum Probability and Infinite dimensional Analysis, 41,<br>on-line conference         | 03/2021 |
| <i>Entanglement measures</i>  |         |
| 33. QPIDA40, Quantum Probability and Infinite dimensional Analysis, 40,<br>Ohio State University      | 08/2019 |
| <i>The role of entropy in classical and quantum communications</i>                                    |         |
| 32. BIRS, Quantum Transport Equations and Applications,<br>Oaxaca, Mexico                             | 09/2018 |
| <i>The induced semigroup on the space of Hilbert-Schmidt operators</i>                                |         |
| 31. BIRS, Quantum Transport Equations and Applications,<br>Oaxaca, Mexico                             | 09/2018 |
| <i>Quantum Kac's chaos</i>  |         |
| 30. Virginia Operator Theory and Complex Analysis Meeting (VOTCAM)<br>University of Virginia          | 10/2017 |
| <i>Some forms of chaos in quantum mechanics</i>   |         |
| 29. BIRS, Quantum Markov semigroups and Quantum Probability<br>Oaxaca, Mexico                         | 08/2015 |
| <i>Generators of Quantum Markov Semigroups</i>  |         |
| 28. AMS Regional Meeting: Special session on Banach spaces and applications<br>University of Richmond | 11/2010 |
| <i>Dissipation of electrons in lightly doped semiconductors</i>                                       |         |

27. International Conference on Interdisciplinary Mathematical and Statistical Techniques 5/2007  
 Memphis, TN  
*A new approach to Ramsey-type results in  $F$ -spaces*
26. AMS Regional Meeting: Special Session on Vector Measures 03/2007  
 Miami, OH  
*Some of my favourite problems and related results on spaces of operators*
25. Conference in honor of N.J. Kalton's 60th birthday 05/2006  
 Miami University at Ohio  
*The invariant subspace problems in Banach spaces*
24. AMS Regional Meeting: Special Session on Banach spaces and applications 04/2006  
 Florida International University  
*Some operator ideals and their products*
23. Workshop in Linear Analysis and Probability 08/2005  
 Texas A & M University  
*A new method for constructing invariant subspaces*
22. Workshop in Linear Analysis and Probability 08/2005  
 Texas A & M University  
*Gowers' trichotomy in  $F$ -spaces*
21. AMS Regional Meeting: Special Session on spaces of vector valued functions 01/2005  
 Atlanta, GA  
*Some remarks about the Invariant subspace problem*
20. Workshop in Linear Analysis and Probability 08/2004  
 Texas A & M University  
*Embedding  $\ell_\infty$  in the space of all operators*
19. AMS Regional Meeting: Special Session on Recent trends in Banach spaces 03/2004  
 Athens, OH  
*Banach spaces which admit homogeneous measures*
18. Workshop on Banach spaces and Ramsey Theory 02/2003  
 Fields Institute, Toronto, Canada  
*Constructing hyper-invariant subspaces of certain operators in Banach spaces*
17. Workshop in Geometric Functional Analysis 08/2002  
 University of British Columbia, Vancouver, Canada  
*A new sufficient condition for the existence of invariant subspaces*
16. AMS Regional Meeting: Special Session on Banach spaces and applications 03/2002  
 Georgia Institute of Technology  
*A property of strictly singular 1-1 operators*
15. Conference on "Trends on Banach spaces and Operator Theory" 10/2001  
 University of Memphis  
*A note on the method of minimal vectors*
14. Workshop in Linear Analysis and Probability 08/2000  
 Texas A & M University  
*Strictly singular non compact operators*
13. AMS Regional Meeting: Special Session on Banach and Operator Spaces 08/1999  
 University of Texas, Austin  
*Subsymmetric sequences in Schlumprecht space*

