# CURRICULUM VITAE


**Name** **ACHILLES K. TERTIKAS**

**Personal data**

| | |
|---|---|
| Date of birth: | August 10, 1960, |
| Place of birth: | Karditsa, Greece. |
| Citizenship : | Greek. |
| Military service: | September 1987 - June 1989. |
| Marital status : | Married, with three children. |

**Office Address**

Department of Mathematics and Applied Mathematics
University of Crete
700 13 Heraklio, Greece
(+30)(2810) 393876, fax:(+30)(2810) 393861
e-mail: tertikas@math.uoc.gr
homepage: http://www.math.uoc.gr/~tertikas/


**Education**

BA in Mathematics, Univ. of Athens, Greece (1978-1982)
Ph.D. in Mathematics, Heriot-Watt Univ., U.K. (1984-1987)
Thesis advisor: K. J. Brown

**Research Interests**

Partial Differential Equations,
Reaction Diffusion Problems,
Population Genetics Problems,
Functional Inequalities (Hardy, Sobolev,Rellich, Moser Inequalities),
Phase Transition problems (Coarsening Theory),
Calculus of Variations.

**Positions**

Visiting Lecturer (1989-1990), Univ. of Aegean, Greece
Visiting Assistant Professor (1990-1993), Univ. of Crete, Greece
Assistant Professor (1993-1998 ), Univ. of Crete, Greece
Visiting position (September 1993-January 1994), Georgia Tech., USA
Visiting position (May 1994-July 1994), Univ. of Cologne, Germany
Visiting position (September 1997-January 1998), Oxford Univ., UK
Associate Professor (1998-2006), Univ. of Crete, Greece
Visiting position (January-February 2000), Mittag-Leffler Inst., Sweden
Visiting position (September-December 2004), Rutgers University, USA
Visiting position (January-May 2005), University of Cyprus, Cyprus.
Professor (2006-), Univ. of Crete, Greece
Visiting position (September 1-15, 2008), Universite' de Cergy-Pontoise, France.
Visiting position (January-May 2009), University of Cyprus, Cyprus.
Visiting position (June 1-15 & September 7-22 2009), Universite' Paris Dauphine, France.
Greek Open University (October 2012- today),
Visiting position (May 1-30, 2019), Institute of Technology, Israel,
Visiting position (Feb 15 - March, 2025), Sapienza University, Rome (Mini course), Italy.

**Research grants**

Royal Society (1989)
British Council (1990)
HCM Network grant CHRX-CT93-0409, Reaction Diffusion Equations, 49,500 ECU (1994-1996)
RTN Network grant HPRN-CT-2002-00274, Fronts-Singularities, 150,000 ECU (2002-2006)
ELKE, University of Crete (2011-2012).
ELKE, University of Crete (2015-2016).

**Short visits**

Heriot Watt University, U.K. (1989, 1997)
University of Tennessee, USA (1993)
Mississippi State University, USA (1994)
University of Toulouse 1, France (1994)
Universidad de La Laguna, Spain (1995)
University of Rome *I*, Italy (1995, 1999, 2007, 2009, 2012)
University of Triest, Italy (1995)
Ecole Polytechnique de Lausane, Switzerland (1996)
University of Basel, Switzerland (1997, 1999)
Universite de Haute Alsace, France (1999)
Universite Pierre and Marie Curie (Paris VI), France (2003)
Technion-Israel Institute of Technology, Israel (2004, 2013)
University of Padova, Italy (2009).
TIFR Centre for Applicable Mathematics, Bangalore, India (2012).
University of Uppsala, Sweeden (2016).

