

William Borrelli
Curriculum Vitae
(ai fini della pubblicazione)

Formazione

Type	Year	Institution	Notes (Degree, Experience,...)
University graduation	2015	Università Federico II Napoli	Laurea Magistrale in Matematica
Post-graduate studies			
PhD	2018	Université Paris Dauphine (Parigi, Francia)	Doctorat en Mathématiques Appliquées

Carriera

Start	End	Institution	Position
02/09/24	In servizio	Politecnico di Milano	Prof. Associato – SSD MATH-03/A
13/07/22	01/09/24	Politecnico di Milano	RTD B – MATH05
01/02/21	12/07/22	Università Cattolica	RTD A – MATH05
01/04/19	31/01/21	Centro De Giorgi – SNS Pisa	Junior Visiting Position (Postdoc)
01/10/18	31/03/19	Université Paris Dauphine	Teaching assistant

Didattica

Year	Institution	Lecture/Course
24/25	Politecnico di Milano	Analisi e Geometria 2 – I anno Ing. Aerospaziale/Energetica/Meccanica
24/25	Politecnico di Milano	Elementi di analisi funzionale e trasformate – III anno Ing. Automazione/Elettronica
23/244	Politecnico di Milano	Analisi e Geometria 2 – I anno Ing. Aerospaziale/Energetica/Meccanica
22/23	Politecnico di Milano	Analisi e Geometria 2 – I anno Ing. Aerospaziale/Energetica/Meccanica
22/23	Università Cattolica	Esercitazioni di “Istituzioni di Analisi Superiore” – Laurea Magistrale Matematica
21/22	Università Cattolica	Esercitazioni di “Istituzioni di Analisi Superiore” – Laurea Magistrale Matematica
21/22	Università Cattolica	Processi stocastici
20/21	Università Cattolica	Processi stocastici
18/19	Université Paris Dauphine	Corso ed esercitazioni di “Algebre Linéaire 1”

18/19	Université Paris Dauphine	Esercitazioni di “Modélisation et applications des mathématiques”
18/19	Université Paris Dauphine	Esercitazioni di “Introduction to finance”
18/19	Université Paris Dauphine	Esercitazioni di “Probabilités Multidimensionnelles”
17/18	Université Paris Dauphine	Esercitazioni di “Introduction to finance”
17/18	Université Paris Dauphine	Corso “Introduction à la recherche”
16/17	Université Paris Dauphine	Esercitazioni “Differential equations”
16/17	Université Paris Dauphine	Esercitazioni “Introduction to finance”
15/16	Université Paris Dauphine	Esercitazioni “Differential equations”
15/16	Université Paris Dauphine	Corso “Introduction à la recherche”
15/16	Université Paris Dauphine	Esercitazioni “Calcul et équations différentielles”

Riconoscimenti

Year Title

2019	“Prix Jeune Chercherus 2019” della Fondation Dauphine
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Finanziamenti e progetti

Year	Title	Program	Grant value
2023-2025	Vice P.I. - Nonlinear dispersive equations in presence of singularities	PRIN2022	47.374,46
2023	Analisi spettrale per equazioni di Dirac e applicazioni	Progetto GNAMPA 2023	2.500
2020	Aspetti variazionali di alcune PDE in geometria conformee	Progetto GNAMPA 2020	3.150

Riassunto della attività scientifica

Product type	Number	Data Base	Start	End
Papers [international]	23	Scopus	2017	2025

Total Citations	197
Average Citations per Product	8,57
Hirsch (H) index	9
Normalized H index*	1,29

*H index diviso per la anzianità accademica, qui calcolata in riferimento all’anno di ottenimento del PhD (2018).

