VALTER MORETTI

FULL PROFESSOR IN MATHEMATICAL PHYSICS AT TRENTO UNIVERSITY

📋 PRESENT ROLES

O JAN 2015 - PRESENT	FULL PROFESSOR OF MATHEMATICAL PHYSICS AT THE DEPARTMENT OF MATHEMATICS University of Trento
O JAN 2015 - PRESENT	HEAD OF THE DEPARTMENTAL RESEARCH GROUP OF MATHEMATICAL PHYSICS AND ANALYTICAL AND GEOMETRICAL METHODS IN PHYSICS
O JAN 2010 - PRESENT	RESEARCH ASSOCIATE (INCARICATO DI RICERCA) AND HEAD OF THE LOCAL RESEARCH GROUP ON MATHEMATICAL METHODS FOR PHYSICS BELL Trento institute for Fundamental Physics and Applications (TIFPA)

EDUCATION AND CAREER

0 2013 -	NATIONAL QUALIFICATION OF FULL PROFESSOR OF MATHEMATICAL PHYSICS
0 2005 -	ASSOCIATE PROFESSOR OF MATHEMATICAL PHYSICS University of Trento
0 2000 -	ASSISTANT PROFESSOR OF MATHEMATICAL PHYSICS University of Trento
0 2000 -	RESEARCH FELLOW IN DIFFERENTIAL GEOMETRY Department of Mathematics, Trento University
0 1999 -	GRANT BY THE NATIONAL PROJECT "YOUNG Researchers" Mur
0 1998 -	POST DOC FELLOW IN DIFFERENTIAL GEOMETRY Department of Mathematics, University of Trento
0 1997 -	RESEARCH FELLOW IN THEORETICAL PHYSICS ECT*(European Centre for Theoretical Studies in Nuclear Physics and Related Areas)
0 1994 - 1996	PH.D. GRADUATION IN THEORETICAL PHYSICS University of Trento
0 1993 -	GRADUATION IN PHYSICS University of Genova Summa cum Laude

PAST ROLES

November 2015 to November 2018 Head of the Doctoral School in

- Mathematics of the University of Trento · Since November 2018 Member of Executive committee of the doctoral school in
- Mathematics of the University of Trento
- November 2018 to October 2021 Member of Department's Council November 2021 to October 2024 Head of the Doctoral School in Mathematics
- of the University of Trento
- · December 2021 to September 2024 member of the management board of QuantumTN representative of the Department of Mathematics

EXPERTISE AND RESEARCH INTERESTS

- Operator Algebras, Functional Analysis, Spectral Theory, Geometric Analysis and their applications to Quantum, Relativistic, and Quantum
- **Relativistic Theories**
- Mathematical and Conceptual Foundations of Quantum Theories including Quantum Information and Quantum Measurement
- Algebraic Quantum Field Theory also in Curved Spacetime

Mathematical Methods for Physics

PATENTS

DEVICE FOR THE GENERATION OF SINGLE PHOTON ENTANGLED STATES (granted 2022)

n. 10202000005521. Inventors S. Mazzucchi, V. Moretti, M.Pasini, D. Pastorello, L. Pavesi, Patent

Owner Università degli Studi di Trento US Patent App. 17/911,694

PH.D. THESIS SUPERVISION

- 1. 2000-2003 (unofficial) Supervisor of a PhD thesis in Mathematical Physics (Physics) about topics in quantum field theories in curved spacetime (student: N.Pinamonti)
- 2. 2006 2009 Supervisor of a PhD thesis in Mathematical Physics (Mathematics) about topics in quantum field theories in curved spacetime (student: L. Franceschini)
- 3. 2012 2015 Supervisor of a PhD thesis in Mathematical Physics (Mathematics) about topics in quantum field theories in curved spacetime (student: D. Pastorello)
- 4. 2014 2017 Supervisor of a PhD thesis in Mathematical Physics (Mathematics) about topics in mathematical foundations of quantum mechanics (student: M.
- (oigg0 5. 2014 - 2017 Supervisor of a PhD thesis in Mathematical Physics (Physics) about
- topics in quantum field theories in curved spacetime (student: A. Melati) 6. 2018 - 2021 supervisor of a PhD thesis in Mathematical Physics (Mathematics)
- about quantization maps (student: C. van de Ven, H2020-MSCA-COFUND-2015) 7. 2019 - 2022 Supervisor of a PhD thesis in Mathematical Physics (Mathematics)
- about topics in QFT in curved spacetime (student: D. Volpe)
- 8. 2023-2026 Supervisor of a PhD thesis in Mathematical Physics (Mathematics) about topics in QT/QFT (student C. De Rosa)
- 9. 2023-2026 co-Supervisor of a PhD thesis in Mathematical Physics (Mathematics) about topics in QT (student L. Pettinari)

