PAUL ALTON HAGELSTEIN

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EDUCATION

2000	Ph.D.	Mathematics The University of Chicago, Chicago, Illinois Dissertation: "Local Integrability of Strong and Iterated Maximal Functions" Supervisor: Robert Fefferman
1995	S.M.	Mathematics The University of Chicago, Chicago, Illinois
1994	B.A.	Mathematics and Physics, *cum laude* Rice University, Houston, Texas

POSITIONS HELD

2019–present	**Full Professor**, Department of Mathematics, Baylor University
2006–present	**Associate Professor**, Department of Mathematics, Baylor University
2003–2006	**Assistant Professor**, Department of Mathematics, Baylor University
2000–2003	**Instructor**, Department of Mathematics, Princeton University
1997–2000	**Lecturer**, Department of Mathematics, University of Chicago

AWARDS, FELLOWSHIPS

2023–2028	Simons Foundation Collaboration Grant ($42,000)
2017–2022	Simons Foundation Collaboration Grant ($42,000)
2010–2015	Simons Foundation Collaboration Grant ($35,000)
2006–2010	AIM–NSF, AMS–NSF Travel Grants ($6,000)
2000–2003	NSF VIGRE Postdoctoral Fellowship, Princeton University
1994–2000	Graduate Tuition Fellowship and Stipend, Department of Mathematics, University of Chicago
1999	University of Chicago Lawrence and Josephine Graves Prize for Distinguished Teaching
1990–94	National Merit Scholarship

UNIVERSITY AND PROFESSIONAL SERVICE

2001–present **Referee/Reviewer**
Refereed journal submissions to *The Pacific Journal of Mathematics*, *The Journal of the American Mathematical Society*, the *Illinois Journal of Mathematics*, the *Indiana University Mathematics Journal*, *Mathematical Research Letters*, the *Canadian Journal of Mathematics*, the *New York Journal of Mathematics*, *Physics Letters A*, *Potential Analysis*, the *Journal of Geometric Analysis*, *Fundamenta Mathematicae*, *Constructive Approximation*, *Complex Variables and Elliptic Equations*, *American Mathematical Monthly*, *Applied and Computational Harmonic Analysis*, *Bulletin of the London Mathematical Society*, *Studia Mathematica*, *Rocky Mountain Journal of Mathematics*, *Potential Analysis*, *Real Analysis Exchange*, *Proceedings of the American Mathematical Society*, and *Collectanea Mathematica*. Reviewed articles and books for *Zentralblatt* and *Mathematical Reviews*.

2003–present **University and Departmental Service**, Baylor University
Baylor University Graduate Curriculum Committee (2012 – present)
Baylor University Research Committee (2022 – present)
Baylor University Faculty Senate (Spring 2017)
Department Search Committee Chair (2011 – 2012 and 2013 – 2014)
Coach of Baylor Putnam Exam Team (2003 – present)
Graduate Student Teaching Mentor (2005 – present)
Department Graduate Committee (2008 – 2020)
Scholarship Committee (2015 – present)

2009–present **Conference Organizer**
Co-organizer of special sessions in harmonic analysis and partial differential equations at the AMS/MAA Joint Meetings in Washington, D. C. (2009) and the AMS Regional Conference in Statesboro, Georgia (2011).

2001–2003 **Placement Officer**, Department of Mathematics, Princeton University
Placed incoming freshmen into appropriate mathematics courses.
Advised freshmen regarding course selections.

2002 **Mathematics Coordinator**, Freshman Scholars Institute, Princeton University
Taught in and supervised teaching of other mathematics sections of Princeton FSI Program - a summer program offered to remedy deficiencies in the mathematical educations of incoming Princeton freshmen from underprivileged backgrounds.

