

David V. Cruz-Uribe, OFS

Curriculum Vitae

Department of Mathematics
University of Alabama
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Citizenship U.S.

Education

- A.B. in mathematics, University of Chicago, 1985.
- Ph.D. in mathematics, University of California, Berkeley, 1993.
Donald Sarason, advisor; Dissertation: *Piecewise monotonic doubling measures.*

Faculty Positions

- Research Assistant Professor, Purdue University, 1993 to 1996.
Christoph Neugebauer, postdoctoral advisor.
- Assistant Professor, Trinity College, 1996 to 2002.
- Associate Professor, Trinity College, 2002 to 2005.
- Full Professor, Trinity College, 2005 to 2015.
- Department Chair, Trinity College, 2008 to 2010.
- Professor and Chair, University of Alabama, 2015 to present.

Graduate Students and Graduate Committees

- Dissertation committee, Jesús Ocáriz Gallego Universidad Autonoma de Madrid, 2020.
- Michael Penrod, PhD student, 2020 to present.
- John-Oliver MacLellan, PhD student, 2017 to present.
- Jeremy Cummings, Masters student, 2019 to 2020.
- Dissertation committee, Khalid Said, University of Alabama, 2019 to present.
- Dissertation committee, Quan Tran, University of Alabama, 2019 to present.
- Dissertation committee, Xuan Wang, University of Alabama, 2019-2020.
- Dissertation committee, Maria Cruz Prisuelos, Universidad Autonoma de Madrid, 2016-17. (Defense, April 2017.)
- Dissertation committee, Laura Erin Watley, University of Alabama, 2015-2017.
- Dissertation committee, Cong Hoang, University of Alabama, 2016-2017.

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- External reviewer, dissertation proposal, Oscar M. Guzman, Universidad Nacional de Colombia, December 2016.
- Opponent, dissertation defense of Olli Tapiola, University of Helsinki, May 2016.
- Dissertation committee, Theresa C. Anderson, Brown University, 2015.
- Dissertation pre-examiner, Anna Kairema, University of Helsinki, March 2013.

Graduate Research Supervised

- 2020 to present: PhD dissertation, John Oliver MacLellan, *Necessary conditions for two weight, weak type inequalities for multilinear singular integrals.*
- 2020 to 2021: Research project, Michael Penrod, *Poincaré inequalities and Neumann problems for the variable exponent setting.*
- 2018 to 2020: Research project, John Oliver MacLellan, *Necessary conditions for weak type inequalities for Calderón-Zygmund operators.*
- 2019 to 2020: Masters thesis, Jeremy Cummings, *Weighted norm inequalities for the maximal operator on variable Lebesgue spaces over spaces of homogeneous type.*
- Spring 2019: Research project, Quan Tran, *The Hardy-Littlewood maximal operator.*
- Fall 2017: Research project, Eduard Roure Perdices (Universidad de Barcelona), *Restricted weak type extrapolation.*
- 2016-17: Research project, Oscar M. Guzman (Universidad Nacional de Colombia), *Topics in variable Lebesgue spaces.*
- 2016: Independent study, Liet Vo, *Two weight inequalities for fractional integrals and commutators.*

Undergraduate Research Supervised

- 2018-19: Undergraduate research project, Philip Speegle, *Volume of the n dimensional sphere in rectilinear coordinates.*
- 2015: Independent Study, Greg Convertito, *Lebesgue measure and integral.*
- 2014-15: Senior Honors Thesis, Philip Cho, *Sturm-Liouville theory.*
- 2014: Independent Study, Philip Cho, *Lebesgue measure and integral.*
- 2013-14: Interdisciplinary Science Program Independent Research, Greg Convertito, *An elementary calculus problem with surprising connections to number theory; p -hyperbolic trig functions.*
- 2013: Independent Study, Philip Cho, *Introductory harmonic analysis.*
- 2012: Independent Study, Greg Vaughan, *Nowhere differentiable functions on the real line.*

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- 2010: Senior Honors Thesis, Adam Wright, *The Kalman filter: the optimal linear estimator*.
- 2008: Senior Honors Thesis, Haley Lepo, *Numerical evidence for the Muckenhoupt conjecture*.
- 2005: Interdisciplinary Science Program Independent Research, Leighann Kinter, Lisa Pham, *Classifying cubic equations*.
- 2004: Interdisciplinary Science Program Independent Research, James Piette, *Monte Carlo analysis of poker hands*.
- 2002: Interdisciplinary Science Program Independent Research, Daniel Fitch, *Computing the maximal operator*.

Teaching Experience

Calculus, elementary differential equations, introduction to proof, elementary statistics, real analysis, measure theory, Fourier analysis, partial differential equations, foundations of mathematics.

Trinity First Year Program Seminars

- 2007, 2009, 2012: Rich and Poor, White and Colored: Race and Class in the U.S. and Trinity College.
- 2004: Imagining Heaven and Hell: Utopia and Dystopia in Literature and Film.
- 2001: The Radical Christian Ideal.
- 2000: Radical Christian Poverty.

