

# Giovanni Girardi

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Il sottoscritto Giovanni Girardi, a conoscenza di quanto prescritto dall'art. 76 del D.P.R. 28 dicembre 2000, n. 445, sulla responsabilità penale cui può andare incontro in caso di falsità in atti e di dichiarazioni mendaci, ai sensi e per gli effetti del citato D.P.R. n. 445/2000 e sotto la propria personale responsabilità dichiara che le informazioni riportate nel seguente curriculum vitae corrispondono a verità. Si autorizza la pubblicazione del presente Curriculum Vitae sul WEB.

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## Personal information

Nationality Italian  
ORCID 0000-0002-5206-6680

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## Current Position

Oct 2021 - Sept 2022 "Assegno postdottorale INDAM di collaborazione ad attività di ricerca a.a. 2020-21", University of Bari, under the supervision of Prof. Marcello D'Abbicco.

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## Former Position

Dec 2020 - Oct 2021 Research Fellow at Institute of Water Research (IRSA-CNR) in Bari, within the frame of the projects *RIUBSAL* and *Smart Water*, under the supervision of Dr. Marco Berardi.

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## Education

Nov 2017-Oct 2020 PhD student in Computer Science and Mathematics at Università degli Studi di Bari. The PhD defense was held on the 22nd of February, 2021. Title of the thesis: *Long Time Decay Estimates and Critical Exponents for some Dissipative Evolution Models*. Supervisor: Prof. Marcello D'Abbicco.

2014-2017 Master's degree in Mathematics, Università degli Studi di Bari (Italy) Final grade 110/110 cum laude with a thesis in Mathematical Analysis on *Semilinear damped wave equation with mass term*; advisors Prof. Michael Reissig (TU Bergakademie Freiberg), Dr. Sandra Lucente (Università degli Studi di Bari).

2010-2014 Bachelor's degree in Mathematics, Università degli Studi di Bari (Italy) Final grade 110/110 cum laude with a thesis in Mathematical Analysis on *Application of Distribution Theory to regularity theorems for some Partial Differential Equations*; advisors Prof. Michael Reissig (TU Bergakademie Freiberg), Dr. Sandra Lucente (Università degli Studi di Bari).

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## Research Grants

- Oct 2018-Feb 2019 Stage for Research Activity at TU Bergakademie Freiberg (Germany) in the frame of the program *Erasmus + 2018/2019* proposed by University of Bari, under the supervision of Prof. Michael Reissig.
- Sept-Dec 2016 Selected for writing the master's thesis in Freiberg (Germany) in TU Bergakademie Freiberg in the frame of the program *Global Thesis 2015/2016* proposed by University of Bari.
- May-June 2014 Selected for spending two months in Freiberg (Germany) in TU Bergakademie Freiberg in the frame of the MIUR program *Messaggeri della Conoscenza*: writing of Bachelor Thesis and final talk.

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## Other Research Periods

- Mar-May 2019 Stage for Research Activity at Institut für Analysis, Dynamik und Modellierung, University of Stuttgart, under the supervision of Prof. Jens Wirth.

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## Teaching experiences

- Oct 2020-Oct 2021 Contract Professor of Analisi Matematica (Moduli 1 e 2) at Polytechnic University of Bari (120 hours).
- October 2019 Tutoring of 15 hours to educate students for the entrance exam for Bachelor's degree in Informatica e Comunicazione Digitale, Università degli Studi di Bari (Italy).
- Sept 2018 Tutoring of 15 hours to educate students for the entrance exam for Bachelor's degree in Informatica e Comunicazione Digitale, Università degli Studi di Bari (Italy).
- Feb-Sept 2016 Tutoring for students enrolled in the first and second years of Bachelor's degree in Mathematics, Università degli Studi di Bari (Italy): weekly meetings organized to support students in preparation for exams in geometry (Geometria 1,2,3,4).