CONFERENCE PRESENTATIONS AND INVITED LECTURES

AMS/MAA Joint Meetings in Washington, D. C. 2000 · University of Chicago · Princeton University · Conference on Harmonic Analysis at Mt. Holyoke 2001· University of Connecticut · Kansas State University · Florida State University · De Paul University · University of Toledo · Iowa State University · Colgate University · U. S. Naval Academy · Georgetown University · University of Vermont · AMS/SMM Joint Meetings in Houston, Texas 2004 · 7th International Conference on Harmonic Analysis and Partial Differential Equations, El Escorial, Madrid · AMS Sectional Meeting in Miami 2006 · AMS/SMM Joint Meetings in Zacatecas, Mexico 2007 · AMS Sectional Meeting in Chicago 2007 · 8th International Conference on Harmonic Analysis and Partial Differential Equations, El Escorial, Madrid · International Congress of Mathematicians, Hyderabad, India · University of Colima, Mexico · AMS Sectional Meeting in Lawrence, Kansas 2012 · 9th International Conference on Harmonic Analysis and Partial Differential Equations, El Escorial, Madrid · AMS Sectional Meeting in Albuquerque 2014 · International Congress of Mathematicians, Seoul, South Korea · 2015 HAPDE Conference, Helsinki, Finland · University of Alabama · McGill University · AMS Sectional Meeting in Athens, Georgia 2016 · 10th International Conference on Harmonic Analysis and Partial Differential Equations, El Escorial, Madrid · AMS Sectional Meeting in Orlando, Florida 2017 · Kent State University · University of Cincinnati · Basque Center for Applied Mathematics · 2021 Canadian Mathematical Society Summer Meetings · 11th Harmonic Analysis and Partial Differential Equations, El Escorial, Madrid · XII Conference of the Georgia Mathematical Union (Plenary Speaker) · University of the Basque Country · 45th Real Analysis Summer Symposium, Caserta

PUBLICATIONS

Hagelstein, P. and Stokolos, A., $L^p(\mathbb{R}^2)$ *bounds for geometric maximal operators associated to homothecy invariant convex bases*, Indiana Univ. Math. J. (to appear).

Accomazzo, N., Di Plinio, F., Hagelstein, P., Parissis, I., and Roncal, L., *Directional square functions*, Analysis & PDE **16** (2023), 1651–1699.

Hagelstein, P., Oniani, G., and Stokolos, A., *Sharp weak type estimates for maximal operators associated to rare bases*, Bull. Lond. Math. Soc. **55** (2023), 1749–1759.

Hagelstein, P. and Stokolos, A., *Sharp weak type estimates for a family of Córdoba bases*, Collect. Math. **74** (2023), 595–603.

Hagelstein, P. and Oniani, G., *On the finiteness of strong maximal functions associated to functions whose integrals are strongly differentiable*, J. Math. Anal. Appl. **523** (2023), 127083.

Dmitrishin, N., Hagelstein, P., and Stokolos, A., *Sharp weak type estimates for a family of Soria bases*, J. Geom. Anal. **32** (2022), no. 5, Paper No. 169, 11p.

Hagelstein, P. A. and Stokolos, A., *Sharp weak type estimates for a family of Zygmund bases*, Proc. Amer. Math. Soc. **150** (2022), 2049–2057.

Davis, J. M. and Hagelstein, P. A., *Gibbs phenomena for some classical orthogonal polynomials*, J. Math. Anal. Appl. **505** (2022), Paper No. 125574.

Hagelstein, P., Herden, D., and Stokolos, A. *A theorem of Besicovitch and a generalization of the Birkhoff ergodic theorem*, Proc. Amer. Math. Soc. Ser. B **8** (2021), 52–59.

Hagelstein, P., Lackner, I., Otto, J., Perona, A., and Piziak, R. *Practical applications of Markowitz portfolios with Graham bands in the accumulation phase*, Practical Applications, **8** no. 2 (2020), 1–5.

Dmitrishin, D., Hagelstein, P., Khamitova, A., Korenovskyi, A., and Stokolos, A. *Fejér polynomials and control of nonlinear discrete systems*, Constr. Approx. **51** (2020), 383–412.

Davis, J., Hagelstein, P., Lackner, I., and Piziak, R., *The efficient frontier and international portfolio diversification in taxable and tax-privileged accounts*, J. Finance and Investment Analysis **9** (2020), 59–78.

Hagelstein, P. A. and Parissis, I. *Density bases associated to Nagel-Stein approach regions*, Studia Math. **251** (2020), 317–326.