Diversity Activities

- LFSA, Faculty & Staff Development Committee, 2021 to present.
- Founding member, Latinx Faculty Staff Association, University of Alabama, 2019.
- Winner, College of Arts & Sciences Dean's Diversity Award, 2019.
- Discussion participant, *Women in mathematics*, AWM Student Chapter, Purdue University (in conjunction with the Diversity in Mathematics workshop), February 14, 2019.
- Panelist, *Moving up the academic ladder*, Latinx in Mathematics, IPAM, March 10, 2018.
- First year seminar topics on race and class: 2007, 2009, 2012.
- Invited speaker, Classical Magnet School, Hartford, 2008.
- Mentor, New England Board of Higher Education Science Network, 1999–2005.
- Invited speaker, Classical Magnet Program (Quirk Middle), 1998 to 2004.

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- Trinity College Retention Team, 1998–2002.
- Invited speaker, Classical Magnet Program (Hartford Public High), December 1997, Spring 2002.
- Volunteer instructor, Minority Middle School Summer Science Program, Purdue School of Science, Summer 1994, 1995.
- MARC/AIM application review committee, Purdue, 1994.
- Member, Berkeley Mathematics Opportunity Committee, 1990-1993.
- Instructor, Mathematics Opportunity Committee preliminary examination workshop, Berkeley, 1990-1992.

Research Interests

Harmonic analysis, especially weighted norm inequalities and extrapolation theory, variable Lebesgue spaces, applications of harmonic analysis to PDEs

Research Publications

- (1) *Weighted norm inequalities for maximal operators on variable Lebesgue spaces over spaces of homogeneous type*, Ann. Acad. Sci. Fenn. Math., to appear. (Joint with J. Cummings.)
- (2) *Necessary conditions for two weight inequalities for singular integral operators*, Studia Math., to appear. (Joint with J.O. MacLellan.)
- (3) *Weak endpoint bounds for matrix weights*, Rev. Mat. Iberoamericana, to appear. (Joint with J. Isralowitz, K. Moen, I. Rivera-Ríos and S. Pott.)
- (4) *Multilinear multipliers and singular integrals with smooth kernels on Hardy spaces*, Trans. Amer. Math. Soc., 374 (2021), 6, 3801–3825. (Joint with H. Nguyen.)
- (5) *Weighted norm inequalities for the bilinear maximal operator on variable Lebesgue spaces*, Publ. Mat., 64 (2020), 2, 453-498. (Joint with O.M. Guzman.)
- (6) *Weighted Riesz bounded variation spaces and the Nemytskii operator*, Azerbaijan J. Math., 10 (2020), 2. (Joint with O. M. Guzmán and H. Rafeiro.)
- (7) *Global Sobolev inequalities and degenerate p -Laplacian equations*, J. Diff. Equations, 268 (2020), 10, 6189–6210. (Joint with S. Rodney and E. Rosta.)
- (8) *A new approach to norm inequalities on weighted and variable Hardy spaces*, Ann. Acad. Sci. Fenn. Math., 45 (2020) 1, 175–198. (Joint with K. Moen and H. Nguyen.)
- (9) *A multilinear reverse Hölder inequality with applications to multilinear weighted norm inequalities*, Georgian Math. J., 27 (2020), 1, 37–42. (Joint with K. Moen.)
- (10) *The Calderón operator and the Stieltjes transform on variable Lebesgue spaces with weights*, Collect. Math., (2019). (Joint with E. Dalmasso, F. J. Martun-Reyes, and P. Ortega Salvador.)

