

Diogo Oliveira e Silva

Curriculum Vitæ

December 2024

PERSONAL

Full Name. Diogo Gaspar Teixeira de Oliveira e Silva

Citizenship. Portuguese

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Instituto Superior Técnico
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Languages. Portuguese, English, German, Italian, French, Spanish, Russian

EDUCATION

Agregação em Matemática

- Instituto Superior Técnico, 2023
- Report: *Harmonic Analysis*; Lecture: *Sharp restriction theory*
- Jury: Lillian Pierce, Malabika Pramanik, James Wright, António Caetano, Ana Bela Cruzeiro, Pedro Freitas

Habilitation in Mathematics

- Universität Bonn, 2017
- Thesis: *Sharp Fourier Restriction Theory*
- Committee: Rupert Frank, Dirk Hundertmark, Herbert Koch, Christoph Thiele

PhD in Mathematics

- University of California, Berkeley, 2012
- Thesis: *Oscillatory integrals and extremal problems in harmonic analysis*
- Advisor: Michael Christ
- Committee: Michael Christ, Noureddine El Karoui, Daniel Tataru

Licenciatura em Matemática Pura

- Universidade do Porto, 2006
- Final score: 19.4 out of 20

APPOINTMENTS

Instituto Superior Técnico

- Professor Associado com Agregação (Associate Professor), 2023–
- Professor Auxiliar (Assistant Professor), 2022

University of Birmingham

- Associate Professor, 2020–2021
- Lecturer in Mathematical Analysis (Assistant Professor with Tenure), 2018–2020

Universität Bonn

- Akademischer Rat auf Zeit (Assistant Professor without Tenure), 2014–2017

Hausdorff Center for Mathematics

- Hausdorff Postdoc, 2012–2014

RESEARCH PUBLICATIONS

Preprints

46. *Dimension-free Fourier restriction inequalities.* (with B. Wróbel). arXiv:2412.03942. *Submitted.*
45. *On sharp Fourier extension from spheres in arbitrary dimensions.* (with E. Carneiro and G. Negro). arXiv:2410.23106. *Submitted.*
44. *Sharp extension inequalities on finite fields.* (with C. González-Riquelme). arXiv:2405.16647. *Submitted.*
43. *Exponentials rarely maximize Fourier extension inequalities for cones* (with G. Negro, B. Stovall and J. Tautges). arXiv:2302.00356. *Submitted.*

In Press

42. *Dimension-free inequalities for low degree functions on the Hamming cube.* (with K. Domelevo, P. Durcik, V. Fragkiadaki, O. Klein, L. Slavíková, B. Wróbel). arXiv:2401.07699. *To appear in* Studia Mathematica.

In Print

41. *Block-radial symmetry breaking for ground states of biharmonic NLS* (with R. Mandel). Calc. Var. Partial Differential Equations **63** (2024), no. 2, Paper No. 45, 20 pp.
40. *Stability of sharp Fourier restriction to spheres* (with E. Carneiro and G. Negro). J. Fourier Anal. Appl. **30**, 70 (2024).
39. *When does $e^{-|r|}$ maximize Fourier extension for a conic section?* (with G. Negro and C. Thiele). Harmonic analysis and convexity, 391–426. Adv. Anal. Geom., 9, De Gruyter, Berlin, 2023.
38. *The Stein–Tomas inequality under the effect of symmetries* (with R. Mandel). J. Anal. Math. **150** (2023), no. 2, 547–582.
37. *New sign uncertainty principles* (with F. Gonçalves and J. P. Ramos). Discrete Anal. (2023), Paper No. 9, 46 pp.
36. *Intermittent symmetry breaking and stability of the sharp Agmon–Hörmander estimate on the sphere* (with G. Negro). Proc. Amer. Math. Soc. **151** (2023), no. 1, 87–99.
35. *Asymptotically sharp discrete nonlinear Hausdorff–Young inequalities for the $SU(1,1)$ -valued Fourier products* (with V. Kovač and J. Rupčić). Q. J. Math. **73** (2022), no. 3, 1179–1188.
34. *Band-limited maximizers for a Fourier extension inequality on the circle* (with C. Thiele and P. Zorin-Kranich). Exp. Math. **31** (2022), 192–198.
33. *Restriction inequalities for the hyperbolic hyperboloid* (with B. Bruce and B. Stovall). J. Math. Pures Appl. **149** (2021), 186–215.
32. *On regularity and mass concentration phenomena for the sign uncertainty principle* (with F. Gonçalves and J. P. Ramos). J. Geom. Anal. **31** (2021), no. 6, 6080–6101.
31. *Global maximizers for adjoint Fourier restriction inequalities on low dimensional spheres* (with R. Quilodrán). J. Funct. Anal. **280** (2021), no. 7, 108825.
30. *Smoothness of solutions of a convolution equation of restricted-type on the sphere* (with R. Quilodrán). Forum Math. Sigma **9** (2021), Paper No. e12, 40 pp.
29. *A universality law for sign correlations of eigenfunctions of differential operators* (with F. Gonçalves and S. Steinerberger). J. Spectr. Theory **11** (2021), no. 2, 661–676.
28. *A variational restriction estimate* (with V. Kovač). Arch. Math. (Basel) **117** (2021), 65–78.
27. *Extremizers for adjoint Fourier restriction on hyperboloids: the higher dimensional case* (with E. Carneiro, M. Sousa and B. Stovall), Indiana Univ. Math. J. **70** No. 2 (2021), 535–559.
26. *Sharp Strichartz inequalities for fractional and higher order Schrödinger equations* (with G. Brocchi and R. Quilodrán). Anal. PDE **13** (2020), no. 2, 477–526.