**International Conferences**

*Conference on Ordinary and Partial Differential Equations*, University of Dundee, U. K., 30 June-4 July 1986.
*Equadiff 87*, Democritus University of Thrace, Xanthi, August 24-28, 1987.
*Nonlinear Diffusion Equations and their Equilibrium States*, University of Wales, U.K., August 20-29, 1989
*Bifurcation and Chaos: Analysis, Algorithms, Applications*, University of Wurzburg, Germany, August 20-24, 1990.
*First European Conference on Elliptic and Parabolic problems*, University of Metz France, June 17-21, 1991.
*Equations of Reaction Diffusion*, University of Toulouse 1,3, France, April 8-9, 1994.
*Workshop on Reaction-Diffusion systems*, University of La Laguna, Spain, January 9-13, 1995.
*International Conference on Reaction Diffusion Systems*, University of Triest, Italy, October 2-7, 1995.
*The Second World Congress of Nonlinear Analysts*, Athens, July 10-17, 1996.
*Nonlinear Boundary Value problems*, Oberwolfach, December 15-21, 1996
*EUCOR Conference on Qualitative properties of Partial Differential Equations*, Mulhouse November 11-13, 1999
*New mathematical methods in continuum mechanics*, Anogia, Greece, July 22-28, 2000
*Progress in Partial Differential Equations*, Edinburgh, July 9-13, 2001
*International Conference on Differential, Difference Equations*, Patras, Greece, July 1-5, 2002

*The Mathematics of Quantum Systems - Spectral Theory*, Warwick, U.K., April 4-9, 2005
*Spectral Theory of PDE*, Stockholm, Sweden September 22, 2005
*Loutraki Meeting on Spectrum, Differential Equations, and Mathematical Physics*, Loutraki, Greece, October 16-17, 2005
*Liouville Theorems in Riemannian and Sub-Riemannian Settings*, Bologna, Italy, November 23-24, 2006
*Liouville Theorems and detours*, Cortona, Italy, May 18-24, 2008
*Analysis, PDES and Applications on the occasion of the 70th birthday of Vladimir Maz'ya*, Rome, Italy, June 30 - July 3, 2008
Day meeting on Log Sobolev inequalities, Paris Dauphine, France, June 8, 2009
*International Conference on Modern Mathematical Methods in Science and Technology*, Poros, Greece, September 3-5, 2009
*Conference in Harmonic Analysis*, Samos, Greece, September 22-25, 2009
*Optimal Constants in the Theory of Sobolev Spaces and PDEs* , Oberwolfach, February 7th - February 13th, 2010
*Panhellenic Conference in Mathematical Analysis*, Patras, Greece, May 18-19, 2012
*Advances in nonlinear partial differential equations*, Bangalore, India, June 18-20, 2012
*FIRST Workshop on Reaction-Diffusion Systems with Gradient Structure*, University of Athens, March 18–21, 2013.
*Geometric methods in PDE's*, Indam Meeting on the occasion of the 70th birthday of Ermanno Lanconelli, Cortona, Italy, May 27–31, 2013.
*Analysis of PDEs: Theory, Methods and Applications* , University of Cyprus, June 30- July 2, 2014.
*Fifth Summer School in Operator Theory*, University of Athens July 26– 30, 2016.
*Hardy-type Inequalities and Elliptic PDEs*, in honor of M. Marcus Midreshet Sde Boker, Israel, January 7-11, 2018.
*Festum $\pi$ Summer School*, Chania, Greece, July 8– 13, 2024.
*Festum $\pi$ Conference*, Chania, Greece, July 14– 20, 2024.

**Invited talks**

Heriot Watt University, U.K. (1989, 1997)
Georgia Institute of Technology, USA (1993)
University of Tennessee, USA (1993)
Mississippi State University, USA (1994)
University of Cologne, Germany (1994)
University of Rome *I*, Italy (1995, 1999, 2007, 2009, 2012)
Ecole Polytechnique de Lausane, Switzerland (1996)
University of Basel, Switzerland (1997, 1999)
Oxford University, UK (1997)
Mittag-Leffler Institute, Sweden (2000)
University of Athens, Greece (2001,2006,2009, 2010, 2016)
University of Thessaloniki, Greece (2009, 2011)
Universite Pierre and Marie Curie, France (2003)
Technion-Israel Institute of Technology, Israel (2004, 2013)
Rutgers University, USA (2004)
University of Cyprus, Cyprus (2005, 2010)
Bristol University, UK (2006)
Uppsala University, Sweden (2007, 2016)
University of Bologna, Italy (2007)

Universite' de Cergy-Pontoise, France (2008)
University of Padova, Italy (2009)(5 day course)
Free University of Berlin, Germany (2011)
University of Napoli II, Italy (2011)
TIFR Centre For Applicable Mathematics, India (2012)

**Teaching experience**

**Undergraduate courses**
Calculus I, Calculus II, Calculus III, Linear Algebra I, Linear Algebra II, Real Analysis,
Ordinary Differential Equations I, Ordinary Differential Equations II, Introduction to Analysis I,
Introduction to Analysis II, Partial Differential Equations, Mathematical modelling in Physics,
Partial Differential Equations and Dynamical systems, Partial Differential Equations II,
An introduction to Biomathematics, Biomathematics I, Biomathematics II,
Analytic Geometry, Calculus of Variations, Fourier Analysis.