Publicazioni (citazioni database Scopus)

- [23] W. Borrelli, U. Morellini - Global well-posedness in a Hartree-Fock model for graphene, *J. Phys. A: Math. Theor.* (2025), vol. 58, no. 21, part of the special issue: Focus on the Dirac Operator: Bridging Mathematical Physics and Network Science. (0 cit.)
- [22] W. Borrelli, D. Fermi, M. Correggi - Pauli Hamiltonians with an Aharonov-Bohm flux, *J. Spectr. Theory* 14 (2024), no. 3, pp. 1147-1193. (3 cit.)
- [21] W. Borrelli, N. Kerraoui, T. Ourmières-Bonafos - Spectral asymptotics for two-dimensional Dirac operators in thin waveguides, In: Correggi, M., Falconi, M. (eds) *Quantum Mathematics I. INdAM2022*. Springer INdAM Series, vol 57 (2023). (3 cit.)
- [20] W. Borrelli, A. Maalaoui, V. Martino - Conformal Dirac-Einstein equations on manifolds with boundary, *Calc. Var.*, 18, 18, (2023). (2 cit.)
- [19] W. Borrelli, S. Mosconi, M. Squassina - Uniqueness of the critical point for solutions to some p-Laplace equations in the plane, *Rend. Lincei - Mat. Appl., Atti Accad. Naz. Lincei Cl. Sci. Fis. Mat. Natur.*, 34 (2023), no. 1, pp. 61–88. (2 cit.)
- [18] W. Borrelli, S. Mosconi, M. Squassina - Concavity properties for solutions to p-Laplace equations with concave nonlinearities, *Adv. Calc. Var.* vol. 17, no. 1, (2024), 79-97. (7 cit.)
- [17] W. Borrelli, R. Carlone, L. Tentarelli - Complete ionization for a non-autonomous point interaction model in $d = 2$, *Commun. Math. Phys.* 395 (2022), 964-1005. (3 cit.)
- [16] W. Borrelli - On the continuum limit for a model of binary waveguide arrays, *NoDEA Nonlinear Differential Equations Appl.*, 29, 28 (2022). <https://doi.org/10.1007/s00030-022-00760-9>. (0 cit.)
- [15] W. Borrelli, V. De Falco - Timescales of the chaos onset in the general relativistic Poynting-Robertson effect, *Phys. Rev. D*, 103, 124012, (2021). (9 cit.)
- [14] W. Borrelli, V. De Falco - Detection of chaos in the general relativistic Poynting-Robertson effect: Kerr equatorial plane, *Phys. Rev. D*, 103, 064014, (2021). (12 cit.)
- [13] W. Borrelli, Philippe Briet, David Krejčířík, Thomas Ourmières-Bonafos - Spectral properties of relativistic quantum waveguides, *Ann. Henri Poincaré* (2022). <https://doi.org/10.1007/s00023-022-01179-9> (12 cit.)
- [12] W. Borrelli, R. Carlone - Bifurcating standing waves for effective equations in gapped honeycomb structures, *Nanosystems: Physics, Chemistry, Mathematics* (2021), 12 (1), P. 5–14. (0 cit.)
- [11] W. Borrelli - Symmetric solutions for a 2D critical Dirac equation - *Commun. Contemp. Math.*, (2020), <https://doi.org/10.1142/S021919972150019X>. (6 cit.)
- [10] W. Borrelli, A. Maalaoui - Some properties of Dirac-Einstein bubbles, *J. Geom. Anal.*, 31, no. 6, (2021), pp. 5766 - 5782. (7 cit.)
- [9] W. Borrelli, A. Malchiodi, R. Wu - Ground state Dirac bubbles and Killing spinors, *Commun. Math. Phys.*, 383 (2021), 1151–1180. (9 cit.)
- [8] W. Borrelli, R. Carlone, L. Tentarelli - On the nonlinear Dirac equation on noncompact metric graphs, *J. Differential Equations*, no. 278 (2021). (21 cit.)
- [7] W. Borrelli, R. Carlone, L. Tentarelli - A note on the Dirac operator with Kirchoff-type vertex conditions on noncompact metric graphs, contributo al volume *Mathematical Challenges of Zero-Range Physics*, Springer INdAM Series, no. 42 (2021). (6 cit.)
- [6] W. Borrelli, R. L. Frank - Sharp decay estimates for critical Dirac equations, *Trans. Amer. Math. Soc.*, 3 (2020), 2045-2070. (17 cit.)
- [5] W. Borrelli, R. Carlone, L. Tentarelli - Nonlinear Dirac equation on graphs with localized nonlinearities: bound states and nonrelativistic limit, *SIAM J. Math. Anal.* 51 (2019), 1046-1081. (28 cit.)
- [4] W. Borrelli, R. Carlone, L. Tentarelli - An overview on the standing waves of nonlinear Schrödinger and Dirac equations on metric graphs with localized nonlinearity, *Symmetry* (2019), 11, 169. (11 cit.)
- [3] W. Borrelli - Weakly localized states for nonlinear Dirac equations, *Calc. Var.* 57 (2018), no.6, 57:155. (12 cit.)
- [2] W. Borrelli - Multiple solutions for a self-consistent Dirac equation in two dimensions, *J. Math. Phys.* 59 (2018), pp. 041503, 13. (10 cit.)
- [1] W. Borrelli - Stationary solutions for the 2D critical Dirac equation with Kerr nonlinearity, *J. Differential Equations* 263 (2017), pp. 7941–7964. (17 cit.)