POST-DOCTORAL RESEARCH TUTORING

- 1. 2003 Tutor of a research contract (Dr. N. Pinamonti), Dipartimento di
- Matematica Universita' di Trento. 2. 2004-2006 Tutor of a three-year post doc fellowship (Dr. N. Pinamonti) funded by Provincia Autonoma di Trento and INdAM (Italian National Institute for High Mathematics). The project involves the university of York (UK) and the University of Hamburg.
- 3. 2005-2006 Tutor of a post doc fellowship (assegno di ricerca for Dr D. Fioravanti) funded by PRIN 2004 "Classical, quantum, stochastic systems with an infinite number of degrees of freedom", local interdepartmental research aroup of Trento.
- 4. 2007-2008 Tutor of a post doc fellowship (Dr. C. Dappiaggi) funded by INdAM (Italian National Institute for Higher Mathematics)
- 5. 2013-2015 Tutor, with R. Brunetti, of a post doc fellow (Assegno di Ricerca: Dr I. Khavkine) funded by PRIN 2012
 - 6. 2014-2016 Tutor of a post doc fellow on Quantum Mechanics, Quantum

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- 🕀 Italian
- Department of Mathematics,
- University of Trento, via Sommarive 14, I-38123, Povo (Trento)

H INDICES

21 web of science 29 google scholar

LANGUAGES

Italian Native Enalish Advanced French

Elementary

- Information and Quantum Cryptography (Dr. D. Pastorello)
- 7. 2017-2019 Tutor of a post doc fellow on Quantum Mechanics and Quantum Information (Dr. D. Pastorello) funded by Fondazione Caritro.
- 8. 2018-2019 Tutor of a post doc fellow on Quantum Field Theory (Dr. N.Drago). 9. 2019-2020 Tutor of a post doc fellow on Quantum Field Theory (Dr. S.Murro).
- PARTICIPATION IN / COORDINATION OF NATIONALLY AND **INTERNATIONALLY FUNDED RESEARCH PROJECTS AND** NETWORKS
- 2008-2009 Trento local scientific coordinator of the National Project (PRIN 2007) Operator Algebras and Applications (Nationally directed by R. Longo) • 2012-2015 Trento local scientific coordinator of the National Project PRIN Operator Algebras, Non commutative Geometry and Quantum Field Theory
- (Nationally directed by R. Longo) 2015-2018 Trento Coordinator of INdAM Doctoral Program in Mathematics and/or Applications (H2020MSCA-COFUND-2015)
- · from 2016 Head of the local research group on Mathematical Methods for Physics of BELL at TIFPA funded by the INFN (Italian National Institute for
- Nuclear Physics) 2018-2021 Supervisor of a PhD student funded by H2020-MSCA-COFUND-2015
- 2018-2020 Participant in the QRANGE (Quantum Random Number Generators:
- cheaper, faster and more secure) H2020-FETFLAG-2018-2020 2019-2021 India-Trento Program of Advanced Research ITPAR phase IV project

