

Luigi PROVENZANO

PERSONAL DATA

PLACE AND DATE OF BIRTH: Casarano (LECCE), Italy | May 4, 1987
CITIZENSHIP: Italian
ADDRESS: Via Ognissanti 38, 35129 Padova (PD), Italy
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CURRENT POSITION

FEB. 2018–PRESENT | **Assegnista di ricerca** - PostDoc,
Dipartimento di Matematica “Tullio Levi-Civita”, **DM**
Università degli Studi di Padova
Torre Archimede - Office 608, Via Trieste 63, 35121 Padova (Italy)
Email: luigiprovenz@gmail.com

PAST POSITIONS

JUL. 2016–JAN. 2018 | **Chercheur avancé** - PostDoc,
SB MATH SCI-SB-JS, **SCI-SB-JS Group**
EPFL - École Polytechnique Fédérale de Lausanne
MAY 2016–JUN. 2016 | **Collaborateur Scientifique** - PostDoc
Institut de Mathématiques, Université de Neuchâtel
Neuchâtel (Switzerland)
JAN. 2013–DEC. 2015 | **Ph.D Student**
Dipartimento di Matematica, Università degli Studi di Padova
Padova (Italy)

DEGREES AND DIPLOMAS

JAN. 2013–DEC. 2015 | Ph.D in MATHEMATICS, **Università degli Studi di Padova**
Judgement: “*excellent*”
Supervisor: Prof. Pier Domenico LAMBERTI
Ph.D thesis: “On mass distribution and concentration phenomena for linear elliptic partial differential operators”
JAN. 2010–MAR. 2012 | Master degree in MATHEMATICS
Grade 110/110 “*cum laude*”, **Università degli Studi di Padova**
Supervisor: Prof. Pier Domenico LAMBERTI
Master thesis: “Eigenvalues of harmonic and poly-harmonic operators subject to mass density perturbations”
SEPT. 2006–DEC. 2009 | Bachelor degree in MATHEMATICS
Grade 106/110, **Università degli Studi di Padova**
Supervisor: Prof. Pier Domenico LAMBERTI
Bachelor thesis: “Sulla dipendenza dello spettro di una membrana vibrante dalla densità di massa”
SEPT. 2001–JUN. 2006 | High school degree, **Liceo Scientifico “G. C. Vanini”**, Casarano (LECCE)
Grade: 100/100 “*with merit*”.

OTHER EXPERIENCES ABROAD

OCT. 2014–JAN. 2015	Research period at the Universidade de AVEIRO , Portugal Ph.D exchange program, supervision of Prof. Matteo Dalla Riva.
MAY 2012–AUG. 2012	Research period at the BCAM of BILBAO, Spain ERC project NUMERIWAVES, supervision of Prof. Enrique Zuazua.
SEPT. 2010–JUN. 2011	Erasmus at Université Denis Diderot-Paris 7 , PARIS, France.

5.1 Research interests

Mathematical Analysis: spectral perturbation problems, linear and nonlinear spectral theory, spectral geometry, shape optimization, function spaces, functional analysis, asymptotic analysis, partial differential equations.

RESEARCH ACTIVITY

Spectral perturbation problems for polyharmonic operators subject to homogeneous boundary conditions (Dirichlet, Neumann, Steklov, intermediate or mixed boundary conditions) with particular concern to problems of perturbation of mass density or shape. Mass concentration problems for second order operators (Neumann, Steklov) and asymptotic analysis. Shape optimization and isoperimetric inequalities for the eigenvalues of higher order elliptic operators. Bounds for eigenvalues of second and higher order operators on Euclidean spaces or manifolds. Inequalities for sums and Riesz-means of eigenvalues. Inequalities for Steklov eigenvalues. Higher order Steklov-type problems and trace problems.

6.1 Publications

PUBLICATIONS IN SCIENTIFIC JOURNALS

1. L. Provenzano, J. Stubbe, “Weyl-type bounds for Steklov eigenvalues”, *Journal of Spectral Theory* (2018), to appear.
2. D. Buoso, L.M. Chasman, L. Provenzano, “On the stability of some isoperimetric inequalities for the fundamental tones of free plates”, *Journal of Spectral Theory* (2018), to appear.
3. M. Dalla Riva, L. Provenzano, “On vibrating thin membranes with mass concentrated near the boundary: an asymptotic analysis”, *SIAM Journal on Mathematical Analysis* (2018), to appear.
4. B. Colbois, L. Provenzano, “Eigenvalues of elliptic operators with density”, *Calculus of Variations and Partial Differential Equations* 57 (2018), no. 2, Art. 36.
5. L. Provenzano, “A note on the Neumann eigenvalues of the biharmonic operator”, *Mathematical Methods in the Applied Sciences, Math. Methods Appl. Sci.* 41 (2018), no. 3, 1005–1012.
6. P.D. Lamberti, L. Provenzano, “Neumann to Steklov eigenvalues: asymptotic and monotonicity results”, *Proceedings of the Royal Society of Edinburgh, Section: A Mathematics*, Volume 147, Issue 2 (2017), 429–447.
7. L. Andreis, D. Barbato, F. Collet, M. Formentin, L. Provenzano, “Strong existence and uniqueness of the stationary distribution for a stochastic inviscid dyadic model”, *Nonlinearity*, Volume 29, Issue 3 (2016), 1156–69.

