

Matteo Levi

Curriculum vitae

Date: 18/7/2024

Positions

- 12/2022–present **“Margarita Sala” PostDoc**, *Universitat Autònoma de Barcelona and Universitat de Barcelona*.
- 01/03/2022–01/12/2022 **Research scholarship “consolidator”**, *MaLGa Center, DIBRIS, Università di Genova*.
- 01/03/2020–01/03/2022 **PostDoc Fellow**, *Politecnico di Torino*.
- 01/2020–02/2020 **Assistant Research Scholar**, *Johns Hopkins University (Baltimore, US)*.

Education

- 2016–2019 **PhD in Mathematics**, *Università di Bologna, Universitat Autònoma de Barcelona*.
PhD thesis *Fine Boundary Properties in Complex Analysis and Discrete Potential Theory*
Supervisors Prof. Nicola Arcozzi, Prof. Artur Nicolau
Thesis defence December 13, 2019, Bologna
- 2013–2016 **Master’s degree in Mathematics**, *University of Milan*, 110/110 e Lode.
Master thesis *Analytic and Geometric Aspects of the Theory of the Dirichlet Space*
Supervisor Prof. Marco Peloso
- 2013–2014 **Erasmus scholarship**, *Lund University*.
- 2009–2013 **Bachelor’s degree in Mathematics**, *University of Milan*.

Published and accepted papers

Hardy-Littlewood maximal operators on trees with bounded geometry.

To appear in *Transactions of the American Mathematical Society*, <https://arxiv.org/abs/2308.07128>

Two-weight dyadic Hardy inequalities.

Rendiconti Lincei. Matematica e Applicazioni, <https://ems.press/journals/rlm/articles/13511451>

Poincaré inequalities on graphs.

Analysis Mathematica, <https://doi.org/10.1007/s10476-023-0215-5>

Riesz Transform for a Flow Laplacian on Homogeneous Trees.

Journal of Fourier Analysis and Applications, <https://link.springer.com/article/10.1007/s00041-023-09999-x>

Analysis on trees with nondoubling flow measures.

Potential Analysis, <https://doi.org/10.1007/s11118-021-09957-6>

Equilibrium measures on trees.

Collectanea Mathematica, <https://doi.org/10.1007/s13348-021-00336-3>

Distortion and Distribution of Sets under Inner Functions.

Journal of Geometric Analysis, <https://doi.org/10.1007/s12220-019-00236-w>

Some Remarks on the Dirichlet Problem on Infinite Trees.

Concrete Operators, <https://doi.org/10.1515/conop-2019-0002>

On a class of shift-invariant subspaces of the Drury-Arveson space.

Concrete Operators, <https://doi.org/10.1515/conop-2018-0001>

Submitted for publication

Linear statistics of determinantal point processes and norm representations.

<https://arxiv.org/abs/2311.03204>

Calderón-Zygmund theory on some Lie groups of exponential growth.

<https://arxiv.org/abs/2311.01824>

Hardy-Littlewood fractional maximal operators on homogeneous trees.

<https://arxiv.org/abs/2211.11871>

Invited talks

- 29/05/2024 **XLIII Convegno nazionale di Analisi armonica** , Dip. di Tecnica e Gestione dei sistemi industriali, Università di Padova.
- 16/11/2023 **Seminario de Análisis Matemático y Matemática Aplicada**, Universidad Complutense de Madrid.
- 8/11/2023 **Ghent Methusalem Junior Seminar**, Ghent Analysis & PDE Center (online).
- 2/11/2023 **Barcelona Mathematical Days**, Institut d'Estudis Catalans, Barcelona, Spain.
- 25/05/2023 **EARCO XXI**, Jarandilla de la Vera, Spain.
- 9/03/2023 **Seminari d'Anàlisi UAB-UB** , Barcelona, Spain.
- 19/01/2023 **Young Researchers Workshop in Harmonic Analysis**, Politecnico di Torino.
- 17/01/2022 **Geometric Aspects of Complex and Harmonic Analysis**, Università di Bologna.
- 01/04/2021 **Insalate di Matematica**, Università di Milano-Bicocca.
- 02/07/2020 **Seminari a distanza di Analisi Armonica**, Online.
- 09/06/2020 **Seminario Progetto di Eccellenza DISMA**, Politecnico di Torino (online).
- 04/06/2020 **XLIX Convegno Nazionale di Analisi Armonica**, Università di Bologna (online).
- 24/02/2020 **Washington University Analysis Seminar**, Washington University in St. Louis, MO, United States.
- 3/06/2019 **Seminari d'Anàlisi UAB-UB** , Barcelona, Spain.
- 13/05/2019 **Fifth Summer School in Complex Analysis and Operator Theory**, Cullera, Spain.
- 6/05/2019 **Séminaire d'Analyse Réelle**, Institut de Mathématiques de Toulouse.
- 21/02/2019 **Workshop - Real and complex manifolds: geometry, topology and harmonic analysis**, Pisa, Scuola Normale Superiore.

- 22/09/2018 **Mathematical Analysis Seminar**, Department of Mathematics, Division of Mathematical Analysis, Thessaloniki.
- 13/04/2018 **Young researchers workshop in Harmonic Analysis**, Politecnico di Torino.
- 22/11/2017 **Advanced Differential Equations, winter 17/18**, Freie Universität Berlin.