ORGANIZATION OF INTERNATIONAL SCIENTIFIC **ACTIVITIES AND EVENTS**

- 1. 2006 Organizer of the International Graduate school Topics in Operator Algebras and Non-commutative Geometry March 2006, Department of Mathematics Trento
- 2. 2006 Italian Research Ministry approved and funded Brunetti's and my scientific project concerning a three-year position (equivalent to an associate professor position) in my department for Dr. Romeo Brunetti (Hamburg University) within the national project "Rientro dei Cervelli".
- 3. 2008 International doctorate course on quantum field theory in curved spacetime, Lecturer: prof S. Hollands (Cardiff University)
- 4. 2009 Proposal to CIRM for a visiting professor position for Prof. C.J. Fewster (York University) - Founded - The project was partially supported by PRIN 2007 Algebre di Operatori ed Applicazioni.
- 5. 2014 International Conference "Operator and geometric analysis on quantum theory" Levico Terme 15-19 September 2014, Organizers S.Alberverio, R.Longo, V.Moretti, M.Spreafico
- 6. 2017 International Workshop Quantum Physics and Geometry Levico Terme July
- 2017 Organizers E. Ballico, A. Bernardi, I. Carusotto, S. Mazzucchi, V.Moretti 7. 2023 July Organizer, together with C. Agostinelli G. Leonardi S. Mazzucchi, of a Graduate School in Quantum Machine Learning financially supported by Unitn-Math Dept, QuantumTN, TIFPA-INFN
- 8. 2024 September 12: THE NOVEL PUZZLES OF QUANTUM MECHANICS. On the occasion of the 60th anniversary of Bell's theorem, the Departments of Humanities, Mathematics and Physics of Trento University. It includes a public lecture by the Nobel prize laureate Alain Aspect. Organizers F. Laudisa, V. Moretti, S. Stringari
- 9. 2025 Tropea (Italy), member of the scientific panel of the international conference of the International Quantum Structures Association (IQSA) 10. 2025 One of the organizers of the international school "three days between

PARTICIPATION IN SCIENTIFIC AND SELECTION PANELS, LOCAL, NATIONAL, AND INTERNATIONAL

- 1. Member and secretary of the examiner panel for the admission to the Doctoral
- School in Mathematics of Trento University, 2001.

Analysis and Geometry", Unitn September 2025

- 2. Member and secretary of the Panel for the assignation of PhD degree in Mathematics of the University of Bologna, 2005.
- 3. Invited referee for the assessment of scientific activities of a Junior Professor of the University of Göttingen, 2007.
- 4. Invited external examiner for the PhD graduation exam, Dept. of Mathematics, University of York, UK, 2008. 5. Referee for the assessment of national Italian research projects, 2008.
- 6. Member of the examiner panel for the admission to the Doctoral School in Mathematics of Trento University, 2008.
- 7. Invited external referee of a PhD thesis (together with K. Fredenhagen and R.M. Wald), II Institute of Theoretical Physics, University of Hamburg, DE, 2010. 8. Referee for the assessment of national Italian research projects, 2011.
- 9. Invited Referee for the assessment of national research projects of Romania,
- 10. Invited external examiner for the PhD graduation exam, Dept. of Mathematics, University of York, UK, 2014 (declined)
- 11. Invited external referee of a PhD thesis University of Genova, 2015.
- 12. Invited external referee of a PhD thesis University of Pavia, 2015. 13. Member of the selection panel for a researcher position at the University of Genova, 2015.
- 14. Invited external referee of a PhD thesis in Mathematics University of Milano, 2016.
- 15. Member of the selection panel for a Researcher (type A) at the University of
- Genova. Department of Mathematics, 2015 16. Member of the selection panel for a Post Doc Fellow (Assegno di Ricerca) at the
- University of Milano, Department of Mathematics, 2016 17. Member of the selection panel for a Full Professor at the University of Genova.
- Department of Mathematics, 2017 18. Member of the selection panel for a Associate Professor at the University of
- Roma Tor Vergata. Department of Mathematics, 2017 19. Member of the selection panel for a Researcher (type A) at the University of Verona, Department of Mathematics, 2018
- 20. Member of the selection panel for a Researcher (type B) at the University of Genova. Department of Mathematics, 2018
- 21. President of the examiner panel for the admission to the Doctoral School in Mathematics of Trento University (special selection funded by the National Project "Dipartimenti di Eccellenza"), 2018.
- 22. President of the selection panel for a Researcher (type A) at the University of Genova. Department of Mathematics, 2019
- 23. Member of a Deutsche Forschungsgemeinschaf (German Research Foundation) panel for establishment of Research Training Groups. 2019 24. Reviewer for workshop proposals at the Erwin Schrödinger Institute Vienna
- (ESI). 2019 25. Reviewer for national research projects for Austrian Science Fund (FWF). 2019 26. President of the selection panel for a Researcher (type B) at the University of
- Bergamo. Department of Mathematics, 2020 27. Member of the selection panel for a Researcher (type B) at the University of
- Genova. Department of Mathematics, 2020 28. Member of the Program Committee of the international conference One-
- parameter Semigroups of Operators (OPSO) 2021
- 29. Invited external examiner for the PhD graduation, University of Milano 2021 30. Invited external examiner for the PhD graduation, University of Genova 2022
- 31. Member of the selection panel for a Researcher (type B) at the Politecnico di Milano. Department of Mathematics, 2022
- 32. President of the selection panel for a Post doc position at the University of Trento. Department of Mathematics, 2022
- 33. Invited external examiner for the PhD graduation exam, Dept. of Mathematics, University of York, UK, 2023.
- 34. Invited Examiner by DFG for establishment of Research Training Groups. 2023 (declined) 35. Invited referee for SNS (Scuola Normale Superiore) of Pisa to select full
- professor candidates 2024
- 36. President of the selection panel for a Researcher (RTT) at the University of Genova. Department of Mathematics, 2024