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- (11) *The boundedness of multilinear Calderón-Zygmund operators on weighted and variable Hardy spaces*, Publ. Mat. 63 (2019), 2, 679–713. (Joint with K. Moen and H. Nguyen.)
- (12) *Multilinear fractional Calderón-Zygmund singular integrals on Hardy spaces*, Houston J. Math., 45 (2019), 3, 853–872. (Joint with K. Moen and H. Nguyen.)
- (13) *Sharp A -harmonic approximations*, Appl. Anal. 98 (2019), 1–2, 374–380. (Joint with L. Diening.)
- (14) *Two weight bump conditions for matrix weights*, Integral Equations Operator Theory 90 (2018), 3, Art. 36. (Joint with J. Isralowitz and K. Moen.)
- (15) *A modular variable Orlicz inequality for the local maximal operator*, Georgian Math. J. 25 (2018), 2, 201–206. (Joint with C. Capone and A. Fiorenza.)
- (16) *Modular inequalities for the maximal operator in variable Lebesgue spaces*, Nonlinear Anal, 177 (2018), part A, 299–311. (Joint with G. Di Fratta and A. Fiorenza.)
- (17) *Limited range multilinear extrapolation with applications to the bilinear Hilbert transform*, Math. Ann. 371 (2018), 1–2, 615–653. (Joint with J.M. Martell.)
- (18) *Extrapolation in the scale of generalized reverse Hölder weights*, Rev. Mat. Complut. 31 (2018), 2, 263–286. (Joint with T. Anderson and K. Moen.)
- (19) *Remembering Don Sarason (1933-2017)*, Notices AMS, 65 (2018), 2, 195–200. (Joint with S.-Y. Chang, J. Doyle, S. Garcia.)
- (20) *Poincaré inequalities and Neumann problems for the p -Laplacian*, Canad. Math. Bull, 61 (2018), 4, 738–753. (Joint with S. Rodney and E. Rosta.)
- (21) *On the Kato problem and extensions for degenerate elliptic operators*, Anal. PDE, 11 (2018), 3, 609–660. (Joint with J.M. Martell and C. Rios.)
- (22) *Extrapolation and interpolation in generalized Orlicz spaces*, Trans. Amer. Math. Soc., 370 (2018), 6, 4323–4349. (Joint with P. Hästö.)
- (23) *The boundedness of fractional maximal operators on variable Lebesgue spaces over spaces of homogeneous type*, Studia Math. 242 (2018), 2, 109–139. (Joint with P. Shukla.)
- (24) *Necessary conditions for the boundedness of linear and bilinear commutators on Banach function spaces*, Math. Inequal. Appl. 21 (2018), 1, 1–16. (Joint with L. Chaffee.)
- (25) *Extrapolation and factorization*, in *Function Spaces, Embeddings and Extrapolation X, Paseky 2017*, J. Lukeš and L. Pick eds., Matfyzpress, Charles University, Prague, 2017, 45–92.
- (26) *Embeddings of grand Lebesgue spaces, small Lebesgue spaces and Lebesgue spaces with a variable exponent*, Math. Notes, 102 (2017), 5-6, 677–686. (Joint with A. Fiorenza and O.M. Guzman.)

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- (27) *Two weight norm inequalities for fractional integral operators and commutators*, Advanced Course of Mathematical Analysis VI: Proceedings of the 6th International Course of Mathematical Analysis in Andalucía, F. J. Martin-Reyes, ed., World Scientific, 2017.
- (28) *Elementary proofs of one weight norm inequalities for fractional integral operators and commutators*, Harmonic Analysis, Partial Differential Equations, Complex Analysis, Banach Spaces, and Operator Theory, Celebrating Cora Sadosky's life. Vol. 2. M. C. Pereyra, S. Marcantognini, A. Stokolos, W. Urbina, eds., AWM-Springer Series, Springer, 2 (2017), 183–198, Assoc. Women Math. Ser., 5, Springer, Cham, 2017.
- (29) *Extrapolation and weighted norm inequalities in variable Lebesgue spaces*, Trans. Amer. Math. Soc, 369 (2017), 2, 1205–1235. (Joint with L. Wang.)
- (30) *A note on the off-diagonal Muckenhoupt-Wheeden conjecture*, Advanced Courses in Mathematical Analysis V: Proceedings of the Fifth International School, J. Carlos, N. Pascual, E. A. Kaidi, eds., World Scientific, 2016, 244–252. (Joint with J.M. Martell and C. Pérez.)
- (31) *Kato-Ponce inequalities on weighted and variable Lebesgue spaces*, Differential Integral Equations, 29 (2016), 9–10, 801-836. (Joint with V. Naibo.)
- (32) *Building the biggest box: three-factor polynomials and a Diophantine equation*, Math. Mag., 89 (2016), 3, 201–211. (Joint with G. Convertito.)
- (33) *Greedy bases in variable Lebesgue spaces*, Monatsh. Math., 2016, 179(3), 355–378. (Joint with E. Hernandez and J.M. Martell.)
- (34) *Matrix A_p weights, degenerate Sobolev spaces, and mappings of finite distortion*, J. Geom. Anal., 26 (2016), 4, 2797–2830. (Joint with K. Moen and S. Rodney.)
- (35) *Regularity results for weak solutions of elliptic PDEs below the natural exponent*, Ann. Mat. Pura Appl., (4) 195 (2016), 3, 725–740. (Joint with K. Moen, and S. Rodney.)
- (36) *Convergence in measure of approximate identities in variable Lebesgue spaces*, Anal. Appl. (Singap.), 13 (2015), 4, 413–418. (Joint with A. Fiorenza.)
- (37) *Logarithmic bump conditions for Calderón-Zygmund operators on spaces of homogeneous type*, Publ. Mat., 59, 1 (2015), 17–43. (Joint with T.C. Anderson and K. Moen.)
- (38) *Variable Lebesgue Spaces and Hyperbolic Systems*, Advanced Courses in Mathematics, CRM Barcelona, Birkhauser, Basel, 2014. (Joint with A. Fiorenza, M. Ruzhansky, J. Wirth.)
- (39) *Errata to “Gaussian bounds for degenerate parabolic equations” [J. Funct. Anal. 255 (2008), no. 2, 283-312]*, J. Funct. Anal. 267 (2014), no. 9, 3507–3513. (Joint with C. Rios.)