Supervisione di postdoc

01/03/24 – 28/02/25, Nicolò Canginiotti (Politecnico di Milano) – Progetto PRIN2022 “Nonlinear dispersive equations in presence of singularities”.

Organizzazione di eventi scientifici

29/11-03/12/21 – Scuola Invernale “Analytical methods in Quantum and Continuum Mechanics”, presso International Training Center of the ILO, Torino

27-28/06/22 – Workshop “Young People 4 Math”, Università Cattolica, Brescia.

09-13/06/25 Conferenza e scuola estiva “Analytical methods in Quantum and Continuum Mechanics” (II edizione), Politecnico di Torino

Comunicazioni in conferenze e workshop

07-10/07/2025 Second Workshop on Singular Interactions and Effective Models in Mathematical Physics, Como.

03-06/06/2025 Recent advances in operator theory and its application, Politecnico di Milano.

29/02/2024 A daily trip among relativistic quantum systems, Università di Padova.

23-25/02/2024 Conference on Dirac operators: analysis and geometry, Pechino (Cina). Talk online.

30/10-03/11/2023 Atlantic PDEs, Instituto Superior Tecnico, Lisbona (Portogallo).

20-21/02/2023 Two Dirac days in Padova, Università di Padova.

09-13/01/2023 The analysis of relativistic quantum systems, CIRM, Marsiglia (Francia).

04-08/07/2022 Summer School on Analysis and PDE, Caserta.

13-18/06/2022 Mathematical Challenges in Quantum Mechanics, Como.

11-13/05/2022 PDEs and Relativistic Quantum Mechanics, Università di Nizza (Francia).

23-24/06/2021 Analysis of PDEs on Networks (online), 8ECM, Portorož (Slovenia).

25-27/05/2021 Variational and PDE problems in Geometric Analysis III (online), Università di Bologna.

19/06- 21/06/2019 3 Days on Evolution PDEs, comunicazione breve su invito, Hotel Serenella, Agropoli.

27/09- 29/09/2018 Trails in Quantum Mechanics and Surroundings, Politecnico di Torino.

30/07- 03/08/2018 Dirac-90: Waves, Particles, Spectra , Euler Institute, St. Petersburg (Russia).

28-30/05/2018 Nonlinear Dirac equations and related problems, Università di Bielefeld (Germania).

19-24/02/2018 Mathematical Challenges in Quantum Mechanics, comunicazione breve su invito, Sapienza Università di Roma.

Seminari

26/10/2022 22/06/2022 21/06/2021 Dipartimento di Matematica, Politecnico di Milano.

Bielefeld Analysis Seminar (online), Universität Bielefeld (Germania).

Mathematisches Institut, Albert Ludwigs Universität (online), Freiburg (Germania).

16/04/2021 "Geometry & Geometric Analysis seminar" (online), Clark University (USA).

03/06/2019 Scuola Normale Superiore, Pisa.

11/04/2018 "Young researchers seminar", CERMICS, Ecole Des Ponts ParisTech (Francia).

09/11/2017 Laboratoire de Mathématiques, Université de Franche Comté, Besançon (Francia).

25/10/2017 Dipartimento di Matematica e Applicazioni, Università Federico II, Napoli. 23/10/2017

26/06/2017 "Young researchers seminar", CEREMADE, Université Paris Dauphine (Francia).

Mathematisches Institut, Albert Ludwigs Universität, Freiburg (Germania).