12. Workshop in Linear Analysis and Probability 08/1999  
 Texas A & M University  
*Candidates for prime Banach spaces*
11. Workshop in Geometric Functional Analysis 07/1999  
 University of British Columbia, Vancouver, Canada  
*The Banach space  $S$  is subsequentially prime*
10. Workshop in Linear Analysis and Probability 08/1998  
 Texas A & M University  
*New  $\ell_2$  saturated weak-Hilbert spaces*
9. AMS Regional Meeting: Special Session on Banach spaces 03/1998  
 University of Louisville  
*Twisted sums of Orlicz spaces*
8. AMS Regional Meeting: Special Session on Banach spaces and Wavelets 10/1997  
 Georgia Institute of Technology  
*Spectral analysis of Yang-Mills-Higgs functionals*
7. Workshop in Linear Analysis and Probability 08/1997  
 Texas A & M University  
*On the spectrum of Quadratic forms*
6. Wabash Extramural Modern Analysis Mini-conference 10/1996  
 Indiana University- Purdue University at Indianapolis  
*A subsequence characterization of sequences spanning isomorphically polyhedral Banach spaces*
5. Workshop in Linear Analysis and Probability 08/1996  
 Texas A & M University  
*Isomorphically polyhedral Banach spaces*
4. AMS Regional Meeting: Special Session on Banach spaces and related topics 06/1996  
 University of Missouri, Columbia  
*Distorting mixed Tsirelson spaces*
3. Concentration on Infinite-dimensional Convex Geometry 02/1996  
 Mathematical Sciences Research Institute, Berkeley  
*The  $\ell_1$  index as an invariance for distortion*
2. Workshop in Linear Analysis and Probability 07/1995  
 Texas A & M University  
*Estimates of the  $\ell_1$  index for some mixed Tsirelson spaces*
1. AMS Annual Meeting: Special Session in Banach space Theory 01/1993  
 University of Texas, San Antonio  
*On a question of R. Haydon, E. Odell and H. Rosenthal*



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## TEACHING

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### COURSES TAUGHT AT USC

Term	Course	Title	Enrollment	Class Avg	Overall instructor eval.
Fall 21	Math 344	Applied Lin. Alg.	41		
	Math 756	Funct. Anal. I	17		
	Math 899	Dissertation	1		
Spring 21	Math 555H	Analysis I	5	2.9/4	5/5
	758C	Quant. Complexity	13	4/4	5/5
Fall 20	Math 141	Calculus I	60	2.51/4	2.18/5
	Math 758Q	Quant. Info.	9	4/4	5/5
Spring 19	142, sec. 11,12	Calculus II	43	1.96/4	3.33/5
	Math 554-703I	Analysis I	18	2/4	3/5
	Math 899	Dissertation	2	T	-
Fall 18	142, sec.3,4	Calculus II	61	2.08/4	2.67/5
	142, sec.11,12	Calculus II	61	2.17/4	2.53/5
	Math 899	Dissertation	2	T	-
Spring 18	Math 142	Calculus II	32	1.84/4	3.68/5
	Math 704	Analysis II	14	2.8/4	3.58/5
	Math 899	Dissertation	3	T	-
Fall 17	Math 142	Calculus II	52	1.8/4	2.56/5
	Math 703	Analysis I	15	1.96/4	3.08/5
	Math 899	Dissertation	3	T	-
Spring 17	Math 142	Calculus II	56	1.98/4	3.78/5
	Math552/752I	Complex Var.	16	2.18/4	4.21/5
	Math 899	Dissertation	3	T	-
	Math 890	Graduate Sem.	3	S	-
Fall 16	Math 142	Calculus II	59	2.43/4	4.15/5
	Math 544	Linear Algebra	33	3.25/4	3.56/5
	Math 899	Dissertation	3	T	-
Spring 16	Math 142	Calculus II	67	2.39/4	3.45/5
	Math,Stat 511	Probability	48	2.27/4	2.32/5
	Math 899	Dissertation	3	T	-
Fall 15	Math 142	Calculus II	60	2.17/4	3.04/5
	Math 241	Vector Calculus	44	2.04/4	3/5
Summer 15	Math 798	Dir. Read. Res.	2	4/4	
Spring 15	Math 142	Calculus II	61	2.2/4	3.86/5
	Math 757	Funct. An. II	7	3.58/4	4.4/5
	Math 798	Dir. Read. Res.	3	4/4	5/5
	Math 799	Masters Th.	1	4/4	
Fall 14	Math 141	Calculus I	59	2.46/4	3.97/5
	Math 756	Funct. An. I	9	3.44/4	4.57/5
	Math 899	Dissertation	1	T	-