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- (40) *Variable Hardy spaces*, Indiana Univ. Math. J. 63, 2 (2014), 447–493. (Joint with D. Wang.)
- (41) *The Kato problem for operators with weighted ellipticity*, Trans. Amer. Math. Soc., 367 (2015), 7, 4727–4756. (Joint with C. Rios.)
- (42) *Logarithmic bump conditions and the two-weight boundedness of Calderón-Zygmund operators*, Adv. Math. 255 (2014), 706–729. (Joint with A. Reznikov and A. Volberg.)
- (43) *A fractional Muckenhoupt-Wheeden theorem and its consequences*, Integr. Equ. Oper. Theory 76 (2013), 421–446. (Joint with K. Moen.)
- (44) *Regularity of solutions to degenerate p -Laplacian equations*, J. Math. Anal. Appl. 401 (2013), 1, 458–478. (Joint with K. Moen and V. Naibo.)
- (45) *One and two weight norm inequalities for Riesz potentials*, Illinois J. Math., 57 (2013), 1, 295–323. (Joint with K. Moen.)
- (46) *Weighted norm inequalities for the maximal operator on variable Lebesgue spaces*, J. Math. Anal. Appl. 394 (2012), 2, 335–367. (Joint with A. Fiorenza and C.J. Neugebauer.)
- (47) *Variable Lebesgue Spaces: Foundations and Harmonic Analysis*, Birkhauser, Applied and Numerical Harmonic Analysis, 2013. (Joint with A. Fiorenza.)
- (48) *Interpolation of positive operators on variable Lebesgue spaces*, Math Inequal. Appl., 15 (2012), 3, 639–644.
- (49) *Sharp weighted estimates for classical operators*, Adv. Math., 229 (2012), 1, 408–441. (Joint with J.M. Martell and C. Pérez.)
- (50) *Sharp norm inequalities for commutators of classical operators*, Publ. Mat., 56 (2012) 1, 147–190. (Joint with K. Moen.)
- (51) *On the continuity of minimizers for quasilinear functionals*, Czechoslovak Math. J., 62(137) (2012), 1, 111–116. (Joint with P. Di Gironimo and L. D’Onofrio.)
- (52) *On a general weighted Hardy type inequality in the variable exponent Lebesgue spaces*, Rev. Mat. Univ. Complut. Madrid, 25 (2012), 2, 335–367. (Joint with F. Mamedov.)
- (53) *The maximal operator on weighted variable Lebesgue spaces*, Frac. Calc. Appl. Anal., 14 (3), 2011, 361–374. (Joint with L. Diening and P. Hästö.)
- (54) *On the continuity of solutions to degenerate elliptic equations*, J. Diff. Eq. 250 (2011), 6, 2671–2686. (Joint with C. Sbordone and P. Di Gironimo.)
- (55) *The solution of the Kato problem for degenerate elliptic operators with Gaussian bounds*, Trans. Amer. Math. Soc., 364 (2012), 7, 3449–3478. (Joint with C. Rios.)

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- (56) *Convergence in variable Lebesgue spaces*, Publ. Mat. 54(2) (2010), 441-459. (Joint with A. Fiorenza.)
- (57) *Sharp weighted estimates for approximating dyadic operators*, Electron. Res. Announc. Math. Sci. 17, 2010. (Joint with J.M. Martell and C. Pérez.)
- (58) *Weights, Extrapolation and the Theory of Rubio de Francia, Operator Theory: Advances and Applications*, Birkhauser, Basel, 2011. (Joint with J.M. Martell and C. Pérez.)
- (59) *A new proof of the boundedness of maximal operators on variable Lebesgue spaces*, Boll. Unione Mat. Ital. (9) 2 (2009), no. 1, 151–173. (Joint with L. Dienng and A. Fiorenza.)
- (60) *$L \log L$ results for the maximal operator in variable L^p spaces*, Trans. Amer. Math. Soc. 361 (2009), 2631-2647. (Joint with A. Fiorenza.)
- (61) *The structure of increasing weights on the real line*, Houston J. Math. 34 (2008), 3, 951-983. (Joint with L. Forzani and D. Maldonado.)
- (62) *Gaussian bounds for degenerate parabolic equations*, J. Funct. Anal. 255 (2008), 283–312. (Joint with C. Rios.)
- (63) *Sharp two-weight inequalities for singular integrals, with applications to the Hilbert transform and the Sarason conjecture*, Adv. Math. 216 (2007), 2, 647–676. (Joint with J.M. Martell and C. Pérez.)
- (64) *The Fractional maximal operator on variable L^p spaces*, Rev. Mat. Iberoamericana 23 (2007), 3, 743-770. (Joint with C. Capone and A. Fiorenza.)
- (65) *Approximate identities in variable L^p spaces*, Math. Nach. 280 (2007), 256-270. (Joint with A. Fiorenza.)
- (66) *Weighted endpoint estimates for commutators of fractional integrals*, Czech. Math. J. 57 (2007), 153–160. (Joint with A. Fiorenza.)
- (67) *Extensions of Rubio de Francia's extrapolation theorem*, Proceedings of El Escorial, 2004, Collect. Math. (2006) 1-37. (Joint with J.M. Martell and C. Pérez.)
- (68) *The boundedness of classical operators on variable L^p spaces*, Ann. Acad. Sci. Fenn. Math. 31 (2006), 239-264. (Joint with A. Fiorenza, J.M. Martell and C. Pérez.)
- (69) *Weighted weak-type inequalities and a conjecture of Sawyer*. Int. Math. Res. Not. 30 (2005), 1849–1871. (Joint with J.M. Martell and C. Pérez.)
- (70) *Extrapolation from A_∞ weights and applications*, J. Funct. Anal. 213 (2004), 412-439. (Joint with J.M. Martell and C. Pérez.)
- (71) *The maximal function on variable L^p spaces*, Ann. Acad. Sci. Fenn. Math. 28 (2003), 223-238, and 29 (2004), 247-249. (Joint with A. Fiorenza and C.J. Neugebauer.)