25. *A comparison principle for convolution measures with applications* (with R. Quilodrán). *Math. Proc. Cambridge Philos. Soc.* **169** (2020), no. 2, 307–322.
24. *Extremizers for Fourier restriction on hyperboloids* (with E. Carneiro and M. Sousa). *Ann. Inst. H. Poincaré Anal. Non Linéaire* **36** (2019), no. 2, 389–415.
23. *Sharp mixed norm spherical restriction* (with E. Carneiro and M. Sousa). *Adv. Math.* **341** (2019), 583–608.
22. *A sharp nonlinear Hausdorff–Young inequality for small potentials* (with V. Kovač and J. Rupčić). *Proc. Amer. Math. Soc.* **147** (2019), no. 1, 239–253.
21. *A variational nonlinear Hausdorff–Young inequality in the discrete setting*. *Math. Res. Lett.* **25** (2018), no. 6, 1993–2015.
20. *On extremizers for Strichartz estimates for higher order Schrödinger equations* (with R. Quilodrán). *Trans. Amer. Math. Soc.* **370** (2018), no. 10, 6871–6907.
19. *Nonexistence of extremizers for certain convex curves*. *Math. Res. Lett.* **25** (2018), no. 3, 973–987.
18. *A sharp trilinear inequality related to Fourier restriction on the circle* (with E. Carneiro, D. Foschi and C. Thiele). *Rev. Mat. Iberoam.* **33** (2017), no. 4, 1463–1486.
17. *Estimates for certain integrals of products of six Bessel functions* (with C. Thiele). *Rev. Mat. Iberoam.* **33** (2017), no. 4, 1423–1462.
16. *Some recent progress on sharp Fourier restriction theory* (with D. Foschi). *Anal. Math.* **43** (2017), no. 2, 241–265.
15. *Hermite polynomials, linear flows on the torus, and an uncertainty principle for roots* (with F. Gonçalves and S. Steinerberger). *J. Math. Anal. Appl.* **451** (2017), no. 2, 678–711.
14. *Some sharp restriction inequalities on the sphere* (with E. Carneiro). *Int. Math. Res. Not. IMRN* (2015), no. 17, 8233–8267.
13. *Extremals for Fourier restriction inequalities: Convex arcs*. *J. Anal. Math.* **124** (2014), 337–385.
12. *On trilinear oscillatory integrals* (with M. Christ). *Rev. Mat. Iberoam.* **30** (2014), no. 2, 667–684.
11. *Note on the integer geometry of bitwise XOR* (with A. Guedes de Oliveira). *European J. Combin.* **26** (2005), no. 5, 755–763.

Theses

10. *Sharp Fourier Restriction Theory*. Habilitation Thesis, Universität Bonn (2017), 166 pages.
9. *Oscillatory integrals and extremal problems in harmonic analysis*. PhD Thesis, University of California, Berkeley (2012), 120 pages.

