

Curriculum Vite

INFORMAZIONI PERSONALI

nome e cognome: **Valter Moretti**

anno di nascita: **1964**

indirizzo istituzionale posta elettronica: valter.moretti@unitn.it

incarico attuale: **Professore ordinario di Fisica Matematica presso il dipartimento di Matematica dell'Università di Trento**

ISTRUZIONE E FORMAZIONE

1993: **Laurea in Fisica presso l'università di Genova con votazione 110/110 e lode**

1996: **Dottorato in Fisica Teorica presso l'università di Trento (Dipartimento di Fisica)**

1997 **Research fellow in Theoretical Physics at the ECT*(European Centre for Theoretical Studies in Nuclear Physics and Related Areas)**

1998: **Post Doctoral fellow in Differential Geometry at the Department of Mathematics of Trento University**

1999: **Grant by the national project "Young Researchers" to be spent at the Department of Mathematics of the University of York (UK).**

2000: **Research fellow ("Assegno di ricerca") in Differential Geometry at the Department of Mathematics of Trento University**

ESPERIENZA LAVORATIVA

2000-2005: **Assistant Professor of Mathematical Physics at the Faculty of Science (Department of Mathematics) of the University of Trento.**

2005-2015: **Associate Professor of Mathematical Physics (Department of Mathematics) of the University of Trento.**

2015-today: **Full Professor of Mathematical Physics (Department of Mathematics) of the University of Trento.**

PRINCIPALI MANSIONI E RESPONSABILITA'

attuale: Attività didattica nei corsi triennali magistrali e dottorati di ricerca in Matematica e Fisica presso l'università di Trento

attuale: Capo del Gruppo di Ricerca dipartimentale of Mathematical Physics and Analytical and Geometrical Methods in Physics

attuale: Capo del gruppo di Ricerca Interdipartimentale BELL e presso il centro di Ricerca TIFPA dell'INFN

2015-2018: Coordinatore della Scuola di Dottorato in Matematica presso l'università di Trento

MADRELINGUA: ITALIANO

ALTRE LINGUE: INGLESE (Livello accademico Standard), FRANCESE (Scolastico)

TEMI DI RICERCA: Mathematical Foundations of Quantum Theories and Quantum Field Theory in Curved Spacetime, Applications of Operator Algebras, Functional Analysis and Global Analysis to Quantum Theories, Mathematical Methods for Physics.

ALTRE INFORMAZIONI

Partecipazione o Coordinazione di Ricerca Finanziati a livello nazionale o internazionale

2008-2009: Trento local scientific coordinator of the National Project (PRIN 2007) Operator Algebras and Applications

2012-2015: Trento local scientific coordinator of the National Project PRIN Operator Algebras, Non commutative Geometry and Quantum Field Theory

2015-2018: Trento Coordinator of INdAM Doctoral Programme in Mathematics and/or Applications (H2020-MSCA-COFUND-2015)

dal 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-

2018-2021: Participant in the QRANGE (Quantum Random Number Generators: cheaper, faster and more secure) H2020-FETFLAG-2018-2020

Partecipazione in comitati di selezione e valutazione scientifica italiani ed esteri

2001: Member and secretary of the examiner panel for the admission to the Doctoral School in Mathematics of Trento University

2005: Member and secretary of the Panel for the assignation of PhD degree in Mathematics of the University of Bologna

2007: Invited referee for the assessment of scientific activities of a Junior Professor of the University of Goettingen

2008: Invited external examiner for the PhD graduation exam Dept. of Mathematics, University of York, UK

2008: Referee for the assessment of national Italian research projects

2008: Member of the examiner panel for the admission to the Doctoral School in Mathematics of Trento University,

2010: Invited external referee of a PhD thesis, University of Hamburg, DE

2011: Referee for the assessment of national Italian research projects, 2011.

2011: Invited Referee for the assessment of national research projects of Romania

2014: Invited external examiner for the PhD graduation exam, Dept. of Mathematics, University of York, UK, 2014

2015: Invited external referee of a PhD thesis University of Genova

2015: Invited external referee of a PhD thesis University of Pavia

2015: Member of the selection panel for a researcher position at the University of Genova

2016: Invited external referee of a PhD thesis in Mathematics University of Milano

2015: Member of the selection panel for a Researcher (type A) at the University of Genova. Department of Mathematics

2016: Member of the selection panel for a Post Doctoral Fellow (Assegno di Ricerca) at the University of Milano. Department of Mathematics