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## Talks / Poster sessions

### Invited Speaker

- 13 June 2022 Series of Seminars in Mathematical Analysis. *Asymptotic profile for a two-terms time fractional diffusion problem*. University of Turin. <http://www.sam.polito.it/>
- 18 Jan 2022 Recent Advances in Nonlinear Evolution Equations (RANEE) Webinars. *Asymptotic profile for a two - terms time fractional diffusion equation*. <https://sites.google.com/view/ranee-workshop-2021/home>
- 19-20 Dec 2019 Xmaths Workshop, 2019. *Critical regularity of nonlinearities in semilinear classical damped wave equations*. University of Bari, Italy.

- 25-28 June 2019 Functional Analytic Methods for PDEs.  $L^1 - L^1$  estimates for the strongly damped plate equation. University of Cesena. <https://events.unibo.it/functional-analytic-methods-for-pdes/>
- 19 Dec 2018 EDP E DINTORNI. A scale of critical exponents for semilinear damped waves with mass. University of Bari (Italy).
- Other talks**
- 26-27 May 2022 First UMI Meeting of PhD students. Asymptotic profile for a two-terms time fractional diffusion problem. University of Padova. <https://www.100umi800unipd.it/>
- 02-06 August 2021 13th ISAAC CONGRESS, 2021. Asymptotic profile for a time-fractional telegraph equation. Online conference. <https://cage.ugent.be/isaac2021/>
- 21-23 June 2021 SIAM Geoscience 2021. Modeling Root Water Uptake by Step-Wise Sink Terms in Richards Equation. Online conference. <https://www.siam.org/conferences/cm/conference/gs21>
- 29 July-02 August 2019 12th ISAAC CONGRESS, 2019.  $L^1 - L^1$  estimates for the strongly damped plate equation. University of Aveiro, Portugal.
- July 2018 Poster session at MLTFA2018, University of Turin (Italy). <http://www.mltf18.unito.it/en/node/3>
- 13 Dec 2016 Semilinear Effectively Damped Wave Models with Mass, Department of Mathematics and Informatics, TU Bergakademie Freiberg (Sachs, D), within the frame of the Project *Global Thesis*.

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## Experiences, Workshops and Schools

- 18-22 July 2022 School Workshop on Analysis, Control and Inverse Problems for Diffusive Systems with Application to Natural and Social Sciences. University of Bari.
- 13-15 July 2022 12th Meeting on Nonlinear evolution PDEs, fluid dynamics and transport equations. University of L'Aquila.
- 23-24 June 2022 Modern Aspects of PDE. University of Bari.
- 31 May 2022 IV - One Day Workshop on Applied Mathematics 2022. University of Bari.
- 21-22 Dec 2021 XMaths Workshop 2021. University of Bari
- 15 Sept 2021 EDP e DINTORNI-VI edition. University of Bari.
- 8-9 July 2021 RoMANs: Research on Mathematical Analysis and Semigroups On the occasion of Silvia Romanelli's 70th Birthday. University of Bari.
- 28 May 2021 Giornata INdAM Unità di ricerca Bari 2021. University of Bari.
- Jan 2021 Winterschool - Advanced numerical methods for free-surface hydrodynamics - lecturer: prof. Vincenzo Casulli (DICAM/UNITN)
- Nov-Dec 2020 Porous Media Short Course Series organized at University of Bergen, Norway - lecturers: J. M. Nordbotten, R. Helmig, Sorin Pop