Survey Articles

8. *Sharp restriction theory*. *Commun. Math.* **32** (2024), no. 3, 119–170.
7. *The endpoint Stein–Tomas inequality: old and new*. *São Paulo J. Math. Sci.* (2024).
6. *Symmetric Stein–Tomas, and why do we care?* (with R. Mandel). *Tbilisi Analysis and PDE Seminar. TAPDES 2023. Trends in Mathematics*, vol 7. Birkhäuser, Cham.
5. *Global maximizers for spherical restriction*. *Real Analysis, Harmonic Analysis and Applications. Oberwolfach Report No. 31/2022*.
4. *A sharp inequality in Fourier restriction theory* (with R. Quilodrán). *Bol. Soc. Port. Mat.* **77** “Matemáticos Portugueses pelo Mundo” (2019), 133–150.
3. *Inequalities in nonlinear Fourier analysis*. *CIM Bulletin* **38–39** (2017), 31–35.
2. *Recent developments in sharp restriction theory*. *Real Analysis, Harmonic Analysis and Applications. Oberwolfach Report No. 34/2017*.
1. *Some Problems in Harmonic Analysis* (with L. Grafakos, M. Pramanik, A. Seeger and B. Stovall). [arXiv:1701.06637](https://arxiv.org/abs/1701.06637).

AWARDS AND HONORS

- Hausdorff Research Institute for Mathematics Fellowship, 2024
- Simons Research Leader, Simons Semester “Contemporary Harmonic Analysis and its Synergies”, Poland, 2024
- Honorary Senior Research Fellow, University of Birmingham, 2022–2024
- Invited member of the American Institute of Mathematics Research Community “Fourier restriction conjecture and related problems”, 2023–2024
- Santander–IST Start Up Funds, 2022–2024
- ERC Consolidator Grant Finalist, 2022
- Hausdorff Research Institute for Mathematics Fellowship, 2021
- Member of the London Mathematical Society, 2019
- Fellow of the UK Higher Education Society, 2018
- University of Birmingham EPS College Early Career Travel Fund, 2018
- UC Berkeley Small Travel Grant, 2011
- Prize Fundação Eng.^o António de Almeida, 2007
- Prize Dr. Neves Real, Universidade do Porto, 2007
- Prize Augusto Martins, Universidade do Porto, 2006
- Prize Dr. Gomes Ribeiro, Universidade do Porto, 2006
- Prize Prof. Abílio Aires, Universidade do Porto, 2006
- Prize Prof. Dr. Jayme Rios de Sousa, Universidade do Porto, 2004
- Prize Mário Silva, Sociedade Portuguesa de Física, 2002
- 42nd International Mathematical Olympiad Team Member, 2001

RESEARCH FUNDING

American Institute of Mathematics SQuaRE “Sharp Fourier Restriction Theory”

- 2024–2026
- With C. Biswas, E. Carneiro, T. Flock, B. Stovall, J. Tautges

EPSRC New Investigator Award “Sharp Fourier Restriction Theory” (EP/T001364/1)

- 2020–2022
- Ranked first in the May 2019 Engineering and Physical Sciences Research Council Mathematical Sciences Prioritisation Panel

Hausdorff Research Institute for Mathematics Travel Grant

- 2012–2017
- Offered on a competitive basis

Pinto–Fialon Graduate Fellowship

- 2007–2012
- For outstanding academic performance at UC Berkeley

Fundação para a Ciência e a Tecnologia PhD Research Scholarship (SFRH/BD/28041/2006)

- 2007–2011
- PhD grant offered on a competitive basis to cover UC Berkeley tuition fees and living expenses

Fundação Calouste Gulbenkian Merit Fellowship

- 1999–2006
- Including participation in *Novos Talentos em Matemática* (2002/03, 2003/04), a program for top undergraduate mathematics students in Portugal

INVITED TALKS

Plenary Lectures

- (93) *Tbilisi Analysis & PDE Workshop*, Tbilisi, Georgia (31/08/2023)
- (92) *Real Analysis, Harmonic Analysis and Applications*, Oberwolfach, Germany (08/07/2022)
- (91) *Analysis on the hypercube with applications to quantum computing*, American Institute of Mathematics, San Jose, US (08/06/2022)
- (90) *Harmonic Analysis and Partial Differential Equations*, Hausdorff Research Institute for Mathematics, Bonn, Germany (07/05/2019)
- (89) *Real Analysis, Harmonic Analysis and Applications*, Oberwolfach, Germany (28/07/2017)
- (88) *Global Portuguese Mathematicians*, Instituto Superior Técnico, Lisbon, Portugal (14/07/2017)
- (87) *Atelier d'Analyse Harmonique 2017*, Laboratoire de Mathématiques Jean Leray, Nantes, France (09/03/2017)
- (86) *Function spaces and high-dimensional approximation*, Centre de Recerca Matemàtica, Barcelona, Spain (04/05/2016)
- (85) *Funções Especiais e Polinômios Ortogonais*, Universidade Estadual Paulista, São José do Rio Preto, Brazil (11/02/2015)
- (84) *Hausdorff Trimester Program in Harmonic Analysis and Partial Differential Equations*, Closing Workshop, Hausdorff Research Institute for Mathematics, Bonn, Germany (08/08/2014)