Contributed talks and poster sessions

- 01/02/2018–03/02/2018 **Workshop 2018**, Scuola Normale Superiore, Pisa.
- 26/05/2018–30/05/2018 **Workshop on Complex Analysis and Operator Theory**, Blanes (Spain).
- 27/06/2019 **Barcelona Analysis Conference 2019**, Universitat de Barcelona.
- 27/06/2023 **XVII Advanced Course in Operator Theory and Complex Analysis**, Thessaloniki, Greece.

Organisation

- 03/06/2023–07/06/2023 **Barcelona Analysis Conference - BAC24**, Universitat de Barcelona, <https://www.crm.cat/barcelona-analysis-conference-bac24/>.
- 26/05/2021–28/05/2021 **XL Convegno Nazionale di Analisi Armonica**, Politecnico di Torino, <https://www.aatorino21.polito.it/>.
- 12/08/2019–24/08/2019 **International volunteer at SAMI camp** (<https://samicharity.co.uk/>), Kitale, Kenya.
- 11/06/2018–14/06/2018 **XV Advanced Course in Operator Theory and Complex Analysis**, Università di Bologna, <https://events.unibo.it/acotca2018/>.

Qualifications

- 18/07/2023 **Accreditacion professor lector**, *Catalan qualification as Assistant Professor*.

Grants and fundings

- 2023-2024 **INDAM-GNAMPA 2023**, *"Analisi Armonica Applicata a Problemi Inversi e di Machine learning"*, CUP E53C22001930001, Principal investigator: Luca Ratti.
- 2022-2024 **Ayudas Margarita Salas**, *Financiado por el Ministerio de Universidades y la Unión Europea-NextGenerationEU*.
- 2022-2023 **Bando Trapezio, Compagnia di San Paolo**, *"Harmonic Analysis on continuous and discrete structures."*, Principal investigator: Maria Vallarino.
- 2022-2026 **Proyectos de Generación de Conocimiento 2021, Ministerio de Ciencia e innovación**, *"Propiedades Estocásticas en Teoría Geométrica de Funciones"*, Principal investigators: Artur Nicolau, Jose Gonzalez Llorente.
- 2022-2023 **INDAM-GNAMPA 2022**, *"Generalized Laplacians on Continuous and Discrete Structures"*, CUP E55F22000270001, Principal investigator: Tommaso Bruno.
- 2020-2021 **INDAM-GNAMPA 2020**, *"Fractional Laplacians and subLaplacians on Lie groups and trees"*, Principal investigator: Maria Vallarino.

- 07/10/2019– **GHAIA Project Grant**, H2020-MSCA-RISE-2017 (Marie Skłodowska-Curie Research and Innovation Staff Exchange).
08/12/2019 *Research stay at Johns Hopkins University (Baltimore).*
- 01/03/2020– **PostDoc Scholarship.**
01/03/2022 *Politecnico di Torino.*
- 10/2016– **PhD Scholarship.**
10/2019 *University of Bologna.*
- 03/2019– **Marco Polo Scholarship.**
07/2019 *Research stay at Universitat Autònoma de Barcelona.*
- 03/2018– **Marco Polo Scholarship.**
07/2018 *Research stay at Universitat Autònoma de Barcelona.*
- 01/02/2017– **2015 PRIN grant**, Real and Complex Manifolds: Geometry, Topology and Harmonic
31/01/2020 *Analysis of the Italian Ministry of Education (MIUR).*
- 09/2013– **Erasmus Scholarship.**
06/2014 *Master studies at Lund University, Sweden.*

Languages

Italian	Mother tongue
English	Proficiency
Spanish	Advanced

Teaching

- Fall 2023 **Lecturer**, *Universitat de Barcelona.*
Càlcul Integral en Diverses Variables, Mathematics.
- Spring 2023 **Lecturer**, *Universitat de Barcelona.*
Càlcul Integral en Diverses Variables, Mathematics.
- Spring 2022 **Lecturer**, *Università di Genova*, PhD course.
Harmonic analysis and representation theory for groups acting on homogeneous trees.
- 2021-2022 **Esercitatore**, *Politecnico di Torino.*
Mathematical Analysis 2, Electronic and Communication Engineering, Ingegneria Fisica.
- 2021-2022 **Esercitatore**, *Politecnico di Torino.*
Mathematical Analysis 2, Computer Engineering.
- 28/09/2020– **Esercitatore**, *Politecnico di Torino.*
16/01/2021 *Mathematical Analysis 2, Electronic and Communication Engineering, Ingegneria Fisica, Computer Engineering.*
- 28/09/2020– **Esercitatore**, *Politecnico di Torino.*
16/01/2021 *Analisi Matematica 2, Ingegneria Informatica .*
- 11/2017– **Teaching Assistant**, *Università di Bologna.*
02/2018 *Analisi 2, Mathematics.*
- 03/2017– **Teaching Assistant**, *Università di Bologna.*
09/2017 *Analisi 2T, Chemistry and Biochemistry Engineering.*

02/2017– **Teaching Assistant**, *Università di Bologna*.
07/2017 *Analisi 1B, Mathematics*.
03/2012– **High School Training Teaching**, *L.S.S. Leonardo da Vinci, Milano*.
05/2012 *Mathematics and Physics for students in their 3rd and 5th year*.
12/08/2019– **International volunteer at SAMI camp** (<https://samicharity.co.uk/>), Ki-
24/08/2019 *tale, Kenya*.