Spring 14	Math 142	Calculus II	59	2.05/4	3.71/5
	Math 704	Analysis II	17	3.38/4	3.63/5
	Math 899	Dissertation	1	T	-
Fall 13	Math 142	Calculus II	62	1.82/4	3.71/5
	Math 703	Analysis I	20	2.75/4	3.63/5
	Math 899	Dissertation	1	T	-
	Math 890	Graduate Sem.	1	S	-
Spring 13	Math 141	Calculus I	54	1.74/4	3.52/5
	Math 554-703I	Analysis I	26	1.19/4	2.79/5
	Math 899	Dissertation	1	T	-
Fall 12	Math 122	Bus. Calc.	81	1.57/4	2.95/5
	Math 520	Ordinary D.E.	31	1.8/4	2.82/5
	Math 899	Dissertation	1	T	-
Spring 12	Math 241	Calculus III	39	1.09/4	3.92/5
	Math 544	Linear Alg. Honors	16	3.09/4	2.17/5
	Math 798	Dir. Read. Res.	1	4	-
Fall 11	Math 141	Calculus I	31+31	2.3/4	3.78/5
	Math 242	Diff. Equations	46	1.82/4	3.71/5
	Math 798	Dir. Read. Res.	1	4/4	-
Spring 11	Math 141	Calculus I	26+27	1.05/4	3.824/5
	Math 550	Vector Analysis	22	2.17/4	4.2/5
Fall 10	Math 141	Calculus I	30+31	2.26/4	3.88/5
	Math 241	Vector Calculus	39	1.9/4	3.33/5
Spring 10	Math 141	Calculus I	28+29	1.44/4	3.64/5
	Math 554-703I	Analysis I	10	1.6/4	3.57/5
	Math 890	Graduate Sem.	1	S	-
Fall 09	Math 141	Calculus I	26+25	2.57/4	4.6/5
	Math 242	Diff. Equations	46	2.22/4	3.4/5
Spring 08	Math 141	Calculus I	28+25	1.85/4	3.8/5
	Math 242	Diff. Equations	37	1.85/4	4.4/5
Fall 07	Math 524	Nonlinear Optim.	16	1.97/4	3.2/5
	Math 141	Calculus I	30+30	2.23/4	3.5/5
Spring 07	Math 197	Research & Careers	10	N/A	Not Obtained
	Math 757	Funct. An. II	5	4/4	4/4
Fall 06	Math 142	Calculus II	26+24	2.15/4	2.9/4
	Math. 756	Funct. An. I	8	4/4	3.3/4
	Math 890	Graduate Sem.	1	S	-
	Math 899	Dissertation	1	T	-
Spring 06	Math 241	Vector Calculus	45	2.44/4	2.87/4
	Math 550	Vector Analysis	15	2.29/4	3.15/4
	Math 899	Dissertation	2	T	-
Fall 05	Math 142	Calculus II	26+25	1.99/4	3.05/4
	Math 242	Diff. Equations	51	2.31/4	3.167/4
	Math 890	Graduate Sem.	1	S	-
	Math 899	Dissertation	2	T	-

Summ. II 05	Math 899	Dissertation	2	T	-
Spring 05	Math 704	Complex An.	16	3.16/4	2.81/4
	Math 890	Graduate Sem.	2	S	-
	Math 899	Dissertation	2	T	-
Fall 04	Math 141	Calculus I	26+24	1.94/4	2.36/4
	Math 554-703I	Analysis I	10	3.25	3.8/4
	Math 890	Graduate Sem.	2	S	-
	Math 899	Dissertation	2	T	-
Summer II 04	Math798	Dir. Read. Res.	1	4/4	-
Spring 04	Math 544H	Linear Alg.	13	3/4	2.7/4
	Math 757	Funct. An. II	5	4/4	3.8/4
Fall 03	Math 142H	Calculus II	25	2.48/4	3.3/4
	Math 756	Funct. An. I	6	4	4/4
Spring 03	Math 704	Complex An.	5	3.3/4	3.00/4
Fall 02	Math 141	Calculus I	31+35	2.52/4	3.53/4
	Math 703	Real Analysis	10	3.61/4	2.33/4
Spring 02	Math 142	Calculus II	31	2.48/4	3.63/4
	Math 554	Analysis I	11	1.86/4	3.50/4
Fall 01	Math 141	Calculus I	26+33	2.00/4	2.88/4
	Math 241	Calculus III	33	2.09/4	2.47/4
Spring 01	Math 142	Calculus II	25+35	2.46/4	3.33/4
	Math 550	Vector An.	14	2.00/4	2.85/4
Fall 00	Math 141	Calculus I	32+35	2.28/4	3.08/4

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## SERVICE

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### SERVICE TO UofSC

**I have participated in the following departmental committees:**

Committee for writing and grading the graduate analysis qualifying exam

12/2002, 8/2003, 8/2005, 1/2006, 1/2007, 8/2009, 1/2010, 8/2011, 8/2014, 1/2015, 8/2015, 8/2016, 1/2017, 8/2018, 1/2019.

Ph.D. theses committee member (for students that I did not supervise)

Mathew Gamel (2011), James Sweeney (2018), Jaree Hudson (2018), Taeho Kim (Statistics Department, 2019).