International Conferences

- (83) *Fourier Analysis & Beyond*, IMPA, Rio de Janeiro, Brazil (07/2025)
- (82) *4th Harmonic Analysis Workshop*, Seoul National University, South Korea (02/2025)
- (81) *Harmonic Analysis*, ECM 2024 Satellite Conference, Malaga, Spain (09/07/2024)
- (80) *Harmonic Analysis and Nonlinear Partial Differential Equations*, Research Institute for Mathematical Sciences, Kyoto, Japan (25/06/2024)
- (79) *8th IST-IME Meeting*, Lisbon, Portugal (07/09/2022)
- (78) *Joint Meeting Brazil-Portugal*, Salvador, Brazil (15/08/2022)
- (77) *Heilbronn Focused Research Workshop on Restriction theory and the Kakeya conjecture*, Heilbronn Institute, Bristol, UK (25/01/2021)
- (76) *Deutsche Mathematiker-Vereinigung Jahrestagung 2019*, Karlsruhe, Germany (24/09/2019)
- (75) *7th Iberian Mathematical Meeting*, Évora, Portugal (13/10/2018)
- (74) *British Mathematical Colloquium 2018*, St Andrews, UK (13/06/2018)
- (73) *Congreso Bienal de la Real Sociedad Matemática Española*, Zaragoza, Spain (31/01/2017)
- (72) *Exciting New Faces in Analytic Number Theory*, Hausdorff Research Institute for Mathematics, Bonn, Germany (11/07/2014)
- (71) *Harmonic Analysis in honor of Cowling's 65th*, Segovia, Spain (02/07/2014)
- (70) *Probabilistic Aspects of Harmonic Analysis*, Będlewo, Poland (02/05/2014)
- (69) *Joint International Meeting of the AMS and the RMS*, Universitatea "1 Decembrie 1918" Alba Iulia, Romania (28/06/2013)
- (68) *Harmonic Analysis, PDEs and Geometry*, Instituto de Ciencias Matemáticas, Madrid, Spain (30/05/2013)
- (67) *9th International Conference on Harmonic Analysis and Partial Differential Equations*, El Escorial, Spain (12/06/2012)

Colloquia

- (66) Universität Göttingen, Germany (21/11/2024)
- (65) Instituto Superior Técnico, Portugal (10/02/2023)
- (64) The Abdus Salam International Centre for Theoretical Physics, Trieste, Italy (17/12/2018)
- (63) Universität Bonn, Germany (14/12/2017)
- (62) The Chinese University of Hong Kong (30/06/2017)
- (61) University of Birmingham, UK (08/12/2016)
- (60) Universidade do Porto, Portugal (19/03/2013)

Minicourses

- (59) *ICTP/EAUMP Summer School on Real and Harmonic Analysis*, East African Institute for Fundamental Research, Kigali, Rwanda (07/2025)
- (58) Simons Semester: *Contemporary Harmonic Analysis and its Synergies*, Wrocław, Poland (08/2024, 4 hours)
- (57) *Modern trends in Harmonic Analysis*, International Centre for Theoretical Sciences Bengaluru, India (06/2023, 5 hours)
- (56) *Harmonic Analysis Workshop*, The Chinese University of Hong Kong (06/2017, 3 hours)