**Graduate courses**
Ordinary Differential Equations,
Partial Differential Equations (Classical Theory),
Partial Differential Equations (Weak Theory),
Methods of Applied Mathematics,
Pattern Theory and Dynamics,
Analysis in Education.

**Supervision** **Ph D**

| | |
|---|---|
| **K. Gkikas** | Hardy and Hardy Sobolev inequalities and their applications, September (2011)<br>*Department of Mathematics, University of Aegean* |
| **K. Tzirakis** | Improving trace Hardy inequalities and Hardy inequalities for<br>fractional Laplacians on bounded domains, July (2015)<br>*Department of Mathematics, University of Crete* |

**M Sc**

| | |
|---|---|
| **I. Kokkinaki** | Asymptotic behaviour of solutions of a Lifshitz-Slyozov-Wagner model, (2003) |
| **V. Latos** | Asymptotic behaviour of the heat equation with critical potentials, (2005) |
| **K. Tzirakis** | Identification and Study of low energy points, (2007) |
| **N. Pipinos** | Existence of solutions to semilinear equations: lack of classical compactness, (2019) |
| **D. Demetriou** | Best constants in Hardy and Hardy-Sobolev inequalities, (2021) |

**B Sc**

**S. Petropoulou** The maximum principle in the symmetry of Solutions, (1997)

**Other activities**
Conference organization

*Workshop on Reaction Diffusion Equations*, Anogia, Greece ( September 1994)
*Workshop on Reaction Diffusion Equations II*, Heraklion, Greece ( June 1996)
*Congress on Free Boundary Problems-97*, Heraklion, Greece

(June 8-14, 1997) (local organizer)
*Greek Conference Applied Mathematics in honor of C. Dafermos*, Heraklion, Greece (June 2001)
*Workshop on Singular Phenomena in Nonlinear Partial Differential Equations*, Heraklion, Greece (September 23-25, 2002)
*Workshop on Liouville Theorems and detours*, Cortona, Italy, May 18-24, 2008
*15th Panhellenic Conference in Analysis*, Herakleion, Greece, May 27-29, 2016

**Publications**


1. A. Tertikas, Existence and Uniqueness of solutions for a Nonlinear Diffusion problem arising in Population Genetics, **Arch. Rational Mech. Anal.** 103 (1988), 289-317.

2. K. J. Brown and A. Tertikas, On an equation arising in Optical Bistability, **J. Math. Analysis Appl.** 139 (1989), 390-407.

3. A. Tertikas, Global bifurcation analysis and uniqueness for a semilinear problem, **Proc. Roy. Soc. Edinburgh** 111A (1989), 265-284.

4. A. Tertikas, Uniqueness of solutions for problems arising in population genetics, *in Differential Equations edited by C. M. Dafermos, G. Ladas and G. Papanicolaou*, **Lecture notes in Pure and Applied Mathematics** 118 (1989), 667-672.

5. K. J. Brown, S. S. Lin and A. Tertikas, Existence and Nonexistence of Steady-State solutions for a selection migration model in population genetics, **J. Math. Biol.** 27 (1989), 91-104.

6. K. J. Brown and A. Tertikas, On the bifurcation of radially symmetric Steady-State solutions arising in population genetics, **SIAM J. Math. Anal.** 22,2 (1991), 400-413.

7. A. Tertikas, Stability and instability of positive solutions of semi-positone problems, **Proc. Amer. Math. Soc.** 114,4 (1992), 1035-1040.

8. A. Tertikas, Global bifurcation of positive solutions in $\mathbb{R}^n$, *Nonlinear Diffusion Equations and their Equilibrium States 3, edited by N. G. Lloyd, W. M. Ni, L. A. Peletier and J. Serrin*, in **Progress in Nonlinear Differential Equations and their Applications** 7 (1992), Birkhauser Verlag, 513-536.

9. A. Tertikas and J. Toland, Graph intersection and uniqueness results for some nonlinear elliptic problems, **J. Diff. Eqs.** 95,1 (1992), 154-168.

