

Decreto Rettore Università di Roma “La Sapienza” n. 2586/2019 del 28/08/2019

LUIGI PROVENZANO Curriculum Vitae

Padova
24/10/2019

Part I – General Information

(Omessi in modo da garantire la conformità del Curriculum Vitae a quanto prescritto dall’ art. 4 del Codice in materia di protezione dei dati personali e dall’art. 26 del D. Lgs. 14 marzo 2013, n. 33, al fine della pubblicazione, e contrassegnata per la destinazione “ai fini della pubblicazione”)

Part II – Education

Type	Year	Institution	Notes (Degree, Experience,...)
Ph.D in Mathematics	2016	Università degli Studi di Padova (PD)	“excellent”
Master degree in Mathematics	2012	Università degli Studi di Padova (PD)	110/110 “cum laude”
Bachelor degree in Mathematics	2009	Università degli Studi di Padova (PD)	106/110
High school diploma	2006	Liceo Scientifico G.C.Vanini, Casarano (LE)	100/100

Part III – Appointments

IIIA – Academic Appointments

Start	End	Institution	Position
01/02/2018	31/01/2020	Università degli Studi di Padova	Assegnista di ricerca senior (tipo b)
01/07/2016	31/01/2018	EPFL (Lausanne)	Chercheur avancé (post-doc)
01/05/2016	30/06/2016	Université de Neuchâtel	Collaborateur scientifique (post-doc)

IIIB – Other Appointments

Start	End	Institution	Position
01/05/2012	25/08/2012	BCAM (Bilbao)	Research period within ERC Numeriwaves (supervision Prof. Enrique Zuazua).



01/10/2014	31/12/2014	Universidade de Aveiro	Ph.D exchange program (supervision Prof. Matteo Dalla Riva).
01/09/2010	30/06/2011	Erasmus at Université Denis-Diderot – Paris 7	Etudiant M2 mathématiques fondamentales

Part IV – Teaching experience

Year	Institution	Lecture/Course
2019/2020	Università degli Studi di Padova	“Analisi Matematica 1”, titular with full responsibility (bachelor in Information Engineering) – 50 hours.
2018/2019	Università degli Studi di Padova	“Analisi Matematica 1”, titular w/o responsibility (bachelor in Energy and Mechanical Engineering) – 40 hours.
2017/2018	EPFL	Assistant for the course “Analyse Avancée I” (bachelor in Physics) – 56 hours.
2016/2017	EPFL	Assistant for the courses “Analyse Avancée I et II” (bachelor in Physics) – 112 hours.
2015/2016	Università degli Studi di Padova	Assistant for the course “Analisi Matematica 1” (bachelor in Mathematics) – 50 hours.
2015/2016	Università degli Studi di Padova	“Precorso di Calcolo”, online MOOC of the University of Padova on <i>Eduopen</i> .
2014/2015	Università degli Studi di Padova	“Precorso di Matematica”, titular with responsibility (Bachelor in Statistics) – 20 hours.
2013/2014	Università degli Studi di Padova	Assistant for the course “Analisi Matematica 2” (bachelor in Mathematics) – 25 hours.
2015/2016	Università degli Studi di Padova	Various editions of the mini-course “Introduzione a <i>Mathematica</i> ”, titular (bachelor in Physics and Astronomy) – 12 hours each mini-course.

IVB – Other Educational Activities

2018/2019	Università degli Studi di Padova	Realization of the MOOC “Matematica di base” (with A. Tonolo and C. Mariconda) on the platform <i>Federica</i> (Univ. Napoli Federico II)
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2019/2020	Università degli Studi di Padova	Realization of Chladni Plates experiment (and other experiments on linear elasticity): nodal lines of eigenvalues of elliptic operators, etc. for dissemination during the European Researcher's Night and for classroom demonstrations.
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Part V – Other activities, mentions, awards, etc.

- Reviewer for scientific journals: Journal of Geometric Analysis, Canadian Mathematical Bulletin, Philosophical Transactions of the Royal Society A, Eurasian Mathematical Journal, etc.
- Reviewer for zbMATH and Mathematical Reviews.
- Qualification 2017 Maître de Conference N.17225302724 (Mathématiques) - France, Campaign 2017.
- Qualification 2017 Maître de Conference N.17226302724 (Mathématiques appliquées et applications des mathématiques), France, Campaign 2017.
- Scientific visits and collaborations with EPFL (Lausanne) and Université de Neuchâtel, 2017-ongoing.