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- (72) *Endpoint estimates and weighted norm inequalities for commutators of fractional integrals*, Publ. Mat. 47 (2003), 103-131. (Joint with A. Fiorenza.)
- (73) *The Hardy-Littlewood maximal operator on variable- L^p spaces*, Seminar of Mathematical Analysis (Malaga/Seville, 2002/2003), 147-156, Colecc. Abierta, 64 Univ. Sevilla Secr. Publ., Seville, 2003.
- (74) *An elementary proof of error estimates for the trapezoidal rule*, Math. Mag. 76 (2003), 303-306.
- (75) *On the two-weight problem for singular integral operators*, Ann. Scuola Norm. Sup. Pisa Cl. Sci. (5) Vol. I (2002), 821-849. (Joint with C. Pérez.)
- (76) *Sharp error bounds for the trapezoidal rule and Simpson's rule*, J. Ineq. Pure Appl. Math. 3, Issue 4 (2002), Article 49. (Joint with C.J. Neugebauer.)
- (77) *Localization and extrapolation in Lorentz-Orlicz spaces*, Function Spaces, Interpolation Theory and Related Topics, M. Cwikel *et al.* Eds., de Gruyter, Berlin, 2002, 273-284. (Joint with M. Krbec.)
- (78) *The A_∞ property for Young functions and weighted norm inequalities*, Houston J. Math. 28 (2002), 169-182. (Joint with A. Fiorenza.)
- (79) *A new proof of weighted weak-type inequalities for fractional integrals*, Comment. Math. Univ. Carolinae, 42 (2001), 481-485.
- (80) *The minimal operator and the geometric maximal operator in \mathbb{R}^n* , Studia Math. 144 (2001), 1-37.
- (81) *New proofs of two-weight norm inequalities for the maximal operator*, Georgian Math. J. 7 (2000), 33-42.
- (82) *Fourier Analysis*, translation and revision of the Spanish edition by Javier Duoandikoetxea, Amer. Math. Soc., Providence, December, 2000.
- (83) *Two-weight, weak-type norm inequalities for fractional integrals, Calderón-Zygmund operators and commutators*, Indiana Math. J. 49 (2000), 697-722. (Joint with C. Pérez.)
- (84) *Two weight extrapolation via the maximal operator*, J. Funct. Anal. 174 (2000), 1-17. (Joint with C. Pérez.)
- (85) *Sharp two-weight, weak-type norm inequalities for singular integral operators*, Math. Res. Let. 6 (1999), 417-427. (Joint with C. Pérez.)
- (86) *Weighted norm inequalities for geometric fractional maximal operators*, J. Fourier Anal. Appl. 5 (1999), 45-66. (Joint with C.J. Neugebauer and V. Olesen.)
- (87) *Weighted norm inequalities for the centered maximal operator on \mathbb{R}^+* , Recherche di Mat. 48 (1999), 225-241. (Joint with C.J. Neugebauer.)