INVITED TALK, LECTURES, AND INVITATIONS TO SCIENTIFIC MEETINGS FROM 2001 ON

- 1. Invitation at the international symposium "Geometrical and Algebraic Aspects of Quantum Physics", on the occasion of R. Haag 80th birthday, Munchen, October 2002
- 2. Invitation at the international symposium "Perspectives in Quantum Field
- Theory" on the occasion of D. Buchholz' 60th birthday, Goettingen, June 2004. 3. Invited plenary seminar at the Assemblea Scientifica Nazionale del INdAM-
- Gruppo Nazionale per la Fisica Matematica, Montecatini Terme, 28 October 2004 4. Invited talk at the national meeting "Problemi Attuali di Fisica Teorica" March 2005, IIASS "E.R.Caianiello" - Vietri sul Mare (Italy), on "Recent risultati in teoria dei campi quantistici su orizzonti di Killing"
- 5. Invited plenary talk at the XVII SIGRAV Italian National Conference on General Relativity and Gravitation, Torino, September 4-7, 2006
- 6. Colloquium held at the University of Hamburg, on the occasion of Klaus Fredenhagen's sixtieth birthday. 7 December 2007
- 7. Invited lecturer at the PhD course in Physics of Florence University 2007 8. Invited plenary talk at the International Workshop "The Manifold Geometries of Quantum Field Theory", Haussdorff Center of Mathematics - Max Planck Institute for Mathematics, Bonn, June 30th - July 4, 2008 (organizers: Sergio
- Albeverio, Hanno Gottschalk, Matilde Marcolli) 9. Invitation at the ESI Program "Operator Algebras and Conformal Field Theory"
- (organized by Y. Kawahigashi, R. Longo, K.-H. Rehren and J. Yngvason), E. Schroedinger Institute, Vienna, August-December 2008. 10. Invitation at the Workshop "Quantum Spacetime and Noncommutative
- Geometry" Rome "La Sapienza", September 29 October 4, 2008 11. Invited plenary talk at the International conference "Algebraic Quantum Field Theory - the first 50 years" July 29-31, 2009, Courant Research Center, University of Goettingen, Satellite conference to the International Conference
- on Mathematical Physics, 12. Invitation at the ESI Program "Quantum field theory on curved space-times and curved target-spaces" (organized by M. Gaberdiel, S. Hollands, V. Schomerus), E.
- Schroedinger Institute, Vienna, March April 2010. 13. Invited plenary talk at the NITHeP International Workshop "Quantum Field Theory on Curved Spacetime - From the Algebraic Approach to Local
- Covariance" Durban, South Africa, August 23 27, 2010 14. Invited plenary talk at the International Workshop "Foundational Aspects of
- Cosmology" 16 -18 February 2011, II Institut für Theoretische Physik, Hamburg. 15. Invited plenary talk at the International Workshop "Modern Trends in Algebraic Quantum Field Theory", 14-16 September 2011, University of Pavia (fostered by the DAAD under the program "Dialoghi Italo Tedeschi")
- 16. Invited plenary talk at the Bayrischzell Workshop 2012 Noncommutativity and Physics: General Relativity and Quantum Geometry Bayrischzell, Germany, May 25-28 2012 17. Invited talk at the XX SIGRAV Italian National Conference on General Relativity
- and Gravitation, Napoli, October 22-26, 2012
- 18. Invited plenary talk for the Mathematical Physics section at the DPG-Frühjahrstagung JENA 13, Jena, 25 February - 1 March 2013
- 19. Invitation at the workshop "New Crossroad between Mathematics and Field Theory", Oberwolfach (Germany) 21 to the 27 July 2013
- 20. Invited plenary speaker Summer School 2014 16/06/2014-04/07/2014 -Institut Fourier Grenoble, Asymptotic Analysis in General Relativity 21. Official invitation at the Erwin Schroedinger Institute (ESI) in Vienna from the 19th to the 23rd of May 2014 on occasion of the scientific meeting: "Algebraic Quantum Field Theory: Its status and its future"