Research Seminars

- (55) Universität Bonn, Germany (06/12/2024)
- (54) “Boolean Analysis in Computer Science” Trimester Seminar Series, Hausdorff Research Institute for Mathematics, Bonn, Germany (17/10/2024)
- (53) Online Ergodic Theory and Analysis (ETA(η)) Seminar (02/10/2024)
- (52) CMAT Open Day, Universidade do Minho, Portugal (30/09/2024)
- (51) Geometria em Lisboa, Portugal (16/07/2024)
- (50) University of Wrocław, Poland (18/10/2023)
- (49) Harmonic Analysis e-Seminars (08/03/2023)
- (48) Universidade de Lisboa, Portugal (27/02/2023)
- (47) University of Wisconsin–Madison, US (14/02/2023)
- (46) Birmingham Optimization and Numerical Analysis Webinar (13/12/2022)
- (45) Tbilisi Analysis & PDE Seminar (18/10/2022)
- (44) Online Analysis Research Seminar (OARS) (04/04/2022)
- (43) Probability and Analysis Webinar (PAW) (28/03/2022)
- (42) International Seminar Series on Harmonic Analysis & Applications (20/02/2022)
- (41) Bilbao Analysis and PDE Webinar (06/05/2021)
- (40) Karlsruher Institut für Technologie, Germany (08/04/2021)
- (39) Universidade de Aveiro, Portugal (31/03/2021)
- (38) University of Wisconsin–Madison, US (02/03/2021)
- (37) UK Virtual Harmonic Analysis Seminar (26/05/2020)
- (36) Lisbon Webinar in Analysis and Differential Equations (12/05/2020)
- (35) University of Warwick, UK (17/10/2019)
- (34) Cardiff University, UK (07/10/2019)
- (33) Loughborough University, UK (17/07/2019)
- (32) King’s College, UK (20/06/2019)
- (31) University of Cambridge, UK (11/03/2019)
- (30) Imperial College London, UK (30/11/2018)
- (29) University of Edinburgh, UK (26/11/2018)
- (28) University of Birmingham, UK (13/11/2018)
- (27) University of Zagreb, Croatia (04/07/2018)
- (26) Universiteit Utrecht, Netherlands (26/06/2018)
- (25) Caltech/UCLA Joint Analysis Seminar, US (25/05/2018)
- (24) University of Birmingham, UK (16/01/2018)
- (23) Universität Bonn, Germany (27/04/2017)
- (22) University of Zagreb, Croatia (14/02/2017)
- (21) Universität Bielefeld, Germany (07/11/2016)
- (20) Università di Ferrara, Italy (06/10/2016)
- (19) Universität Bonn, Germany (27/11/2015)
- (18) Duke University, US (16/03/2015)
- (17) Instituto de Matemática Pura e Aplicada, Brazil (10/02/2015)
- (16) University of Birmingham, UK (04/12/2014)
- (15) Instituto Superior Técnico, Portugal (23/04/2014)
- (14) Università di Ferrara, Italy (26/03/2014)
- (13) Oxford University, UK (20/02/2014)

- (12) Instituto de Matemática Pura e Aplicada, Brazil (10/12/2013)
- (11) Christian–Albrechts–Universität zu Kiel, Germany (14/11/2013)
- (10) Universität Bonn, Germany (08/11/2013)
- (9) Università degli Studi di Roma Tor Vergata, Italy (24/09/2013)
- (8) University of Edinburgh, UK (13/05/2013)
- (7) Institut Henri Poincaré, France (09/04/2013)
- (6) Instituto de Matemática Pura e Aplicada, Brazil (31/01/2013)
- (5) Universität Bonn, Germany (09/11/2012)
- (4) Institut Camille Jordan, France (18/09/2012)
- (3) Université de Nantes, France (14/09/2012)
- (2) University of California, Berkeley, US (01/05/2012)
- (1) Instituto Superior Técnico, Portugal (22/06/2011)

ACADEMIC VISITS (≥ 1 week)

- (21) Banff International Research Station centre at the Institute of Mathematics in Granada, Spain (2026)
- (20) Hausdorff Research Institute for Mathematics, Germany (2025, 2024, 2021)
- (19) American Institute of Mathematics, US (2025, 2022, 2015)
- (18) Polish Academy of Sciences, Poland (2024, 2023)
- (17) Saitama University, Japan (2024)
- (16) International Centre for Theoretical Sciences Bengaluru, India (2023)
- (15) University of Wisconsin–Madison, US (2023)
- (14) Abdus Salam International Center for Theoretical Physics, Italy (2019, 2017, 2016)
- (13) University of Zagreb, Croatia (2018, 2017)
- (12) Caltech, US (2018)
- (11) Universität Bonn, Germany (2018)
- (10) The Chinese University of Hong Kong (2017)
- (9) Mathematical Sciences Research Institute, US (2017)
- (8) Stanford University, US (2017)
- (7) Institut de Mathématiques de Jussieu, France (2017, 2016, 2014)
- (6) Università di Ferrara, Italy (2016, 2015)
- (5) Duke University, US (2015)
- (4) Instituto Nacional de Matemática Pura e Aplicada, Brazil (2015, 2014, 2013)
- (3) Oxford University (2014)
- (2) Université de Nantes, France (2012)
- (1) International Centre for Mathematical Sciences, UK (2011)