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- (88) *Weighted norm inequalities for the geometric maximal operator*, Publ. Mat. 42 (1998), 239-263. (Joint with C.J. Neugebauer.)
- (89) *The class $A_\infty^+(g)$ and the one-sided reverse Hölder inequality*, Canadian Bulletin Math. 40 (1997), 169-173.
- (90) *A new proof of the two weight norm inequality for the one-sided fractional maximal operator*, Proc. Amer. Math. Soc. 125 (1997), 1419-1424.
- (91) *Weighted norm inequalities for a family of one-sided minimal operators*, Illinois J. Math. 41 (1997), 77-92. (Joint with C. J. Neugebauer and V. Olesen.)
- (92) *Norm inequalities for the minimal and maximal operator, and differentiation of the integral*, Publ. Mat. 41 (1997), 577-604. (Joint with C. J. Neugebauer and V. Olesen.)
- (93) *The relation between the root and ratio tests*, Math. Mag. 70 (1997), 214-215.
- (94) *Piecewise monotonic doubling measures*, Rocky Mtn. J. Math. 26 (1996), 2, 1-39. (Published version of dissertation.)
- (95) *The one-sided minimal operator and the one-sided reverse Hölder inequality*, Studia Math. 116 (1995), 255-270. (Joint with C. J. Neugebauer and V. Olesen.)
- (96) *The structure of the reverse Hölder classes*, Trans. Amer. Math. Soc. 347 (1995), 2941-2960. (Joint with C. J. Neugebauer.)
- (97) *The invertibility of the product of unbounded Toeplitz operators*, Integral Equations Operator Theory 20 (1994), 231-237.
- (98) *Prelim Workshop Lecture Notes*, Berkeley Mathematics Lecture Notes 5, 1993.
- (99) *The class $L \log L$ with weights*, The Madison Symposium on Complex Analysis, Contemporary Mathematics, vol. 137, AMS, Providence, 1992.

Work in Progress

- (1) *A note on the limit of Orlicz norms*, submitted. (Joint with S. Rodney.)
- (2) *Bounded weak solutions to linear PDE with data in Orlicz spaces*, submitted. (Joint with S. Rodney.)
- (3) *Poincaré inequalities and Neumann problems for the variable exponent setting*, submitted. (Joint with M. Penrod and S. Rodney.)
- (4) *On the dual of variable Lebesgue spaces with unbounded exponent*, under revision. (Joint with A. Amenta, J. Conde-Alonso and J. Ocariz.)
- (5) *Necessary conditions for two weight, weak type norm inequalities for multilinear singular integrals*, in preparation. (Joint with J. O. MacLellan.)
- (6) *The structure of weights in variable Lebesgue spaces*, in preparation. (Joint with L. Wang.)

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- (7) *The maximal operator on convex set functions*, in preparation. (Joint with M. Bownik.)
- (8) *Separated bump conditions for fractional Bergman operators*, in preparation. (Joint with B. Hu.)
- (9) *Restricted weak type inequalities for fractional and singular integral operators and commutators*, in preparation. (Joint with E. Roure.)
- (10) *Multilinear Calderón-Zygmund operators with different decays on the derivatives*, in preparation. (Joint with K. Moen and H. Nguyen.)
- (11) *Boundary value problems with data in variable Lebesgue spaces*, in preparation. (Joint with J. M. Martell.)
- (12) *The Stieltjes Integral*, book contract, CRC Press. (Joint with G. Convertito.)

Grants and Awards

- College of Arts & Sciences Dean's Diversity Award, 2019.
- Fulbright OLF visiting scholar award to host Alexey Karapetyants, December 2018.
- National Science Foundation research grant DMS-1362425, 2014-2018.
- Ministerio de Ciencias e Innovacion, Spain, foreign investigator on research grant MTM2012-30748, 2012-2015.
- Ministerio de Ciencias e Innovacion, Spain, foreign investigator on research grant MTM2009-08934, 2009-2012.
- Trinity College Faculty Research Committee, Summer Research Grant, 2009.
- Consejeria de Innovacion, Ciencia y Empresa of the Junta de Andalucia, Spain, research grant, Summer, 2009.
- Consiglio Nazionale delle Ricerche, Italy, research grant, January, 2009.
- Trinity College Stewart-Dowart Faculty Development Fund, 2000-2015.
- Ford Foundation Minority Postdoctoral Fellowship, 1998-1999.
- National Science Foundation Minority Graduate Fellowship, 1989-1992.
- Academic Junior Marshal, University of Chicago, 1985.
- Phi Beta Kappa, University of Chicago chapter, 1984.

Short Courses

- 2019: *Recent progress in harmonic analysis*, two invited lectures, Beijing Normal University, China.
- 2018: *Extrapolation and factorization*, invited lecture series, UNEMAT5, Un Encuentro de Matemáticas, UNAL, Bogota, Colombia.

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- 2017: *Extrapolation and factorization*, four lecture short course, Paseky Spring School on Analysis, Czech Republic.
- 2014: *Two-weight norm inequalities for fractional integral operators and commutators*, short course at the 6th International Course of Mathematical Analysis in Andalucía, Antequera, Spain.
- 2013: *Variable Lebesgue spaces*, short course, ICMAT trimester on harmonic analysis, Madrid.
- 2011: *Variable Lebesgue spaces*, Advanced courses in mathematics, CRM, Barcelona.
- 2010: *Variable Lebesgue spaces*, three lecture short course, Harmonic Analysis and Related Topics: international summer school and workshop, Lisbon.
- 2007: *Variable Lebesgue spaces*, six week lecture series, University of Naples, Italy.