- Oct-Dec 2020 Webinar on Evolution Models. Critical exponent versus blow-up in evolution models. <https://sites.google.com/fclrp.usp.br/evolutionmodels/home?authuser=0>
- 19 Dec 2019 Convegno EDP e DINTORNI - V meeting around PDE. University of Bari.
- 09-13 September 2019 Indam Workshop: Anomalies in Partial Differential Equations. Roma.
- 06 June 2019 III - One Day Workshop on Applied Mathematics 2019. Polytechnic University of Bari.
- 03 June 2019 Giornata INDAM 2019. University of Bari.
- 13 July 2018 Conference on Evolution Equations and PDEs on the occasion of the 60th birthday of Gisele Ruiz Goldstein. University of Bari.
- 17-21 June 2018 Summer school on DDM à Nice 2018. University of Nice. <https://math.unice.fr/krell/ColloqueDD/index.php>
- 1-2 Feb 2018 PDE in Bari, Celebrating the 60th Birthday of Enrico Jannelli. University of Bari. <https://sites.google.com/view/pdeinbari>
- 11-22 Nov 2013 Participant to the course *Basic Partial Differential Equations and Applications*, within the frame of the MIUR program *Messaggeri della Conoscenza*, held at the University of Bari (Italy) by Prof. Michael Reissig (TU Bergakademie, Freiberg)
- 15-26 July 2013 Summer course *Geometry, Optimization and Graph Theory*, within the frame of the MIUR program *Messaggeri della Conoscenza*, held at the University of Bari (Italy) by Dr. Bruno Benedetti (Freie Universität, Berlin) and Prof. Lorenzo Orecchia (Massachusetts Institute of Technology, Cambridge, MA)

## Attended PHD Courses

- *Project Management*, held by Prof. Danilo Caivano;
- *Empirical Methods and Data Analysis*, held by Prof. Fabio Q. B. Da Silva;
- *Dissipative hyperbolic equations*, held by Prof. Marcello D'abbicco;
- *Elements of Calculus of Variations with Applications to the Study of Geodesics*, held by Prof. Anna Maria Candela;
- *Differential equations of fractional order*, held by Prof. Roberto Garrappa;
- *Evolution problems*, held by Prof. Silvia Romanelli;
- *Eigenvalues, computation of canonical forms and applications*, held by Prof. Nicola Mastronardi;
- *States, observables, and Evolution*, held by Prof. Paolo Facchi;
- *Differential equations and physical phenomena*, held by Prof. Saverio Pascazio;
- *Semilinear evolution equations*, held by Prof. Michael Reissig.

## Organized Workshops

- Xmaths Workshop 2020. University of Bari.
- Xmaths Workshop 2018. University of Bari.

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## Partecipation to Research Projects and Groups

- Progetto GNAMPA 2022. Equazioni dispersive e dissipative: stime e profili asintotici
- Progetto GNAMPA 2018. Metodi di analisi armonica e teoria spettrale per le equazioni dispersive.
- Since December 2021 to September 2022, my Research Fellow at IRSA (CNR) was founded by the Projects *Smart Water* (principal investigator: Dr. Michele Vurro, link: <https://www.cnr.it/it/progetti-di-ricerca/progetto/31285/smart-water-dta-ad002-402>) and *Riubsal* (principal investigator: Dr. Marco Berardi, link: <https://www.cnr.it/it/progetti-di-ricerca/progetto/41290/riubsal-dta-ad002-593>).
- I contributed to the Project *Qualitative and quantitative aspects of nonlinear PDEs* within the frame of the PRIN-2017 (Prot. 2017JPCAPN, principal investigator; Prof. Berardino Sciunzi) with the following publication: *Chiarello, F.A., Girardi, G. and Lucente, S. Fujita modified exponent for scale invariant damped semilinear wave equations. J. Evol. Equ. (2021). <https://doi.org/10.1007/s00028-021-00705-2>; link: <https://www.dm.uniba.it/ricerca/progetti-di-ricerca/qualitative-and-quantitative-aspects-of-nonlinear-pdes/pubblicazioni>*

