

CHIARA BOCCATO

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Languages: Italian (native), English (fluent), German (good)

EMPLOYMENT

- since 05/2024 ***“Ricercatore a tempo determinato di tipo B”***, University of Pisa
(assistant professor, tenure-track)
- 05/2021-04/2024 ***“Ricercatore a tempo determinato di tipo A”***, University of Milan
(assistant professor, non-tenure-track)
- 11/2017-03/2021 ***Postdoc position, IST Austria***
Prof. Robert Seiringer group

EDUCATION

- 08/2017 ***Ph.D. in Mathematics, University of Zurich***
Advisor: Prof. Benjamin Schlein
- 04/2013-09/2017 Graduate studies
University of Zurich (02/2014 – 09 /2017)
Hausdorff Center for Mathematics, University of Bonn (04/2013 – 01/2014)
Advisor: Prof. Benjamin Schlein
- 11/2012 ***M.Sc. Degree in Physics, University of Milano-Bicocca***
Grade: 110/110 cum laude
- 04/2009 ***B.Sc. Degree in Physics, University of Milano-Bicocca***
Grade: 109/110

PUBLICATIONS AND PREPRINTS

1. C. Boccato, J. Kerner, M. Pechmann. *On Bose-Einstein condensation in interacting Bose gases in the Kac-Luttinger model.*
J. Math. Pures Appl. 189 (2024). doi:10.1016/j.matpur.2024.06.009
2. C. Boccato, A. Deuchert, D. Stocker. *Upper bound for the grand canonical free energy of the Bose gas in the Gross-Pitaevskii limit.*
SIAM J. Math. Anal. 56 (2024). doi:10.1137/23M1580930
3. C. Boccato, R. Seiringer. *The Bose gas in a box with Neumann boundary conditions.*
Ann. Henri Poincaré 24, 1505–1560 (2023). doi:10.1007/s00023-022-01252-3
4. C. Boccato, C. Brennecke, S. Cenatiempo, B. Schlein. *Optimal Rate for Bose-Einstein Condensation in the Gross-Pitaevskii Regime.*
Commun. Math. Phys. 376, 1311–1395 (2020). doi:10.1007/s00220-019-03555-9
5. C. Boccato, C. Brennecke, S. Cenatiempo, B. Schlein. *Bogoliubov Theory in the Gross-Pitaevskii Limit.*
Acta Mathematica 222, no. 2, 219–335 (2019). doi:10.4310/ACTA.2019.v222.n2.a1
6. C. Boccato, C. Brennecke, S. Cenatiempo, B. Schlein. *The Excitation Spectrum of Bose Gases Interacting Through Singular Potentials.*
Journal of the European Mathematical Society **22**, no. 7, 2331–2403 (2020).
doi:10.4171/JEMS/966
7. C. Boccato, C. Brennecke, S. Cenatiempo, B. Schlein. *Complete Bose-Einstein Condensation in the Gross-Pitaevskii Regime.*
Commun. Math. Phys. 359, no. 3, 975–1026 (2018). doi:10.1007/s00220-017-3016-5

8. C. Boccato, S. Cenatiempo, B. Schlein. *Quantum Many-Body Fluctuations Around Nonlinear Schrödinger Dynamics*.
Ann. Henri Poincaré 18, no. 1, 113–191 (2017). doi:10.1007/s00023-016-0513-6

BOOK CHAPTER

1. N. Benedikter, C. Boccato. *Correlation corrections as a perturbation to the quasi-free approximation in many-body quantum systems*.
Invited contribution as a chapter for the Encyclopedia of Complexity and Systems Science, Robert A. Meyers (Ed), Springer (2022) doi:10.1007/978-3-642-27737-5-768-1

CONFERENCE PROCEEDINGS

1. C. Boccato. *The Bose gas in a box with Neumann boundary conditions*.
Contribution to the Oberwolfach report ‘A Geometric Fairytale full of Spectral Gaps and Random Fruit’, Report No. 53/2022.
To appear in Oberwolfach Reports. doi:10.4171/OWR/2022/53
2. C. Boccato. *The Excitation Spectrum of the Bose Gas in the Gross-Pitaevskii Regime*.
Contribution to Proceedings of QMath14. Aarhus, August 2019.
Reviews in Mathematical Physics **32**, 2060006 (2020). doi:10.1142/S0129055X20600065
3. C. Boccato. *The excitation spectrum of the Bose gas in the Gross-Pitaevskii regime*.
Contribution to the Oberwolfach report “Many-Body Quantum Systems”, Report No. 41/2019.
Oberwolfach Reports **16**, no. 3, 2541-2603 (2019). doi:10.4171/OWR/2019/41