- 22. Invited plenary speaker at the XXIII International Fall Workshop on Geometry and Physics, Granada 2014 23. Official invitation at the ESI Program "Modern Theory of Wave Equations"
- (organized by C.Guillarmou (ENS Paris), W. Müller (U Bonn), A.Strohmaier (Loughborough U), A.Vasy (Stanford U)), E. Schroedinger Institute, Vienna, July-September 2015.
- 24. Invited talk at the SISSA, February 2015. 25. Invited talk at the Fourteenth Marcel Grossmann Meeting - MG14 section QFT in
- curved spacetime, University of Rome "La Sapienza" Rome, July 12-18, 2015 26. Invited Lecturer (International PhD school associated to the workshop) at the
- XXIV International Fall Workshop on Geometry and Physics, Saragoza 2015 27. Invitation to the INFN workshop Fundamental problems of quantum physics, Milano 16 June 2017
- 28. Invitation to the International Meeting "Non regular spacetime geometry", Florence 19-22 June 2017 (organized by P.T. Chruściel, J.Grant, M. Kunzinger, E. Minguzzi)
- 29. Invited talk at the international conference "Quantum fields, scattering and spacetime horizons: mathematical challenges" Ecole de Physique des Houches, 22-25 May 2018.
- 30. Invitation to the international conference "AQFT: Where operator algebra meets microlocal analysis" 4th to the 8th of June 2018 at the Palazzone, a stately home (managed by the Scuola Normale Superiore) located in Cortona (Tuscany, Italy).
- 31. Invited plenary talk at Trails in Quantum Mechanics and Surroundings -September 27-29, 2018 (Progetto di Eccellenza del Dipartimento di Scienze Matematiche "G. L. Lagrange")
- 32. Invited speaker at the Workshop Ipercomplesso TN018 Trento University, September 2018
- 33. Invited discussant at the conference Progress and Visions in Quantum Theory in View of Gravity, Leipzig, Max Planck Institute for Mathematics in the Sciences, October 01-05, 2018 34. Invited talk at the University of Leipzig (Institute of Theoretical Physics) 24 June
- 2019
- 35. Invited talk at the Higher School of Economics Department of Pure Mathematics - Nizhny Novgorod, Russia 17 October 2019
- 36. Invited talk at the Faculty of Mathematics and Mechanics Moscow State University, Russia, 21 October 2019
- 37. Invited talk at Operator algebras in quantum field theory and quantum probability December 4-7, 2019, Department of Mathematics, University of Rome
- Tor Vergata 38. Invited talk at the University of Regensburg - Mathematics, 16 January 2020 39. 2020 Invited lecturer at IUSS (Scuola Universitaria Superiore Pavia) "Corso Ordinario per classe di Scienze e Tecnologia, V anno". One semester course on
- Quantum Measurement Theory. 40. Invited talk at the University of Hagen - Mathematics, 12 January 2021 41. Invited talk at the international conference One-parameter Semigroups of
- Operators (OPSO) 2021 42. Invited talk at the Third Italian Meeting on Probability and Mathematical Statistics Bologna June 13-16 2022
- 43. Invited Participant in the ESI Workshop on "Non-regular Spacetime Geometry" (CKM23), Erwin Schrödinger International Institute for Mathematics and Physics (ESI) March 2023
- 44. Invited plenary talk at the international conference Quantum Effects in Gravitational Fields, Leipzig University August-September 2023
- 45. Invited talk at the university of Erlangen, March 2023 46. Invited talk at the SISSA March 2024
- 47. Invited talk at the university of Pavia (PhD course in Physics) June 2024
- 48. Invited lecturer at the SIGRAV (Società Italiana di Relatività Generale e Fisica della Gravitazione) school, 2025 Vietri sul Mare January 2025