10. K. J. Brown and A. Tertikas, The existence of principal eigenvalues for problems with indefinite weight function in $\mathbb{R}^n$, **Proc. Royal Soc. Edinburgh** 123A (1993), 561-569.

11. A. Tertikas, Uniqueness and Nonuniqueness of positive solutions for a semilinear elliptic equation in $\mathbb{R}^n$, **Diff. and Integral Equs** 8,4 (1995), 829-848.

12. T. Küpper and A. Tertikas, A global branch of positive solutions above the continuous spectrum for problems with indefinite nonlinearities, **Proc. Royal Soc. Edinburgh** 126A(1996), 465-482.

13. A. Tertikas, Critical Phenomena in Linear Elliptic Problems, **J. Funct. Anal.** 154,1 (1998), 42-66.

14. S. Filippas and A. Tertikas, On Similarity Solutions of a Heat Equation with a Nonhomogenous Nonlinearity, **J. Diff. Eqs.** 165 (2000), 468-492.

15. S. Filippas and A. Tertikas, Optimizing Improved Hardy Inequalities, **J. Funct. Anal.** 192, 1 (2002), 186–233; Corrigendum, **J. Funct. Anal.** 255(2008), 2095.

16. G. Barbatis, S. Filippas and A. Tertikas, Series expansion for $L^p$ Hardy inequalities, **Indiana Univ. Math. J.** 52,1 (2003), 171-190.

17. G. Barbatis, S. Filippas and A. Tertikas, Refined geometric $L^p$ Hardy inequalities, **Commun. Contemp. Math.** 5,6 (2003), 869-881.

18. G. Barbatis, S. Filippas and A. Tertikas, A unified approach to improved $L^p$ Hardy inequalities with best constants, **Tran. Amer. Math. Soc.** 356,6 (2004), 2169-2196.

19. G. Barbatis, S. Filippas and A. Tertikas, Critical heat kernel estimates for Schrödinger operators via Hardy-Sobolev inequalities, **J. Funct. Anal.** 208,1 (2004), 1-30.

20. S. Filippas, V. Maz'ya and A. Tertikas, Sharp Hardy-Sobolev inequalities, **Comptes Rendus Mathematique** 339 (2004), 483-486.

21. G. Barbatis and A. Tertikas, On a class of Rellich Inequalities, **J. Comput. Applied Math.** 194(2006), 156–172.

22. S. Filippas, V. Maz'ya and A. Tertikas, On a question of Brezis and Marcus, **Calc. Var. Partial Differential Equations** 25,4 (2006), 491–501.

23. J. Chabrowski, S. Filippas and A. Tertikas, Positive solutions of a Neumann Problem with competing critical nonlinearities, **Topol. Methods Nonlinear Anal.** 28 (2006), 1–31.

24. A. Tertikas and K. Tintarev, On existence of minimizers for the Hardy-Sobolev-Maz'ya inequality, **Ann. Mat. Pura Appl.** 186(2007), 645–662.

25. A. Tertikas and N. Zografopoulos, a) Best constants in the Hardy-Rellich Inequalities and Related Improvements, **Adv. Math.** 209 (2), (2007), 407–459.
b) Optimizing improved Hardy inequalities for the biharmonic operator. EQUADIFF 2003, 1137–1139, World Sci. Publ., Hackensack, NJ, 2005.

26. S. Filippas, V. Maz'ya and A. Tertikas, Critical Hardy–Sobolev Inequalities, **J. Math. Pures Appl.** 87(2007), 37–56.

27. S. Filippas, L. Moschini and A. Tertikas, Sharp two–sided heat kernel estimates for critical Schrödinger operators on bounded domains, **Comm. Math. Phys.** 273(2007), 237–281.

28. Y. Pinchover, A. Tertikas and K. Tintarev, A Liouville-type theorem for the $p$-Laplacian with potential term, **Ann. Inst. H. Poincare' Anal. Non Line'aire** 25(2008), 357-368.

29. S. Filippas, L. Moschini and A. Tertikas, On a class of weighted anisotropic Sobolev inequalities, **J. Funct. Anal.** 255(2008), 90-119.

30. Adimurthi, S. Filippas and A. Tertikas, On the best constant of Hardy–Sobolev Inequalities, **Nonlinear Anal.** 70(2009), 2826–2833.