RESEARCH SUPERVISION

Postdoctoral Researchers

- Cristian González-Riquelme, CAMGSD–IST (2023–2024)
- Shobu Shiraki, CAMGSD–IST (2023–2024)
- Giuseppe Negro, CAMGSD–IST (2022–2024) and EPSRC New Investigator Award EP/T001364/1, University of Birmingham (2020–2022)

PhD Students

- Jakob Fromherz,¹ Erasmus internship at IST (2025)
- Constantin Bilz, University of Birmingham (2018–2022)
Thesis: *On the regularity of Fourier transforms and maximal functions*
- Michele Ferrante,² University of Birmingham (2020–2021)

¹Visiting PhD student of P. Müller from Johannes Kepler Universität Linz.

²Current PhD student of J. Bennett at Birmingham after my relocation to Portugal.

- Mateus Sousa,³ Universität Bonn (2016–2017)

Master Students

- Pedro Ronda, CAMGSD–IST (2024/25)
- Daniel Neves Fonseca, CAMGSD–IST (2023/24)
Thesis: *From Diophantine equations to exponential sums: decoupling theory and the Vinogradov mean value theorem*
- Sanjeev Sehra, University of Birmingham (2020/21)
Thesis: *Fourier meets Gauss*
- Thomas Haynes, University of Birmingham (2019/20)
Thesis: *Space filling curves*
- Gianmarco Brocchi, Universität Bonn (2016/17)
Thesis: *Sharp Fourier restriction theory and Strichartz estimates*
- Alberto Solà Vilalta, Universität Bonn (2016/17)
Thesis: *The ℓ^2 decoupling theorem for the parabola*

Undergraduate Students

- Bolsas Gulbenkian Novos Talentos, IST
 - 2023/24: Eduardo Guerreiro, *Sphere packings*
- 21 Research Skills Projects, University of Birmingham
 - 2019/20: Sophie Coss, Alexander Halstead, Michael Hannaford, Shiv Mehta, Benjamin Northall, Xu Pang, Kamil Prynda, Evander Ribton-Turner, Jessica Ridsdale-Smith, Zayd Saleh, Thomas Smith, Tianfang Sun, Junyu Wang, Wenxiang Yang
 - 2018/19: Jake Davis, Nicholas Evans, Erica Galea, Thomas Haynes, Ciara Moore, Hannah Smithson, Khadija Tahir

TEACHING ACTIVITY

- *Análise de Fourier e Aplicações*, Instituto Superior Técnico (2024/25)
- *Cálculo Diferencial e Integral II*, Instituto Superior Técnico (2024/25)
- *Harmonic Analysis*, Instituto Superior Técnico (2023/24)
- *Cálculo Diferencial e Integral II*, Instituto Superior Técnico (2023/24)
- *Harmonic Analysis*, Instituto Superior Técnico (2022/23)
- *Cálculo Diferencial e Integral III*, Instituto Superior Técnico (2022/23)
- *Harmonic Analysis*, Instituto Superior Técnico (2021/22)
- *Real and Complex Analysis*, University of Birmingham (2020/21)
- *Multivariable and Vector Analysis*, University of Birmingham (2020/21)
- *Multivariable and Vector Analysis*, University of Birmingham (2019/20)
- *Multivariable and Vector Analysis*, University of Birmingham (2018/19)
- *Advanced Topics in PDE*, Universität Bonn (2017/18)
- *Geometric Aspects of Harmonic Analysis*, Universität Bonn (2016/17)
- *Advanced Topics in PDE*, Universität Bonn (2016/17)
- *Real and Harmonic Analysis*, Universität Bonn (2015/16)
- *Analysis III* (in German), Universität Bonn (2015/16)
- *Nonlinear Fourier Analysis*, Universität Bonn (2015/16)
- *Analysis II* (in German), Universität Bonn (2014/15)
- *Analysis I* (in German), Universität Bonn (2014/15)
- *Nonlinear Fourier Analysis*, Universität Bonn (2012/13)
- *Introduction to Topology and Analysis B*, UC Berkeley (2011/12)
- *Introduction to Topology and Analysis A*, UC Berkeley (2011/12)
- *Calculus 2*, UC Berkeley (2006/07)
- *Calculus 1*, UC Berkeley (2006/07)

³Visiting PhD student of E. Carneiro from IMPA.