THIRD-PARTY FUNDING

- 09/2023–09/2025 Local coordinator of the *PRIN 2022* grant from the Italian Ministry of University and Research for the project “*Interacting Quantum Systems: Topological Phenomena and Effective Theories*”, in collaboration with the University of Rome La Sapienza (PI: Dr. Domenico Monaco), EUR 165 000
- 12–25/05/2024 Oberwolfach Research Fellows (OWRF) project “*Bose-Einstein condensation in interacting Bose gases in the Kac-Luttinger model*” in collaboration with Dr. Joachim Kerner (University of Hagen), Dr. Maximilian Pechmann (University of Tennessee), Prof. Wolfgang Spitzer (University of Hagen)

AWARDS

- 19/06/2024 Selected for the Ramón y Cajal Grant, funded by the Agencia Estatal de Investigación, Spanish Ministry of Science and Innovation.
Second in the ranking.
- 03/2019 *Postdoctoral Fellowship* (three weeks), Institut Mittag-Leffler, The Royal Swedish Academy of Sciences
- 10/2017 *FFG (Austria Research Promotion Agency) Career Grant*, EUR 2 000, covering relocation costs to Austria when taking up a post in the field of research, development and innovation

MINI-COURSE

- 30/08-01/09/2023 Mini-course at the workshop “Recent advances in Bose–Einstein condensation” Technical University of Munich, *Invited lectures*

TALKS

- 12/05-14/05/2025 Spring School and Workshop “Spectral Theory, Fourier Analysis and PDE”
Bizkaia Aretoa, Bilbao
- 31/03-02/04/2025 Workshop “Algebra meets probability”
EURANDOM, Eindhoven, *Invited talk*
- 03/10/2024 Analysis Seminar,
University of Pisa
- 09-13/09/2024 Workshop “Interacting particles in the continuum”
EURANDOM, Eindhoven, *Invited talk*
- 01-06/09/2024 Workshop “Quantum Optimal Transport and Applications”
Cortona, *Invited talk*
- 19-23/08/2024 Conference “Venice 2024 - Quantissima in the Serenissima V”
Venezia, *Invited participation to panel discussion and invited talk*
- 25-26/07/2024 Special Session “Functional Analytic Methods in Quantum Many-Body Theory”,
Joint Meeting AMS-UMI, University of Palermo, *Invited talk*
- 23-24/07/2024 Special Session “Mathematics for Quantum and Statistical Physics”,
Joint Meeting AMS-UMI, University of Palermo, *Invited talk*
- 30/11/2023 Analysis and PDE Seminar
Peking University, online
- 02/11/2023 Mathematical Physics seminar,
University of Rome La Sapienza
- 26/10/2023 Barcelona Analysis seminar,
Jointly organized between Autonomous University of Barcelona,
University of Barcelona, and Technical University of Catalonia
- 20/09/2023 Seminar Analysis and Mathematical Physics,
University of Basel
- 07/09/2023 XXII Congress of the Italian Mathematical Union,
University of Pisa and Scuola Normale Superiore, *Invited talk*
- 24/04/2023 Munich-Aarhus-Santiago Seminar in Mathematical Physics, online
- 09/03/2023 Seminar “Mathematics of Many-Body Systems”,
Scuola Internazionale Superiore di Studi Avanzati (SISSA)

- 11/01/2023 Workshop “Mathematical Quantum Matter”,
University of Milan, *Invited talk*
- 30/11/2022 “A Geometric Fairytale full of Spectral Gaps and Random Fruit”,
Mathematisches Forschungsinstitut Oberwolfach, *Invited talk*
- 22/08/2022 Conference Venice 2022 - Quantissima in the Serenissima IV
- 21/04/2022 Invited online lecture for PhD students and early career reseachers for the series
of lectures “Mathematical Challenges in Quantum Mechanics” (MCQM)
Online seminar jointly organized by Politecnico di Milano,
University of Insubria in Como, Gran Sasso Science Institute,
Sapienza University of Rome and Federico II University of Naples
- 13/04/2022 Condensed matter theory seminar, KTH Royal Institute of Technology (online)
- 30/03 - 01/04/2022 Session ”Mathematical perspectives in quantum mechanics
and quantum chemistry” at ”The 12th IMACS International Conference
on Nonlinear Evolution Equations and Wave Phenomena”
University of Georgia, Athens, USA, *Invitation declined*
- 03/09/2021 Minisymposium “Trends in nonlinear PDEs and applications” at “Biannual
Congress of the Italian Society of Applied and Industrial Mathematics” (SIMAI),
University of Parma, *Invited talk*
- 13/05/2021 Department seminar, Università degli studi di Milano, Italy
- 12/11/2019 Mathematical Physics seminar, Università di Roma Tre
- 09/09/2019 Many-Body Quantum Systems,
Mathematisches Forschungsinstitut Oberwolfach, *Invited talk*
- 15/08/2019 QMath14: Mathematical Results in Quantum Physics,
Aarhus University, *Invited talk*
- 19/03/2019 Many-body theory, effective equations & PDE’s,
Mittag-Leffler Institute, *Invited talk*
- 6/03/2019 GSSI PDEs group seminar, Gran Sasso Science Institute
- 27/09/2018 Trails in Quantum Mechanics and Surroundings 2018,
Politecnico di Torino, *Invited talk*
- 27/07/2018 XIX International Congress on Mathematical Physics (ICMP 2018),
Montréal, *Contributed talk*