Part VI - Funding Information [grants as PI-principal investigator or I-investigator]

Year	Title	Program	Grant value
2019	Analisi spettrale per operatori ellittici del secondo e quarto ordine con condizioni al contorno di tipo Steklov o di tipo parzialmente incernierato (I)	GNAMPA research project (INDAM)	€4000
2018	Eigenvalue bounds for the Laplacian and related operators (PI)	Research grant type B – sostegno di ricerche di carattere innovativo e di eccellenza proposte da giovani ricercatori non strutturati – Univ. Padova	€59100+€5000
2015	Un approccio funzionale analitico per problemi di perturbazione singolare e di omogeneizzazione (I)	GNAMPA research project (INDAM)	€1500
2012	NUMERIWAVES (I)	ERC advanced grant, FP7-246775	N/A
2012	Singular perturbation problems for differential operators (I)	Progetto di Ateneo CPDA120171, Univ. Padova	€27300
2012	Ph.D scholarship (I)	Programma di dottorato, Univ. Padova	N/A



Part VII – Research Activities

VIIA

Keyword	Brief Description
Spectral perturbation problems	Spectral perturbation problems for elliptic operators on domains/manifolds with particular concern to problems of perturbation of mass density or shape. Mass concentration. Shape optimization and isoperimetric and functional inequalities for eigenvalues of differential operators. Geometric estimates of eigenvalues of differential operators of second and higher order on manifolds. Inequalities for Steklov (Dirichlet-to-Neumann) eigenvalues. Higher order Steklov problems and trace theorems.
spectral theory	
spectral geometry	
shape optimization	
functional analysis	

VIIB – Organization of conferences and seminars

- Organizer of the “Workshop on Spectral Geometry and Analysis of Differential Operators”, Padova (with P.D. Lamberti and P. Musolino), September 9-11, 2019.
- Assistant in the organization of the “Mini-courses in Mathematical Analysis”, Padova, June 24-28, 2019.
- Assistant in the organization of the “14th IMSE Conference”, Padova, July 25-29, 2016.
- Organizer of the cycle of seminars “Spectral Theory and Geometry”, EPFL (with K. Gittins, B. Colbois, J. Stubbe), September 2016 – January, 2018.
- Organizer of the “Perturbation, Elliptic and Parabolic workshop”, Aveiro (Portugal), November 6-7, 2014.

VIIC – Invited talks

- Invited Seminar, Università di Roma La Sapienza, April 10, 2019
- Invited Seminar, University of Bern, May 8, 2018
- Invited talk at the “Workshop on Geometric Spectral Theory”, Neuchâtel, June 20, 2017
- Invited seminar, Université Paris 13, October 4, 2016
- Invited seminar, Université de Neuchâtel, January 13, 2016
- Invited seminar, Politecnico di Torino, July 3, 2015

VIID – Conference Talks

- Asymptotic Analysis & Spectral Theory, Paris sud - Orsay (France), Sept. 30–Oct. 4, 2019
- Shape Optimization and Isoperimetric and Functional Inequalities, Levico Terme (Italy), Sept. 23–27, 2019
- XXIX Convegno Nazionale di Calcolo delle Variazioni, Levico Terme (Italy), Feb. 4–8, 2019
- Mini-Courses in Mathematical Analysis, Padova (Italy), Jul. 2–7, 2018
- Workshop on Geometric Spectral Theory, Neuchâtel (Switzerland), Jun. 19–23, 2017
- Mini-Courses in Mathematical Analysis, Padova (Italy), Jun. 12–16, 2017
- Mini-Courses in Mathematical Analysis, Padova (Italy), Jun. 27–Jul. 01
- School and Workshop PDEs and Applications, Napoli (Italy), Feb. 8–12, 2016
- Modern Mathematical Methods in Science and Technology (M3ST) 2015, Kalamata (Greece), Aug. 30–Sept. 1, 2015
- 2015 EquaDiff 2015, Lyon (France), Jul. 6–10, 2015



- Perturbation, Elliptic and Parabolic workshop, Aveiro (Portugal), Nov. 6–7, 2014
- 5th Iberian Mathematical Meeting, Aveiro (Portugal), Oct. 3–5, 2014
- IMSE 2014, Karlsruhe (Germany), Jul. 21–25, 2014
- Isaac 9th Congress Krakow (Poland), Aug. 5–10, 2013

Participation to about other 20 international conferences/schools (without contributions).