Invited Talks

- 2021: AMS special session on sharp constant estimates in harmonic analysis (Zoom, Ohio); invited Zoom lecture, Conference on Methods of Nonlinear Analysis in Differential and Integral Equations (MNA 2021), Poland; invited Zoom lecture, ICOMAA 2021, Istanbul, Turkey.
- 2020: Colloquium talk, Purdue University; invited Zoom lecture, ICOMAA 2020, Istanbul, Turkey; analysis seminar talk (Zoom), IMAL, Santa Fe, Argentina; invited Zoom lecture, SFU Rostov, Russia; function space seminar talk (Zoom), Charles University, Prague, Czech Republic; nonstandard analysis seminar (Zoom), University of Warsaw, Poland.
- 2019: AMS special session on harmonic analysis and PDEs, Baltimore; analysis seminar talk, University of Tennessee, Knoxville; invited special lecture on extrapolation, workshop on diversity in mathematics, Purdue; invited talk, ICMAT, Madrid.
- 2018: analysis seminar, University of Oregon; invited talk, AMS special session on function spaces, operator theory, and non-linear differential operators, Columbus, Ohio; invited talk, ICMAT, Madrid.
- 2017: invited talk, AMS special session on function spaces, New York, NY; Colloquium talk, University of Memphis.
- 2016: Colloquium talk, University of Alabama, Birmingham; AMS special session on Bellman functions and sharp estimates, Athens, Georgia; AMS special session on harmonic analysis, Athens, Georgia. Joint Colloquium talk, University of Helsinki; invited talk, Workshop on Singular Integrals and Differential Equations, Helsinki; invited talk, X Forum on Partial Differential Equations, Bedlewo, Poland; analysis seminar, Aalto University, Helsinki.
- 2015: Analysis seminar, University of Oregon; analysis seminar, University of Naples (Faculty of Science); invited talk, special session on harmonic analysis,

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- Congress of the RSME, Granada, Spain; AMS special session on harmonic analysis and applications, E. Lansing, Michigan; Colloquium talk, University of Vermont; analysis seminar, University of Alabama.
- 2014: Analysis seminar, Brown University; Trimester in Harmonic Analysis and PDEs, Hausdorff Institute, Bonn; Analysis seminar, Ludwig-Maximilians Universität, Munich; undergraduate colloquium, Cape Breton University, Nova Scotia; colloquium, SUNY Albany; analysis seminar, Michigan State University.
 - 2013: Analysis seminar, Ohio State; Analysis seminar, Ludwig-Maximilians Universität, Munich; Invited lecture, ICMAT workshop on harmonic analysis, Madrid; undergraduate colloquium, Cape Breton University, Nova Scotia.
 - 2012: Colloquium speaker, Baylor University; Colloquium speaker, University of Alabama; Southeastern Analysis Meeting (SEAM XXVIII); Colloquium speaker, Universidad de Malaga, Spain; Colloquium speaker, Universidad de Sevilla, Spain; AMS Special Session on Harmonic Analysis and Nonlinear PDEs, University of Akron; analysis seminar, Brown University.
 - 2011: AMS Special session on harmonic analysis and partial differential equations, New Orleans; special session on harmonic analysis, Congress of the RSME, Avila, Spain; Conference in Harmonic Analysis and Partial Differential Equations in honour of Eric Sawyer, Toronto.
 - 2010: University of Calgary; Special session on extrapolation and interpolation, Functional Analysis in Valencia, 2010; Harmonic Analysis and Applications: a conference in honor of the 70th birthday of Richard Wheeden, Sevilla; AMS Special Session on Harmonic Analysis, UCLA; analysis seminar, Brown University.
 - 2009: University of Naples (Faculty of Science); AMS Special Session on Harmonic Analysis, Boca Raton.
 - 2007: University of Calgary; AMS Special Session on Harmonic Analysis, Albuquerque.
 - 2006: ICM Satellite Conference on harmonic analysis, Sevilla (Spain).
 - 2005: Brown University.
 - 2004: El Escorial Conference on Harmonic Analysis and Partial Differential Equations, Spain.
 - 2003: Mathematical Institute of the Czech Academy of Sciences; Istituto de CNR, Naples, Italy.
 - 2002: University of Naples (Faculty of Science); Functional Analysis Seminar, University of Sevilla.
 - 2001: University of the Basque Country (Bilbao); New Mexico Analysis Seminar.