LECTURING

2000 - Present

Lecturer of the following courses for undergraduate and graduate students in Mathematics and Physics:

- Analytical Mechanics
- Continuum Mechanics Introduction to PDEs for Mathematical Physics
- Geometrical Methods in Mathematical Physics
- Mathematical Physics of Quantum-Relativistic Theories

Lecturer of various courses for PhD students in Mathematics on: General **Relativity, Applications of Functional Analysis to Quantum Theories**

2007: Lecturer "A short introductory course on QFT in curved spacetime" (PhD Physics), Florence University

2020-2021: one-semester Lecturer "Advanced course on mathematical foundations of Quantum Theories", IUSS (University School for advanced Studies -Pavia)

2021-2022: Lecturer "short course on BELL inequality, international undergraduate spring school", organized by the QTN laboratory

2025 January: Invited lecturer at the SIGRAV (Società Italiana di Relatività Generale e Fisica dellaGravitazione) international school 2025, Vietri sul Mare

BSC/MSC THESIS SUPERVISION

Supervisor of more than 60 undergraduate and graduate theses in Mathematics

EDITORIAL ACTIVITIES

and in Physics

· Member of the editorial board of International Journal of Geometric Methods in

- Modern Physics until January 2025
- Member of the editorial board of Note di Matematica until January 2025 Associate Editor of Frontiers in Mathematical Physics until November 2015

PEER REVIEWING ACTIVITY

- · Reviewer for Mathematical Reviews (by the American Mathematical Society) up
- to 2009: · Reviewer for Zentralblat MATH (by the European Mathematical Society and
- Springer) up to 2009;
- Book Referee for the Cambridge University Press
- Referee of Proceedings of AMS
- · Referee of Communications in Mathematical Physics (by Springer-Verlag, DE), Referee of Annales H. Poincaré (by Springer-Verlag, DE).
- · Referee of Reviews in Mathematical Physics (by World Scientific Publishing),
- Referee of Letters in Mathematical Physics (by Springer-Verlag, DE);
- Referee of Analysis and PDE (by Mathematical Sciences Publishing, USA);
- Referee of Journal of Mathematical Physics (by American Institute of Physics), · Referee of Journal of Physics A: Mathematical and Theoretical (by the Institute
- of Physics Publishing, UK) · Referee of Classical and Quantum Gravity (by the Institute of Physics
- Publishing, UK);
- Referee of Acta Physica Slovaca (by Institute of Physics, SAS, Slovakia) Referee of Central European Journal of Physics (by Central European Science
- Publisher and SpringerVerlag)
- · Referee of Annals of Physics (by Academic Press, USA); · Referee of Annalen der Physik (by Weley, USA);
- Referee of Entropy (by MDPI Publishing, Switzerland);
- · Referee of European Physical Journal Plus(by Springer-Verlag, DE);
- · Referee of Foundations of Physics (by Springer Netherlands); Referee of General Relativity and Gravitation (by Springer-Verlag, DE);
- Referee of International Journal of Mathematics and Mathematical Sciences (by
- Hindawi Publishing Corporation); · Referee of International Journal of Modern Physics A (by World Scientific
- Publishing);
- Referee of Journal of Geometry and Physics (by Elsevier Amsterdam),
- Referee of Mathematische Annalen (by Springer-Verlag, DE), • Referee of Nuclear Physics B (by Elsevier Amsterdam);
- · Referee of Nuovo Cimento B: General Physics, relativity, astronomy,
- mathematical physics and methods (by Italian Physical Society)
- Referee of Physica Acta (by The Royal Swedish Academy of Sciences); · Referee of Physical Review D (by the American Physical Society, USA);
- Referee of Physical Review Letters (by the American Physical Society Publishing, USA);
- · Referee of Proceedings of the Royal Society A (by the Royal Society, UK);
- Referee of Rocky Mountain Journal of Mathematics (USA); · Referee of Symmetry, Integrability and Geometry: Methods and Applications (by
- The European Mathematical Information Service),