31. S. Filippas, A. Tertikas and J. Tidblom, On the structure of Hardy-Sobolev-Maz'ya inequalities, **J. Eur. Math. Soc.** 11(2009), 1165–1185.

32. S. Filippas, L. Moschini and A. Tertikas, Improving $L^2$ estimates to Harnack inequalities, **Proc. London Math. Soc.** 99 (2009), 326–352.

33. S. Filippas, A. Tertikas and J. Tidblom, Optimal Hardy-Sobolev-Maz'ya inequalities with strong interior singularities,in Around the Research of Vladimir Maz'ya Edt by A. Laptev I. Function Spaces, 137–160, Springer (2010).

34. M. Del Pino, J. Dolbeault, S. Filippas and A. Tertikas, A Logarithmic Hardy inequality, **J. Funct. Anal.** 259(2010), 2045–2072.

35. J. Dolbeault, M. J. Esteban, G. Tarantello and A. Tertikas, Radial symmetry and symmetry breaking for some interpolation inequalities, **Calc. Var. Partial Differential Equations** 42(2011), 561–585.

36. S. Filippas, L. Moschini and A. Tertikas, Sharp Trace Hardy-Sobolev-Maz'ya Inequalities and the Fractional Laplacian, **Arch. Rational Mech. Anal.** 208(2013), 109–161.

37. G. Barbatis and A. Tertikas, On the Hardy constant of non-convex planar domains: the case of the quadrilateral, **J. Funct. Anal.** 266(2014), 3701–3725.

38. S. Filippas, L. Moschini and A. Tertikas, Trace Hardy–Sobolev–Mazy'a inequalities for the half fractional Laplacian, **Com. Pure Applied Anal.**, 14 (2015), 373–382.

39. G. Barbatis and A. Tertikas, On the Hardy constant of some non-convex planar domains, to appear in **"Geometric Methods in PDE's"***, Springer INdAM vol. 13, Citti, G., Manfredini, M., Morbidelli, D., Polidoro, S., Uguzzoni, F.*, (2015), 15–41.

40. J. Dolbeault, M. J. Esteban, S. Filippas and A. Tertikas, Rigidity results with applications to best constants and symmetry of Caffarelli-Kohn-Nirenberg and logarithmic Hardy inequalities, **Calc. Var. Partial Differential Equations** 54 (2015), 2465–2481.

41. S. Filippas, L. Moschini and A. Tertikas, Correction to: Sharp Trace Hardy-Sobolev-Maz'ya Inequalities and the Fractional Laplacian, **Arch. Rational Mech. Anal.** 229(2018), 1281–1286.

42. G. Barbatis, S. Filippas and A. Tertikas, Sharp Hardy and Hardy–Sobolev inequalities with point singularities on the boundary, **J. Math. Pures Appl.** 117(2018), 146–184.

43. G. Barbatis and A. Tertikas, Best Sobolev constants in the presence of sharp Hardy terms in Euclidean and hyperbolic space, **Bull. Hellenic Math. Soc.** 63(2019), 64–96.

44. G. Barbatis, K. T. Gkikas and A. Tertikas, Heat and Martin kernel estimates for Schrödinger operators with critical Hardy potentials, **Math. Annalen** 389(2024), 2123–2192.

45. G. Barbatis and A. Tertikas, Sobolev improvements on sharp Rellich inequalities, **J. Spectr. Theory** 14(2024), 641–663.

46. S. Filippas, L. Moschini and A. Tertikas, Liouville type properties for a class of weighted anisotropic elliptic equations, **Calc. Var.** 64, 263(2025).

47. S. Filippas and A. Tertikas, Best constants for weighted Hardy inequalities in the exterior of balls and circular cylinders, **Nonlinear Anal. TMA** 261, 113885(2025).

48. G. Barbatis, M. Chatzakou and A. Tertikas, Geometric Hardy inequalities on the Heisenberg groups via convexity, **J. Funct. Anal.** 291, 111512 (2026), 45 pp.

49. S. Filippas and A. Tertikas, $L^p$ Hardy inequalities in the exterior of a ball, *submitted* (2026).

50. S. Filippas and A. Tertikas, Hardy inequalities with sharp constants for non convex domains, *submitted* (2026).