PEDAGOGICAL MATERIAL

Lecture Notes

- *Harmonic Analysis*, 94 pages, available upon request
- *Multivariable and Vector Analysis*, 59 pages, available upon request

Problem Sheets

- *Harmonic Analysis*, available upon request
- *Cálculo Diferencial e Integral III*, available upon request (in Portuguese)
- *Multivariable and Vector Analysis*, available upon request
- *Analysis I–III*, available here (in German)

Video Recordings

- *Real and Complex Analysis*, 7 problem sessions, available upon request
- *Multivariable and Vector Analysis*, 20 lectures, available upon request

TUTORING & MENTORSHIP

- *Seminário Diagonal*, Organizer, Instituto Superior Técnico, Portugal (2022–)
- *Cartas com Ciência*, Corresponding Scientist (2022/23)
- SPM Volunteer Professor, Teach for Portugal, Fundação Calouste Gulbenkian and Sociedade Portuguesa de Matemática (2021)
- EPS PERCAT Pilot Mentor, University of Birmingham (2020/21)
- Personal Tutor for 50+ students, University of Birmingham (2018–2021)
- *Mentor Lecture Series*, Organizer, University of California, Berkeley (2007/08)

GRANT, PRIZE AND FELLOWSHIP PANELS

- The Leverhulme Trust (2023, 2020)
- Alexander von Humboldt-Foundation (2023)
- Engineering and Physical Sciences Research Council (2022, 2020)
- Fundação para a Ciência e a Tecnologia (2022)
- UKRI Funding Service (2021)
- UK Research & Innovation Early Career Researcher Forum (2021)

EDITORIAL BOARDS

Guest Editor

- Communications in Mathematics (special issue *Portuguese Mathematics*, 2024)
- Boletim da Sociedade Portuguesa de Matemática (special issue *Matemáticos Portugueses pelo Mundo*, 2019)

REFEREEING

- MathSciNet Reviews (2018–)
- zbMATH Open (2021–)
- College Publications (2024–)
- Oxford University Press (2024–)
- Springer (2019–)
- Peer-reviewed Journals:
 - Advances in Mathematics
 - AIMS Mathematics
 - Annales Scientifiques de l'École Normale Supérieure
 - Annali di Matematica Pura ed Applicata
 - Bulletin of the London Mathematical Society

- Communications in Pure and Applied Analysis
- Experimental Mathematics
- Forum Mathematicum
- Geometric and Functional Analysis
- Glasnik Matematički
- Journal d’Analyse Mathématique
- Journal of the European Mathematical Society (2)
- Journal of Fourier Analysis and Applications (4)
- Journal of Geometric Analysis (2)
- Journal of the London Mathematical Society
- Journal of Mathematical Analysis and Applications (2)
- Mathematika (2)
- Mathematische Zeitschrift
- Portugaliae Mathematica (4)
- Proceedings of the American Mathematical Society (2)
- Proceedings of the Edinburgh Mathematical Society
- Proceedings of the Royal Society of Edinburgh (3)
- Quarterly Journal of Mathematics
- Revista Matemática Complutense
- Revista Matemática Iberoamericana
- Science China Mathematics
- SIAM Journal on Mathematical Analysis

OUTREACH: SPEAKING

- *MMAC Day 2024*, Instituto Superior Técnico, Portugal (14/03/2024)
- *Winter School in Mathematics*, Instituto Superior Técnico, Portugal (18/02/2022)
- *ENEMath’19*, Universidade do Porto, Portugal (16/04/2019)
- *Offer-holder Visit Day*, University of Birmingham, UK (28/11/2018)
- *5th MIGSAA Annual Student Colloquium*, Maxwell Institute, Edinburgh, UK (21/09/2018)
- *Inaugural Lecture*, Dies Academicus, Universität Bonn, Germany (16/05/2018)
- *Basic Notions Seminar*, Universität Bonn, Germany (10/01/2014)
- *Portuguese American Postgraduate Society Meeting*, University of California, Berkeley, US (20/11/2010)
- *Seminário Diagonal*, Instituto Superior Técnico, Portugal (08/06/2005)
- *Seminário Diagonal*, Universidade do Porto, Portugal (03/2005)
- *Seminário Diagonal*, Universidade do Porto, Portugal (03/2004)
- *3rd National Meeting “Novos Talentos em Matemática”*, Luso, Portugal (09/2003)
- *Seminário Diagonal*, Universidade do Porto, Portugal (06/2003)
- *2nd National Meeting “Os Jovens e a Matemática”*, Universidade Católica Portuguesa, Porto, Portugal (04/2003)
- *Escola Secundária Augusto Gomes*, Matosinhos, Portugal (03/2003)
- *Seminário Diagonal*, Universidade do Porto, Portugal (03/2003)