MEMBERSHIPS

- · Research Associate (Incarico di Ricerca) of the INFN (Istituto Nazionale di Fisica
- Nucleare)
- Member of the international network Local Quantum Physics Crossroads Member of the International Association of Mathematical Physics
- Member of the SIGRAV (Italian Society of General Relativity and Gravitation)
- · Member of the GNFM (Mathematical Physics National Group), of the National Institute for Higher Mathematics "Francesco Severi".
- Member of the International Society for Relativistic Quantum Information
- Member of the International Quantum Structures Association

PUBLIC ENGAGEMENT

- Teatro della Meraviglia 2022: ideazione e recitazione nella piece teatrale "La fisica e i mondi matematici possibili", con il regista attore Andrea Brunello,
- Ottobre 2022 2023 #sdrlive Trento Edition youtube "Nobel per la fisica 2022 raccontato da
- Valter Moretti" · 2023 Narratore scientifico all'open mike 2023 presso il Teatro Portland di Trento,
- Marzo 2023 · 2023 Replica di "La fisica e i mondi matematici possibili", con il regista attore
- Andrea Brunello, presso il Teatro Portland di Trento, Aprile 2023 · 2023 Podcast "Ci sono cose che non capiamo" con Andrea Brunello in Riflessi di
- Scienza uniTN (https://www.unitn.it/riflessi-di-scienza), Aprile 2023 2023 Replica di "La fisica e i mondi matematici possibili", con il regista attore
- Andrea Brunello, per il centenario della fondazione del Liceo Scientifico G. Galilei di Trento, Ottobre 2023 2023-2024 interviste varie sul canale youtube di Michele Totta - SENZA LOGICA MAL SI COGITA!

MOST RELEVANT PUBLICATIONS (ACCORDING TO

CITATION RECORDS)

Presently (April 2025) I am author/cohautor of 10 Books and 76 research papers. According to citation data (google scholar), the most relevant ones are listed below.

BOOKS

- V Moretti: Spectral theory and quantum mechanics: Mathematical Structure of Quantum Theories, Symmetries and introduction to the Algebraic Formulation (Editions 2013 and 2017) UNITEXT, Springer International Publishing AG 2017 V Moretti: Fundamental mathematical structures of quantum theory, Springer
- International Publishing, 2019