8. D. Buoso, L. Provenzano, "A few shape optimization results for a biharmonic Steklov problem", *J. Differential Equations*, Volume 259, Issue 5 (2015), 1778–1818.
9. P.D. Lamberti, L. Provenzano, "A maximum principle in spectral optimization problems for elliptic operators subject to mass density perturbations", *Eurasian Mathematical Journal*, Volume 4, Issue 3 (2013), 70–83.

PUBLICATIONS IN BOOKS AND PROCEEDINGS

10. D. Buoso, L. Provenzano, "On the eigenvalues of a biharmonic Steklov problem", *Integral Methods in Science and Engineering, Theoretical and Computational Advances*, 81–89, Birkhäuser, (2015).
11. P.D. Lamberti, L. Provenzano, "Viewing the Steklov eigenvalues of the Laplace operator as critical Neumann eigenvalues", *Current Trends in Analysis and Its Applications, Proceedings of the 9th ISAAC Congress, Kraków 2013* 171–178, Birkhäuser, Basel (2015).

WORK IN PROGRESS

12. E. Harrell II, L. Provenzano, J. Stubbe, "Complementary asymptotically sharp estimates for eigenvalue means of Laplacians".

ORGANIZATION OF CONFERENCES AND SEMINARS

SEPT. 2016–JAN. 2018	Organizer of the cycle of seminars on the topic "SPECTRAL THEORY AND GEOMETRY", EPFL
JUL. 25–29, 2016	Assistant in the organization of the "14th International Conference on Integral Methods in Science and Engineering (IMSE 2016)", Padova (Italy)
Nov. 6–7, 2014	Organizer of the "Perturbation, Elliptic and Parabolic workshop", Aveiro (Portugal)

INVITED TALKS

OCT. 4, 2016	Invited seminar, University of Bern, BERN (Switzerland)
JUN. 20, 2017	Invited talk, Workshop on Geometric Spectral Theory, NEUCHÂTEL (Switzerland)
OCT. 4, 2016	Invited seminar, Université Paris 13, PARIS (France)
JAN. 13, 2016	Invited seminar, Université de Neuchâtel, NEUCHÂTEL (Switzerland)
JUL. 3, 2015	Invited seminar, Politecnico di Torino, TORINO (Italy)

CONFERENCE TALKS

JUN. 19–23, 2017	Workshop on Geometric Spectral Theory, NEUCHÂTEL (Switzerland)
JUN. 12–16, 2017	Mini-Courses in Mathematical Analysis, PADOVA (Italy)
JUN. 27–JULY 01, 2016	Mini-Courses in Mathematical Analysis, PADOVA (Italy)
FEB. 8–12, 2016	School and Workshop PDEs and Applications, NAPOLI (Italy)
AUG. 30–SEPT. 1, 2015	Modern Mathematical Methods in Science and Technology (M3ST) 2015, KALAMATA (Greece)
JUL. 6–10, 2015	EquaDiff 2015, LYON (France)
NOV. 6–7, 2014	Perturbation, Elliptic and Parabolic workshop, AVEIRO (Portugal)
OCT. 3–5, 2014	5th Iberian Mathematical Meeting, AVEIRO (Portugal)
JUL. 21–25, 2014	IMSE 2014, KARLSRUHE (Germany)
AUG. 5–10, 2013	Isaac 9th Congress KRAKOW (Poland)

TEACHING ACTIVITY

A.A. 2017–2018	Assistant for the course “ Analyse Avancée I ” EPFL, Bachelor in Physics (fall semester).
A.A. 2016–2017	Assistant for the course “ Analyse Avancée I et II ” EPFL, Bachelor in Physics (fall and spring semester).
A.A. 2015–2016	Teaching assistant for the course “ Analisi Matematica 1 ” Università degli Studi di Padova, Bachelor in Mathematics.
A.A. 2015–2016	Teacher of the “ Precorso di Calcolo ” MOOC of the University of Padova on the platform <i>Iversity</i> .
A.A. 2014–2015	Professor of the course “ Precorso di Matematica ” Università degli Studi di Padova, Bachelor in Statistics (first semester).
A.A. 2013–2014	Teaching assistant for the course “ Analisi Matematica 2 ” Università degli Studi di Padova, Bachelor in Mathematics (second semester).
1 E 8 APR. 2016 8 E 15 MAG. 2015	Teacher of the mini-courses “ Introduzione a Matematica ” Università degli Studi di Padova Bachelor in Physics and Astronomy.
2012–2015	Other non-scheduled teaching assistance activities Università degli Studi di Padova, Bachelor in Physics, Astronomy and Mechanic and Aerospace Engineering.

LANGUAGES

ITALIAN:	mother tongue
ENGLISH:	fluent
FRENCH:	fluent
SPANISH:	basic
PORTUGUESE:	basic

Updated June 1, 2018.

Il sottoscritto Luigi Provenzano, ai sensi del Dlgs 196/03, autorizza espressamente l'utilizzo dei dati personali e professionali riportati nel curriculum. Il sottoscritto Luigi Provenzano, consapevole che chiunque rilascia dichiarazioni mendaci è punito ai sensi del codice penale e delle leggi speciali in materia, ai sensi degli artt. 46 e 47 del D.P.R. 28 Dicembre 2000, n.445 e successive modificazioni e integrazioni, dichiara che quanto riportato nel presente curriculum corrisponde a verità.