Part VIII – Summary of Scientific Achievements

Product type	Number	Data Base	Start	End
Papers [international]	11	9 out of 11 can be found on Scopus.	2105	2019
		9 out of 11 can be found on WoS ¹	2013	2019
		1 out of 11 still not indexed in Scopus and WoS, and is published on the website of the journal IMRN	2019	2019
Proceedings [international]	2	1 out of 2 can be found on Scopus	2015	2015
		1 out of 2 can be found on the website of Birkhäuser, IMSE 2014 proceedings	2015	2015

Publications on International Journals (all publications)

1. E. Harrell II, L. Provenzano, J. Stubbe, “Complementary asymptotically sharp estimates for eigenvalue means of Laplacians”, International Mathematics Research Notices (2019). (<https://doi.org/10.1093/imrn/rnz085>). **Journal IF 1.452.**
2. L. Provenzano, “Inequalities between Dirichlet and Neumann eigenvalues of the polyharmonic operators”, Proceedings of the American Mathematical Society 147(11), pp. 4813-4821 (2019). (**Scopus**). **Journal IF 0.813.**
3. L. Provenzano, J. Stubbe “Weyl-type bounds for Steklov eigenvalues”, Journal of Spectral Theory, Volume 9, Issue 2, (2019). (**Scopus and WoS**). **Journal IF 1.205. Citations: 6** (Scopus).
4. 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 8 (2018), no. 3, 843-869. (**Scopus e WoS**). **Journal IF 1.205. Citations: 3** (Scopus).
5. M. Dalla Riva, L. Provenzano, “On vibrating thin membranes with mass concentrated near the boundary: an asymptotic analysis”, SIAM Journal on Mathematical Analysis 50 (2018), no. 3, 2928-2967. (**Scopus e WoS**). **Journal IF 1.334.**
6. B. Colbois, L. Provenzano, “Eigenvalues of elliptic operators with density”, Calculus of Variations and Partial Differential Equations 57 (2018), no. 2, Art. 36. (**Scopus e WoS**). **Journal IF 1.652. Citations: 2** (Scopus).
7. L. Provenzano, “A note on the Neumann eigenvalues of the biharmonic operator”, Mathematical Methods in the Applied Sciences 41 (2018), no. 3, 1005-1012. (**Scopus e WoS**). **Journal IF 1.533. Citations: 5** (Scopus).
8. P.D. Lamberti, L. Provenzano “Neumann to Steklov eigenvalues: asymptotic and monotonicity results”, Proceedings of the Royal Society of Edinburgh, Section: A Mathematics, Vol. 47, Issue 2 (2017), 429-447. (**Scopus e WoS**). **Journal IF 0.889. Citations: 6** (Scopus).
9. L. Andreis, D. Barbato, F. Collet, M. Formentin, L. Provenzano, “Strong existence and uniqueness of the stationary distribution for a stochastic inviscid dyadic model”,

¹ WoS stands for ISI Web of Science



- Nonlinearity, Vol. 29, Issue 3 (2016), 1156-1169. (**Scopus e WoS**). **Journal IF 1.767. Citations: 1** (Scopus).
10. D. Buoso, L. Provenzano, “A few shape optimization results for a biharmonic Steklov problem”, J. Differential Equations, Vol. 259, Issue 5 (2015), 1778-1818. (**Scopus e WoS**) **Journal IF 1.821. Citations: 17** (Scopus).
11. P.D. Lamberti, L. Provenzano, “A maximum principle in spectral optimization problems for elliptic operators subject to mass density perturbations”, Eurasian Mathematical Journal, Vol. 4, Issue 3 (2013), 70-83. (**WoS**). **Journal IF 0.264. Citations: 6** (WoS).

Publications Books and Proceedings (all publications)

12. 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). (**Scopus**). **Citations: 13** (Scopus).
13. 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).

Submitted papers

14. D. Buoso, L. Provenzano, J. Stubbe, “Semiclassical bounds for spectra of biharmonic operators”(2019).
15. P.D. Lamberti, L. Provenzano, “On the explicit representation of the trace space $H^{3/2}$ and of the solutions to biharmonic Dirichlet problems on Lipschitz domains via multi-parameter Steklov problems” (2019).
16. B. Colbois, L. Provenzano, “Neumann eigenvalues of the biharmonic operator on domains: geometric bounds and related results” (2019).
17. P.D. Lamberti, L. Provenzano, “Trace Theorems for Sobolev Spaces” (2019).