Dmitrishin, D., Hagelstein, P. A., and Stokolos, A., *Finding orbits of functions using Suffridge polynomials*, Topics in Classical and Modern Analysis, Applied and Numerical Harmonic Analysis Series, Birkhäuser (2019), 127–133.

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Hagelstein, P., Lackner, I., Otto, J., Perona, A., and Piziak, R., *Markowitz portfolios with Graham bands in the accumulation phase*, J. Wealth Management, **22** (2019), 41–48.

Gwaltney, E., Hagelstein, P., Herden, D., and King, B., *On a theorem of Besicovitch and a problem in ergodic theory*, Involve **12** (2019), 961–968.

Hagelstein, P., Lackner, I., Otto, J., Perona, A., and Piziak, R. *Fixed and dynamic asset allocation in the accumulation phase*, J. Finance and Investment Analysis, **8** (2019), 1–12.

Hagelstein, P. A. and Parissis, I. *Tauberian constants associated to centered homothecy invariant density bases*, Fund. Math. **243** (2018), 169–177.

Gwaltney, E., Hagelstein, P., and Herden, D. *A probabilistic proof of the Vitali covering lemma*, Meth. Funct. Anal. Top. **24** (2018), 34–40.

Dmitrishin, D., Hagelstein, P. A., Khamitova, A., and Stokolos, A. *Limitations of robust stability of a linear delayed feedback control*, SIAM J. Control Optim. **56** (2018), 148–157.

Hagelstein, P. A., Parissis, I., and Saari, O. *Sharp inequalities for one-sided Muckenhoupt weights*, Collect. Math. **69** (2018), 151–161.

Hagelstein, P. A. and Parissis, I. *Weighted Solyanik estimates for the strong maximal function*, Publ. Mat. **62** (2018), 133–159.

Hagelstein, P. A. and Parissis, I. *Hölder continuity of Tauberian constants associated with discrete and ergodic strong maximal operators*, New York J. Math. **23** (2017), 1219–1236.

Hagelstein, P. A. and Parissis, I. *A note on local Hölder continuity of weighted Tauberian functions*, Harmonic Analysis and Operator Theory: Cora Sadosky Memorial Seminar in Analysis, Vol. II, AWM-Springer Series **5** (2017), 279–286.

Hagelstein, P. A., Herden, D., and Young, D. *Ramsey–type theorems for sets satisfying a geometric regularity condition*, J. Math. Anal. Appl. **447** (2017), 951–956.

Hagelstein, P. A. and Parissis, I. *Solyanik estimates in ergodic theory*, Colloq. Math. **145** (2016), 193–207.

Dmitrishin, D., Hagelstein, P., Khamitova, A., and Stokolos, A. *On the stability of cycles by delayed feedback control*, Linear and Multilinear Algebra, **64** (2016), 1538–1549.

Hagelstein, P. A. and Parissis, I. *Weighted Solyanik estimates for the Hardy-Littlewood maximal operator and embedding of A_∞ into A_p*, Journal of Geometric Analysis, **26** (2016), 924–946.

Hagelstein, P. A. and Parissis, I. *Solyanik estimates and local Hölder continuity of halo functions of geometric maximal operators*, Adv. Math. **285** (2015), 434–453.

Hagelstein, P. A., Luque, T., and Parissis, I. *Tauberian conditions, Muckenhoupt weights, and differentiation properties of weighted bases*, Trans. Amer. Math. Soc. **367** (2015), 7999–8032.

Hagelstein, P. A. and Parissis, I. *Solyanik estimates in harmonic analysis*, Springer Proceedings in Mathematics and Statistics **108** (2014), 87–103.

Beznosova, O. and Hagelstein, P. A. *Continuity of halo functions associated to homothecy invariant density bases*, Colloq. Math. **134** (2014), 235–243.

Hagelstein, P. A. *Maximal operators associated to sets of directions of Hausdorff and Minkowski dimension zero*, Recent Advances in Harmonic Analysis and Applications, Springer Proceedings in Mathematics and Statistics **25** (2013), 131–138.