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- 1999: New Mexico Analysis Seminar; Autonomous University of Barcelona; University of Naples (Faculty of Science); University of Naples (Faculty of Architecture); Mathematical Institute of the Czech Academy of Sciences.
- 1998: Brown University, Autonomous University of Madrid.
- 1997: Autonomous University of Madrid; University of Naples; SUNY Albany; Yale University; AMS special session on harmonic analysis (Albuquerque); Rutgers University.
- 1996: Howard University; Vassar College; Center of Communications Research—La Jolla; Williams College; University of Malaga.
- 1995: AMS special session on harmonic analysis (Burlington); University of California, Berkeley; New Mexico State; University of Malaga; Wabash Extra-mural Analysis Conference; University of Indiana; University of Chicago.
- 1994: Wabash Extra-mural Analysis Conference; Southeastern Analysis Meeting.

Conference and Workshop Organization

- Co-organizer, SEAM 35: Southeast Analysis Meeting, University of Alabama, March 15-17, 2019.
- Co-organizer, *Advances in Harmonic Analysis and PDEs*, Canadian Math. Soc. Summer Meeting, Fredricton, June 1-4, 2018.
- Co-organizer, *Special Session on Function Spaces, Operator Theory, and Non-linear Differential Operators*, AMS sectional meeting, Columbus, Ohio, March 17-18, 2018.
- Co-organizer, *Special Session on Current Trends in Function Spaces and Nonlinear Analysis*, AMS sectional meeting, New York, New York, May 6-7, 2017.
- Organizing committee, *Nonstandard growth phenomena, 2017*, University of Turku, Finland, August 29-31, 2017.
- Co-organizer, *Special session on Recent Advances in Variable Exponent Spaces and Non-linear Problems*, Joint meeting of the AMS, EMS and the Portuguese Mathematical Society, Porto, Portugal, June 2015.
- Co-organizer, *Special session on advances in harmonic analysis and partial differential equations*, AMS sectional meeting, Halifax, Canada, October 2014.
- Co-organizer, *Special session on weighted norm inequalities and related topics*, AMS sectional meeting, Albuquerque, NM, April 2014.
- Co-organizer, *Special Session on Harmonic Analysis and Partial Differential Equations*, AMS sectional meeting, Lawrence, KS, March 2012.

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- Co-organizer, *Recent developments in elliptic and degenerate elliptic partial differential equations, systems, and geometric measure theory* Banff International Research Station, Banff, Canada, March 2008.
- Co-organizer, AMS special session on harmonic analysis, Williamstown, MA, October, 2001.

Editorial and Review Activities

- Editorial Board, Mathematical Sciences and Applications E-Notes Math. Sci. Appl. E-Notes), Dec. 2020 to present.
- Associate Editor, *Potential Analysis*, 2019 to present.
- International Advisory Board, *Azerbaijan Journal of Mathematics*, 2018 to present.
- Editor, *Transactions of A. Razmadze Mathematical Institute*, 2016 to present.
- Editor, *Journal of Advances in Mathematical Analysis and Applications*, 2017 to present.
- Reviewer: multiple journals including *Advances in Mathematics, Analysis & PDEs, Bulletin of the London Math. Society, Houston Journal of Mathematics, Illinois Journal of Mathematics, Indiana University Journal of Mathematics, Integral Equations and Operator Theory, International Math Research Notices, Journal of Functional Analysis, Journal of Operator Theory, Mathematische Nachrichten, Math Research Letters, Potential Analysis, Proceedings of the AMS, Publicacions Matemàtiques, Revista Matemática Complutense, Revista Matemática Iberoamericana, Studia Mathematica, Transactions of the AMS.*

Prior Administrative Experience (Trinity College)

- Departmental Calculus Review, September 2012 to June 2014.
- Departmental Statistics Review, April 2011 to May 2012.
- Chairman, Department of Mathematics, July 2008 to June 2010.
- College Appointments and Promotions Committee, 2007-2009.
- Faculty Parliamentarian, 2001-2008.
- College Academic Affairs Committee, 2001-2004. Chairman, 2003-2004.
- Committee on Academic Standards and Excellence; 1999-2001. Chairman, 2000-2001.

Additional Professional Activities

- Co-Chair, University of Alabama United Way campaign, 2019.
- Hosted graduate student Eduard Roure Perdices from Barcelona, Spain, Fall 2017.

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- Invited participant, AIM Workshop, *Sparse domination of singular integral operators*, October 2017.
- Hosted graduate student Oscar M. Guzman from Colombia, 2016–17.
- Panelist, NSF proposal review panel, February 2015.
- Supervised talk on undergraduate research by Greg Convertito at MathFest, July 2013. (Greg awarded certificate for outstanding presentation by MAA.)
- Invited participant, AIM Workshop, *Weighted singular integral operators and non-homogenous harmonic analysis*, October 2011.
- Research adjunct, Institute for Defense Analysis, CCR-LaJolla, Summer 1998, 2001.

Public Service Activities

- Board of Directors, Consistent Life Network, August 2019 to present.
- Regional Executive Council, Brothers and Sisters of St. Francis Region, Secular Franciscan Order, August 2019 to present.

Other Information

- Read and speak (to a limited degree): Italian, Spanish, French.
- Professed lay brother, Secular Franciscan Order.