OUTREACH: WRITING

- *Maryna Viazovska, medalha Fields em \mathbb{R}^8 . To appear in Ponto Fixo (2024).*
- *$4 = 2 \times 2$, or the power of even integers in Fourier analysis* (with G. Negro). Snapshots of modern mathematics from Oberwolfach No. 6/2023.
- *Agulhas, ondas e magia* (with G. Jorge). *Gazeta de Matemática* **199** (2023), 38–47.
- *Empacotamentos esféricos e o princípio da incerteza do sinal*. Ponto Fixo, #4.edição, IST Press, 2022, 41–43.

- *O que é um círculo?* Números, cirurgias e nós de gravata: 10 anos de Seminário Diagonal no IST. IST Press, 2012, 217–229.
- *Volta ao mundo em 45 minutos.* Seminário Diagonal, Proceedings IST III. IST Press, 2006, 85–99.
- *Cordas, cabos e outros objectos dependurados.* Gazeta de Física **26** (2003), 26–31.

EVENT ORGANIZATION

- CRM Intensive Research Programme
 - *Modern trends in Fourier Analysis*, Barcelona, Spain (2025)
- Pedro Nunes Lectures (2025)
- International Conferences
 - *Global Portuguese Mathematicians 2.0*, Porto, Portugal (2019)
 - *Harmonic Analysis in Honor of Michael Christ*, Madison, US (2016)
- Workshops
 - *Summer Workshop in Harmonic Analysis*, Lisboa, Portugal (2024)
- Special Sessions
 - *Harmonic and Complex Analysis*, 7th Iberian Mathematical Meeting, Évora, Portugal (2018)
 - *LMS Harmonic Analysis and PDEs Workshop*, Birmingham, UK (2018)
 - *Geometric Aspects of Harmonic Analysis*, Joint International Meeting of the AMS, EMS and SPM, Porto, Portugal (2015)
- Research Seminars
 - UK Virtual Harmonic Analysis Seminar (2020–2022)
 - Analysis Seminar, University of Birmingham, UK (2018–2019)
 - Analysis Seminar, Universität Bonn, Germany (2016–2017)
 - Harmonic Analysis and Differential Equations Seminar, University of California, Berkeley (2010–2011)
- Bonn Hausdorff Summer Schools
 - *Decoupling and Polynomial Methods in Analysis*, Kopp, Germany (2017)
 - *Sharp Inequalities in Harmonic Analysis*, Kopp, Germany (2015)
 - *$T(1)$ and $T(b)$ Theorems and Applications*, Kopp, Germany (2013)

COMMITTEE SERVICE

- Vice President
 - *Centro Internacional de Matemática* (2024–2028)
- Committee Lead
 - *Global Portuguese Mathematicians Scientific Committee* (2019)
 - Research Fellowship Hiring Committee, University of Birmingham (2019)
- Committee Member
 - *Comissão Restrita*, CAMGSD (2023–)
 - *ENSPM Scientific Committee* (2022)
 - International Recruitment Team, University of Birmingham (2020)
 - PhD Studentship Hiring Committee, University of Birmingham (2018, 2020)
 - Habilitation Thesis of Mariusz Mirek, Universität Bonn (2016)
 - Bachelor Theses of Annika Dehren (2015), Gregor Maier (2017), Lauritz Streck (2017), Universität Bonn
- External Examiner
 - Master Thesis of Ricardo Motta, Universidade Federal de Santa Catarina (2024)
 - PhD Thesis of Finlay McIntyre, University of Edinburgh (2021)
- Internal Examiner
 - PhD Thesis of Rodrigo Duarte, Instituto Superior Técnico (2024)

- PhD Thesis of Gianmarco Brocchi, University of Birmingham (2021)
- Chairperson
 - PhD Thesis of Alberto Espuny Díaz, University of Birmingham (2020)