Hagelstein, P. A. and Stokolos, A. *Transference of weak type bounds of multiparameter ergodic and geometric maximal operators*, Fund. Math. **218** (2012), 269–283.

Fefferman, C., Fefferman, R., Hagelstein, P., Pavlovic, N., and Pierce, L. *Princeton Lectures in Analysis, by Elias M. Stein and Rami Shakarchi*, Notices A. M. S. **59** (2012), 641–647.

Hagelstein, P. A. and Stokolos, A. *Weak type inequalities for maximal operators associated to double ergodic sums*, New York J. Math. **17** (2011), 233–250.

Hagelstein, P. A. and Stokolos, A. *Weak type inequalities for ergodic strong maximal operators*, Acta Sci. Math. (Szeged) **76** (2010), 427–441.

Hagelstein, P. A. and Stokolos, A. *Tauberian conditions for geometric maximal operators*, Trans. Amer. Math. Soc. **361** (2009), 3031–3040.

Hagelstein, P. A. and Stokolos, A. *An extension of the Córdoba-Fefferman theorem on the equivalence between the boundedness of certain classes of maximal and multiplier operators*, Comptes Rendus Mathematique, Académie des Sciences, Paris **346** (2008), 1063–1065.

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Hagelstein, P. A. *Problems in interpolation theory related to the almost everywhere convergence of Fourier series*, Proceedings of the International Conference on Ergodic Theory and Harmonic Analysis, De Paul University, 2005, Contemp. Math. **444** (2007), 175–184.

Hagelstein, P. A. and Jones, R. L. *On restricted weak type (1,1): the continuous case*, Proc. Amer. Math. Soc. **133** (2005), 185–190.

Hagelstein, P. A. *Orlicz bounds for operators of restricted weak type*, Colloq. Math. **103** (2005), 193–197.

Hagelstein, P. A. *Weak L^1 norms of random sums*, Proc. Amer. Math. Soc. **133** (2005), 2327–2334.

Hagelstein, P. A. *On the uniqueness of the uncentered ergodic maximal function*, Fund. Math. **183** (2004), no. 1, 81–90.

Hagelstein, P. A. *Rearrangements and the local integrability of maximal functions*, Pacific J. Math. **216** (2004), 111–126.

Hagelstein, P. A. *Córdoba-Fefferman collections in harmonic analysis*, Pacific J. Math. **216** (2004), 95–110.

Hagelstein, P. A. *A note on rare maximal functions*, Colloq. Math. **95** (2003), 49–51.

Hagelstein, P. A. *Long thoughts on a conjecture of Fava, Gatto, and Gutiérrez*, Harmonic Analysis at Mt. Holyoke, 195–203, Contemp. Math., **320**, Amer. Math. Soc., Providence, R. I., 2003.

Hagelstein, P. A. *Local integrability of strong and iterated maximal functions*, Studia Math. **147** (2001), 37–50.

TEACHING

University of Chicago	Elementary Functions and Calculus I, II & III Calculus I, II & III Mathematical Methods for the Social Sciences
Princeton University	Analysis I: Fourier Series and Partial Differential Equations Analysis II: Complex Analysis Analysis III: Integration Theory and Hilbert Space
Baylor University	Precalculus for Business Students Calculus for Business Students Precalculus Mathematics Calculus I, II, & III Honors Calculus I, II Foundations of Mathematics Introduction to Analysis Ordinary Differential Equations Partial Differential Equations Complex Variables Advanced Calculus I & II Advanced Abstract Algebra I & II Theory of Functions of Real Variables I & II Complex Analysis Fourier Analysis and Partial Differential Equations Differential Geometry Analytic Number Theory Additive Combinatorics

REFERENCES

Robert Fefferman, University of Chicago, Max Mason Distinguished Service Professor and former Dean of the Physical Sciences Division, raf@math.uchicago.edu, (773) 702–7377

Jill Pipher, Brown University, Elisha Benjamin Andrews Professor of Mathematics and Vice President for Research, jill_pipher@brown.edu, (401) 863–7408

Dorina Mitrea, Baylor University, Professor and Chair of Department of Mathematics, dorina_mitrea@baylor.edu, (609) 258–6463