- 23/11/2017 Math. Phys. Analysis Seminar, IST Austria
- 16/08/2017 Quantum Lunch, University of Copenhagen
- 23/01/2017 Analysis Seminar, Politecnico di Torino
- 29/11/2016 Workshop in Mathematical Physics,
ETH Zurich, *Invited talk*
- 16/03/2016 Quantum Lunch, University of Copenhagen
- 11/02/2016 Mathematical Challenges in Quantum Mechanics,
Bressanone, *Contributed talk*

POSTER SESSIONS, OUTREACH ACTIVITIES

- 21/02/2024 Presentation at Math PhD at UniMi, an event for potential PhD applicants
to the PhD program of University of Milan
- 30/11/2018 Introductory talk for undergraduate students at the Student Open Day,
IST Austria
- 2/06/2016 SwissMAP meeting,
ETH Zurich
- 4-05/07/2013 Bonn International Graduate Schools (BIGS) Poster Exhibition,
University of Bonn

WORKSHOPS BY INVITATION

- 11/2022 (1 week) Mathematisches Forschungsinstitut Oberwolfach,
Mini-Workshop: A Geometric Fairytale full of Spectral Gaps and Random Fruit
- 09/2019 (1 week) Mathematisches Forschungsinstitut Oberwolfach,
Many-Body Quantum Systems
- 03/2019 (3 weeks) The Royal Swedish Academy of Sciences, Institut Mittag-Leffler,
Methods in Mathematical Physics
- 09/2016 (1 week) Mathematisches Forschungsinstitut Oberwolfach,
Many-Body Quantum Systems and Effective Theories

TEACHING

At Università di Pisa:

Spring 2025 Mathematical Methods of Quantum Mechanics (PhD course)

Fall 2024 Elementi di Matematica e Statistica (Pharmacy Department)
Matematica (Engineering Department)

At the Department of Mathematics, Università degli Studi di Milano:

Fall 2023 Laboratorio di Sistemi Hamiltoniani 1
Exercise session of Fisica Matematica 2

Fall 2022 Laboratorio di Metodi e Modelli Matematici per le Applicazioni
Exercise session of Fisica Matematica 2

Fall 2021 Laboratorio di Metodi e Modelli Matematici per le Applicazioni
Exercise session of Fisica Matematica 2

Teaching assistant at the Department of Mathematics, University of Zurich:

Spring 2017 Stochastik für die Naturwissenschaften, Dr. Christoph Luchsinger

Fall 2016 Lineare Algebra für die Naturwissenschaften, Prof. Viktor Schroeder

Spring 2016 Analysis II, Prof. Benjamin Schlein

Fall 2015 Analysis I, Prof. Benjamin Schlein

Spring 2015 Mathematik für die Chemie II, Prof. Thomas Kappeler

Fall 2014 Analysis III, Prof. Benjamin Schlein

Spring 2014 Analysis II, Prof. Camillo De Lellis

STUDENTS

05/2024 Co-supervision (together with Prof. Niels Benedikter) of the master thesis
of Xiangyuan Li from University of Zurich

10/2023-01/2024 Co-supervision (together with Prof. Niels Benedikter) of the semester project
of the Master's student Xiangyuan Li from University of Zurich

REVIEWING ACTIVITY

Referee for Annales Henri Poincaré, Journal of Mathematical Physics,
Journal of Statistical Physics, Springer Proceedings Series

ORGANIZATION OF SEMINARS AND WORKSHOPS

- 26 - 30/08/2024 Coorganization of the summer school “*Rigorous Renormalization Group Analysis of Collective Phenomena in Fermionic Quantum Systems*” at Lake Como School of Advanced Studies, together with Prof. Niels Benedikter and Dr. Marco Falconi
- 19 - 22/12/2023 Coorganization of the workshop “Quantum and Dynamical Christmas”, University of Milan
- 09/2021-04/2024 Coorganization of the seminars “Itinerant Quantum Math Meetings”, joint with Politecnico di Milano and Università degli Studi dell’Insubria
- 20 - 22/12/2021 Coorganization of the workshop “Quantum Before Christmas” University of Milan

OTHER ACTIVITIES

- since 11/2022 Organizer of the “Diversity reading group”, a monthly reading seminar on scientific literature about the gender gap and participation of minorities in academia and the job market
- 14/2022 Co-author of the article “*Voices of women in mathematical physics. A series of five interviews.*”. Published in the IAMP News Bulletin, April 2022
http://www.iamp.org/page.php?page=page_bulletin

Pisa, 31/08/2024