Total Impact factor	13,935
Total Citations	59 (53 Scopus; 35 WoS; total citations without duplicates is 59)
Average Citations per Product	5,36 (59 total citations without duplicates divided 11 total products without duplicates; database Scopus and WoS)
Hirsch (H) index	5 (Scopus)



Normalized H index*

1

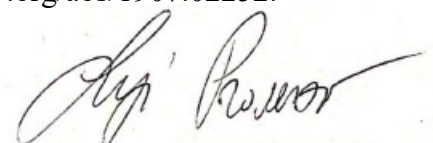
Computation: $5 = \text{H index from Scopus; } 2015 = \text{end of Ph.D; then } 5 : (2019 - 2015 + 1) = 5 : 5 = 1.$

*H index divided by the academic seniority.

Part IX– Selected Publications

List of the publications selected for the evaluation. Each reference contains title, authors, reference data, **journal IF** (if applicable) computed at the year of publication (or at the year before, if the IF is not available for the current year), **citations** (if any).

1. E. Harrell II, L. Provenzano, J. Stubbe, “Complementary asymptotically sharp estimates for eigenvalue means of Laplacians”, International Mathematics Research Notices (2019), <https://doi.org/10.1093/imrn/rnz085>. **Journal IF 1.452**.
2. L. Provenzano, “Inequalities between Dirichlet and Neumann eigenvalues of the polyharmonic operators”, Proceedings of the American Mathematical Society 147(11), pp. 4813-4821 (2019). **Journal IF 0.813**.
3. L. Provenzano, J. Stubbe “Weyl-type bounds for Steklov eigenvalues”, Journal of Spectral Theory, Volume 9, Issue 2, (2019). **Journal IF 1.205. Citations: 6** (Scopus)
4. 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 8 (2018), no. 3, 843-869. **Journal IF 1.205. Citations: 3** (Scopus)
5. M. Dalla Riva, L. Provenzano, “On vibrating thin membranes with mass concentrated near the boundary: an asymptotic analysis”, SIAM Journal on Mathematical Analysis 50 (2018), no. 3, 2928-2967. **Journal IF 1.334**.
6. B. Colbois, L. Provenzano, “Eigenvalues of elliptic operators with density”, Calculus of Variations and Partial Differential Equations 57 (2018), no. 2, Art. 36. **Journal IF 1.652. Citations: 2** (Scopus)
7. L. Provenzano, “A note on the Neumann eigenvalues of the biharmonic operator”, Mathematical Methods in the Applied Sciences 41 (2018), no. 3, 1005-1012. **Journal IF 1.533. Citations: 5** (Scopus)
8. P.D. Lamberti, L. Provenzano “Neumann to Steklov eigenvalues: asymptotic and monotonicity results”, Proceedings of the Royal Society of Edinburgh, Section: A Mathematics, Vol. 47, Issue 2 (2017), 429-447. **Journal IF 0.889. Citations: 6** (Scopus)
9. 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, Vol. 29, Issue 3 (2016), 1156-1169. **Journal IF 1.767. Citations: 1** (Scopus)
10. D. Buoso, L. Provenzano, “A few shape optimization results for a biharmonic Steklov problem”, J. Differential Equations, Vol. 259, Issue 5 (2015), 1778-1818. **Journal IF 1.821. Citations: 17** (Scopus)
11. P.D. Lamberti, L. Provenzano, “A maximum principle in spectral optimization problems for elliptic operators subject to mass density perturbations”, Eurasian Mathematical Journal, Vol. 4, Issue 3 (2013), 70-83. **Journal IF 0.264** (computed with data from AMS on 2011-2012-2013, since these data for those years are unavailable on Scopus or WoS). **Citations: 6** (WoS)
12. B. Colbois, L. Provenzano, “Neumann eigenvalues of the biharmonic operator on domains: geometric bounds and related results”. Preprint (2019). <https://arxiv.org/abs/1907.02252>.



Padova, 24/10/2019

Firma

A handwritten signature in black ink, appearing to read "Lup. P. P. P.", written in a cursive style.