PAPERS

- R Ghiloni, V Moretti, A Perotti: Continuous slice functional calculus in quaternionic Hilbert spaces, Reviews in Mathematical Physics 25 (04), 1350006 2013
- · V Moretti: Comments on the stress-energy tensor operator in curved spacetime, Communications in Mathematical Physics 232, 189-221 2003
- I Khavkine, V Moretti: Algebraic QFT in curved spacetime and quasifree Hadamard states: an introduction, Advances in algebraic quantum field theory, 191-251 2015 Chapter 5 of Analytic aspects of quantum fields, Springer 2015 • D Klemm, V Moretti, L Vanzo: Rotating topological black holes, Physical Review D 57 (10), 6127 1998
- · C Dappiaggi, V Moretti, N Pinamonti: Rigorous steps towards holography in asymptotically flat spacetimes, Reviews in Mathematical Physics 18 (04), 349-415 2006
- C Dappiaggi, V Moretti, N Pinamonti: Rigorous construction and Hadamard property of the Unruh state in Schwarzschild spacetime, Advances in
- Theoretical and Mathematical Physics 15 (2), 355-447 2011 · C Dappiaggi, V Moretti, N Pinamonti: Distinguished quantum states in a class of cosmological spacetimes and their Hadamard property, Journal of Mathematical Physics 50 (6) 2009
- TP Hack, V Moretti: On the stress-energy tensor of quantum fields in curved spacetimes comparison of different regularization schemes and symmetry of the Hadamard/Seeley-DeWitt coefficients, Journal of Physics A:
- Mathematical and Theoretical 45 (37), 3740192012. 2012 V Moretti: Quantum out-states holographically induced by asymptotic flatness: invariance under spacetime symmetries, energy positivity and Hadamard
- property, Communications in mathematical physics 279, 31-75 2008 · C. Dappiaggi, V. Moretti, N. Pinamonti: Cosmological horizons and reconstruction of quantum field theories, Communications in Mathematical Physics 285 (3), 1129-1163.2009
- V. Moretti: Direct ζ -function approach and renormalization of one-loop stress tensors in curved spacetimes, Physical Review D 56 (12), 7797, 1997
- V Moretti: Uniqueness theorem for BMS-invariant states of scalar QFT on the null boundary of asymptotically flat spacetimes and bulk-boundary observable algebra correspondence, Communications in mathematical physics 268 (3), 727-756 2006
- V Moretti: Local ζ-function techniques vs. point-splitting procedure: a few rigorous results, Communications in mathematical physics 201, 327-363 1999
- · V Moretti: One-loop stress-tensor renormalization in curved background: the relation between ζ-function and point-splitting approaches, and an improved point-splitting procedure, Journal of Mathematical Physics 40 (8), 3843-3875 1999
- · R Ghiloni, V Moretti, A Perotti: Spectral properties of compact normal quaternionic operators, Hypercomplex analysis: new perspectives and applications, 133-143 2014
- V Moretti: Proof of the Symmetry of the Off-Diagonal Hadamard/SeeleydeWitt's Coefficients in C Lorentzian Manifolds by a "Local Wick Rotation",
- Communications in Mathematical Physics 212, 165-189 2000 V Moretti: Aspects of noncommutative Lorentzian geometry for globally hyperbolic spacetimes, Reviews in Mathematical Physics 15 (10), 1171-1217 2003
- S Azzini, S Mazzucchi, V Moretti, D Pastorello, L Pavesi: Single-Particle
- Entanglement, Advanced Quantum Technologies 3 (10), 2000014 2020 • V Moretti, N Pinamonti: State independence for tunnelling processes through
- black hole horizons and Hawking radiation, Communications in Mathematical Physics 309, 295-311 2012 · V Moretti, M Oppio: Quantum theory in real Hilbert space: How the complex
- Hilbert space structure emerges from Poincaré symmetry, Reviews in Mathematical Physics 29 (06), 1750021 2017
- I Khavkine, V Moretti: Analytic dependence is an unnecessary requirement in renormalization of locally covariant QFT, Communications in Mathematical Physics 344 (2), 581-620 2016
- V Moretti: Proof of the Symmetry of the Off-Diagonal Heat-Kernel and Hadamard's Expansion Coefficients in General C Riemannian Manifolds,
- Communications in Mathematical Physics 208, 283-308 1999 · V Moretti: On the global Hadamard parametrix in QFT and the signed squared geodesic distance defined in domains larger than convex normal
- neighbourhoods, Letters in Mathematical Physics 111 (5), 130 2021
- R Ghiloni, V Moretti, A Perotti: Spectral representations of normal operators in quaternionic Hilbert spaces via intertwining quaternionic PVMs, Reviews in Mathematical Physics 29 (10), 1750034 2017