Comprehensive Exam Committee

8/2004, 8/2007, 8/2015, 8/2016, 8/2020.

Masters theses committee member (for students that I did not supervise)

Joseph Patterson (2001), Geoffrey Dillon (2004).

Calculus Textbook Committee

2003-2004, 2004-2005.

Graduate Advisory Council

Spring 2006-Spring 2008, Fall 2009- Spring 2019.

Undergraduate Advisory Council

2002-2003, 2003-2004.

Chair of the Committee of tenured faculty

4/15/07-4/15/08, 4/15/13-4/15/14.

Chair of the Colloquium Committee

2000-2001

Faculty Advisory Council

2001-2002, 2002-2003, 2004-2005, 2006-2007, 2012-2013, 2013-2014.

Physical Facilities Committee

2001-2002.

Undergraduate Advisor

2000-2001, 2001-2002, 2002-2003, 2003-2004, 2004-2005, 2005-2006, Spring 2021.

Post tenure review committee

2006-2008, 2009-2011, 2015-2018, 2021-2023.

Textbook Committee

2004-2005.

Search committee for department chair

Fall 2011.

Assessment committee

2011-2013, 2014-2015, 2016-2017.

Peer Review Teaching Committee  
2011-2013, 2018-2019, 2020-2022.

Practice AP Calculus Test Committee  
2020-2022.

Events Committee  
2020-2021.

**Other services to UofSC math department:**

I visited and provided feedback on TA taught classes at the request of the Graduate Director during the years:  
2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2015, 2017.

I wrote recommendation letters for University of South Carolina students during the years:  
2001 (1 letter), 2004 (2 letters), 2005 (7 letters), 2006 (4 letters), 2007 (2 letter), 2008 (3 letter),  
2009 (3 letter), 2010 (3 letters), 2012 (2 letters), 2013 (2 letters), 2014 (1 letter), 2015 (1 letter),  
2017 (4 letters), 2018 (5 letters), 2019 (4 letters), 2020 (1 letter), 2021 (1 letter).

Directed reading for undergraduates:

In Summer 2010 I directed the reading of Gregory Marx through the materials of Math 555 (Analysis II). Gregory had been accepted in our graduate program but he did not have the required background knowledge of this class.

**I participated in the following committees of the College of Arts and Sciences (CAS):**  
CAS Interdisciplinary Working Group (Spring 2019).

**I participated in the following University committees:**

Faculty Senate:  
2003-2006, 2010-2013.

**SERVICE TO MATHEMATICAL COMMUNITY**

**Editor**

Annals of Functional Analysis 2010-present.  
Associate Editor for Quanta 2021-present

**Referee for grant proposals**

6. Canada Research Chairs nominee evaluation 2016
5. Discovery Grant, Natural Sciences and Engineering Research Council of Canada 2013
4. National Science Foundation proposal review 2007
3. Discovery Grant for NSERC (National Sciences and Engineering Research Council of Canada) 2007
2. Research and productivity Scholarship awards, USC 2003
1. National Research Council 2001

**Referee for professional journals and publishers**

45. Quantum Studies: Mathematics and Foundations 2020
44. Journal of Stochastic Analysis
43. Quantum Studies: Mathematics and Foundations 2019

42. Annals of Functional Analysis	2015
41. Mathematicae Debrecen	2013
40. Proceedings of AMS	
39. Journal of Functional Analysis	
38. Glasgow Mathematical Journal	
37. Rocky Mountain Journal of Mathematics	2011
36. Questiones Mathematicae	2010
35. Mathematical Communications	
34. Journal of Mathematical Analysis and Applications	
33. Journal of Functional Analysis	
32. International Journal of Mathematics and Mathematical Sciences	
31. Matematicki Vesnik	
30. Rocky Mountain Journal of Mathematics	2009
29. Collectanea Math.	2008
28. Studia Mathematica	
27. Journal of Mathematical Analysis and Applications	
26. Abstract and Applied Analysis	
25. Proceedings of the American Mathematical Society	
24. Houston Journal of Mathematics	
23. Proceedings of the American Mathematical Society	
22. Journal of Functional Analysis	2007
21. Proceedings of the American Mathematical Society	
20. Conference Proceedings in honor of N.J. Kalton	
19. Canadian Journal of Mathematics	2006
18. Archiv der Mathematik	
17. International Journal of Mathematics and Mathematical Sciences	2005
16. Journal of Function spaces and Applications	2004
15. Indiana University Mathematics Journal	
14. Proceedings of the American Mathematical Society	2003
13. Proceedings of the American Mathematical Society	
12. Proceedings of the Royal Society of Edinburgh	
11. International Journal of Mathematics and Mathematical Sciences	
10. Israel Science Foundation	
9. Proceedings of the American Mathematical Society	2002
8. Proceedings of the Royal Society of Edinburgh	
7. Journal of Functional Analysis	
6. Contemporary Mathematics: Trends in Banach spaces and Operator Theory	
5. Journal of Australian Mathematical Society	2001
4. Prentice Hall	
3. International Journal of Mathematics and Mathematical Sciences	
2. Far East Journal of Mathematical Sciences	2000
1. Journal of Functional Analysis	