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## List of Publications

- [1] M.D'Abbicco, G.Girardi, M.Reissig, *A scale of critical exponents for semilinear waves with time-dependent damping and mass terms*, Nonlinear Analysis, 179, 15-40 (2019), <https://doi.org/10.1016/j.na.2018.08.006>.
- [2] M.D'Abbicco, G.Girardi, J. Liang,  *$L^1 - L^1$  estimates for the strongly damped plate equation*, Journal of Mathematical Analysis and Applications, 478, 476-498 (2019).
- [3] Ebert, M.R., Girardi, G. Reissig, M., *Critical regularity of nonlinearities in semilinear classical damped wave equations*. Math. Ann. (2019). <https://doi.org/10.1007/s00208-019-01921-5>
- [4] G. Girardi, *Semilinear Damped Klein-Gordon Models with Time-Dependent Coefficients*, New Tools for Nonlinear PDEs and Application, 203–216 (2019).
- [5] Girardi G., *Small Data Solutions for Semilinear Waves with Time-Dependent Damping and Mass Terms*. In: Boggiatto P. et al. (eds) Advances in Microlocal and Time-Frequency Analysis. Applied and Numerical Harmonic Analysis. Birkhäuser, Cham. (2020).
- [6] M. D'Abbicco, G. Girardi, G. R. Goldstein, J. A. Goldstein, S. Romanelli, *Equipartition of energy for nonautonomous damped wave equations*, DISCRETE AND CONTINUOUS DYNAMICAL SYSTEMS. SERIES S, ISSN: 1937-1632, doi: 10.3934/dcdss.2020364.
- [7] M. D'Abbicco, G. Girardi, *A structurally damped  $\sigma$ -evolution equation with nonlinear memory*, Mathematical Methods in the Applied Sciences, (2020) <https://doi.org/10.1002/mma.6633>

- [8] G. Girardi, J. Wirth. *Decay Estimates for a Klein–Gordon Model with Time-Periodic Coefficients*. In: Cicognani M., Del Santo D., Parmeggiani A., Reissig M. (eds) *Anomalies in Partial Differential Equations*. Springer INdAM Series, vol 43. Springer, Cham. (2021) [https://doi.org/10.1007/978-3-030-61346-4\\_14](https://doi.org/10.1007/978-3-030-61346-4_14)
- [9] Girardi, G., Lucente, S., *Lifespan Estimates for a Special Quasilinear Time-Dependent Damped Wave Equation*. In: Cerejeiras, P., Reissig, M., Sabadini, I., Toft, J. (eds) *Current Trends in Analysis, its Applications and Computation*. Trends in Mathematics(). Birkhäuser, Cham. (2022) [https://doi.org/10.1007/978-3-030-87502-2\\_61](https://doi.org/10.1007/978-3-030-87502-2_61)
- [10] Chiarello, F.A., Girardi, G. and Lucente, S. Fujita modified exponent for scale invariant damped semilinear wave equations. *J. Evol. Equ.* (2021). <https://doi.org/10.1007/s00028-021-00705-2>
- [11] Chen, W., D’Abbicco, M. and Girardi, G. Global small data solutions for semilinear waves with two dissipative terms. *Annali di Matematica Pura e Applicata* (2021). <https://doi.org/10.1007/s10231-021-01128-z>
- [12] Difonzo, F.V., Girardi, G., On the Shooting Method Applied to Richards’ Equation with a Forcing Term. In: Gervasi O. et al. (eds) *Computational Science and Its Applications – ICCSA 2021*. Lecture Notes in Computer Science, vol 12949. Springer, Cham. <https://doi.org/10.1007/978-3-030-86653-2-20>
- [13] M. Berardi, M. D’Abbicco, G. Girardi, M. Vurro, *Optimizing water consumption in Richards’ equation with step-wise RWU*. *Transp Porous Med* 141, 469–498 (2022). <https://doi.org/10.1007/s11242-021-01730-y>
- [14] M. D’Abbicco, G. Girardi, *Asymptotic profile for a two-terms time fractional diffusion problem*. *Fract. Calc. Appl. Anal.* 25, 1199–1228 (2022). <https://doi.org/10.1007/s13540-022-00041-3>
- [15] G. Girardi, *A Klein-Gordon model with time-dependent coefficients and a memory-type nonlinearity*. Accepted for publication in *Proceedings of the 13th ISAAC congress - session: Recent Progress in Evolution Equations* (2022).

## Awards

- Winner of the Grant in name of Luigi and Nicola Albano, provided by Banca di Credito Cooperativo Putignano for the year 2016/2017.
- Winner of the Kovalevskaya Grant, provided by the International Mathematical Union (IMU) to participate at the International Congress of Mathematics (ICM) 2022.

## Languages

Italian **Mother tongue**  
 English **Fluent**

October 11, 2022