**Reviewer for Mathematical Reviews**

43. Journal of Mathematical Analysis and Applications	2016
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42. Studia Mathematica	
41. Michigan Math. J.	
40. Israel Journal of Math.	2014
39. Ann. Inst. Fourier Grenoble	2013
38. Non-linear Analysis	
37. J. Approximation Theory	
36. Positivity	2012
35. J. Functional Analysis	2011
34. Nonlinear Analysis	2010
33. J. Functional Analysis	
32. Fundamenta Mathematicae	
31. Acta Mathematica Sinica	
30. Fundamenta Mathematicae	
29. Int. J. Math. Anal.	2009
28. Banach spaces and their applications in analysis, Walter de Gruyter, Berlin 2007.	
27. J. Math. Anal. Appl.	
26. Contemporary Mathematics	2008
25. Archiv der Mathematik	
24. Studia Mathematica	
23. J. London Math. Soc.	2007
22. RACSAM Rev. R. Acad. Cienc. Exactas Fis. Nat. Ser. A Mat.	
21. Bull. Cl. Sci. Math. Nat. Sci. Math.	
20. J. Korean Math. Soc.	2006
19. J. Funct. Anal.	2005
18. Israel J. Math.	
17. Math. Rep. (Bucur.)	
16. Chinese Ann. Math. Series B	
15. Hokkaido Mathematical Journal	2004
14. Sequences spaces and Applications	2003
13. Bull. Fac. Educ. Utsunomiya Univ.	
12. Nonlinear Functional Analysis and Applications	2002
11. Acta Math. Hungar.	
10. Set Valued Analysis	
9. Bull. Australian Mathematical Society	
8. Extracta Math.	2001
7. Nonlinear Funct. Anal. Appl.	
6. Comment. Math. Univ. Carolinae	
5. Israel Journal of Mathematics	1999
4. Contemporary Mathematics	
3. Functional Analysis, Conference proceedings, Narosa, New Delhi	1998
2. Functional Analysis, Conference proceedings, Narosa, New Delhi	
1. Atti Sem. Mat. Fis. Univ. Modena	

### Other Reviewing

Reviewer for Math Zentralblatt.

### Book Reviews

4. *Discrete Methods in Functional Analysis*, M Mursaleen. CRC Press 2015
3. *Calculus*, Anton, Bivens, Davis, Editor: Wiley (8th edition). 2006
2. *Ramsey methods in Analysis*, S.A. Argyros, S. Todorovic, Editor: Birkhauser. 2005
1. *Calculus*, J. Rogawski, Editor: Freeman.

### External evaluator for cases of hiring or tenure and promotion in the following Universities:

- National Technical University of Athens-Greece (1 case in 2014 and 1 case in 2019),
- University of Patras-Greece (1 case in 2018).
- University of Athens-Greece (1 case in 2017),
- United Arab Emirates University (1 case in 2015),
- Technical University of Crete, (1 case in 2013 and 2 cases in 2014),
- St. Luis University (1 case in 2013),

### Organizer of mathematical conferences:

- Casa Mathematica Oaxaca, 9/2/18-9/7/18  
Quantum Transport Equations and Applications (18w5059)  
Co-organizer with Roberto Quezada, Eric Carlen, and Franco Fagnola.
- AMS Regional Meeting: Special Session on Banach spaces 03/16/01-03/18/01  
University of South Carolina at Columbia  
co-organizer with S.J. Dilworth and M. Girardi

### Other services to mathematical community:

I wrote recommendation letters for students not affiliated with the University of South Carolina during the years:  
2021 (1 letter).

### SERVICE TO SOUTH CAROLINA

Volunteer in the high school math competition during the years:  
2012, 2013, 2018, 2019, 2020.

Volunteer judge for the Engineering and Science fair of South Carolina:  
2015.

Volunteer for practice exam for AP placement Calculus test for graduating South Carolina high school students:  
2019.