2017: Member of the selection panel for a Full Professor at the University of Genova. Department of Mathematics

2017: Member of the selection panel for a Associate Professor at the University of Roma Tor Vergata. Department of Mathematics,

2018: Member of the selection panel for a Researcher (type A) at the University of Verona. Department of Mathematics

2018: Member of the selection panel for a Researcher (type B) at the University of Genova. Department of Mathematics,

2018: 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"),

2019 President of the selection panel for a Researcher (type A) at the University of Genova. Department of Mathematics,

2019: Member of a Deutsche Forschungsgemeinschaft (German Research Foundation) panel for establishment of Research Training Groups. Reviewer for workshop proposals at the Erwin Schrödinger Institute Vienna (ESI).

2019: Reviewer for national research projects for Austrian Science Fund (FWF).

Supervisione di tesi di dottorato

2006 - 2009 : Advisor for a PhD thesis in Mathematical Physics (Mathematics) about topics in quantum field theories in curved spacetime (student: L. Franceschini)

2012 – 2015: Advisor for a PhD thesis in Mathematical Physics (Mathematics) about topics in quantum field theories in curved spacetime (student: D. Pastorello)

2014 – 2017: Advisor for a PhD thesis in Mathematical Physics (Mathematics) about topics in mathematical foundations of quantum mechanics (student: M.Oppio)

2014 – 2017: Advisor for a PhD thesis in Mathematical Physics (Physics) about topics in quantum field theories in curved spacetime (student: A.Melati)

2018 – 2021: Advisor for a PhD thesis in Mathematical Physics (Mathematics) (student: C. van de Ven, H2020-MSCA-COFUND-2015)

2019 – 2022: Advisor for a PhD thesis in Mathematical Physics (Mathematics) about topics in QFT (student: D. Volpe)

Supervisione di ricercatori post dottorali

2003 Tutor for a research contract (Dr. N. Pinamonti), Dipartimento di Matematica Universita' di Trento.

2004-2006 Tutor for a three-year post doctoral fellowship (Dr. N. Pinamonti) funded by Provincia Autonoma di Trento and INdAM (Italian National Institute for High Mathematics), the university of York and the University of Hamburg.

2005-2006 Tutor for a post doctoral fellowship (assegno di ricerca for Dr D. Fioravanti) funded by PRIN 2004 Classical, quantum, stochastic systems with an infinite number of degrees of freedom.

2007-2008: Tutor for a post doctoral fellowship (Dr. C. Dappiaggi) funded by INdAM (Italian National Institute for High Mathematics)

2013-2015: Tutor of a post doctoral fellow (Assegno di Ricerca: Dr I. Khavkine) funded by PRIN 2012

2014-2016: Tutor of a post doctoral fellow on Quantum Mechanics, Quantum Information and Quantum Cryptography (Dr. D. Pastorello)

2017-2019: Tutor of a post doctoral fellow on Quantum Mechanics and Quantum Information (Dr. D. Pastorello) funded by Fondazione Caritro.

2018-2019: Tutor of a post doctoral fellow on Quantum Field Theory (Dr. N.Drago).

2019-2020: Tutor of a post doctoral fellow on Quantum Field Theory (Dr. S.Murro).

Organizzazione di eventi e attività scientifiche

2006: **Graduate school Topics in Operator Algebras and Non commutative Geometry 20-26 March 2006, Department of Mathematics**

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".**

2008: **International doctorate course on quantum field theory in curved spacetime, Lecturer: prof S. Hollands (Cardiff University)**

2009: **Successful proposal to CIRM for a visiting professor position for Prof. C.J. Fewster (York University) The project was partially supported by the PRIN 2007 Algebre di Operatori ed Applicazioni.**

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**

2017: **International Workshop Quantum Physics and Geometry Levico Terme Organizers S.Ballico, A. Bernardi, I. Carusotto, S. Mazzucchi, V.Moretti**

Inviti a Conferenze e partecipazione ad eventi scientifici

Invitation at the the international symposium "Geometrical and Algebraic Aspects of Quantum Physics", on the occasion of R. Haag 80th birthday, Munchen, October 2002

Invitation at the international symposium "Perspectives in Quantum Field Theory" on the occasion of D. Buchholz' 60th birthday, Goettingen, June 2004.

Invited plenary seminar at the Assemblée Scientifica Nazionale del INdAM-Gruppo Nazionale per la Fisica Matematica, Montecatini Terme, 28 October 2004

Invited talk at the national meeting "Problemi Attuali di Fisica Teorica" March 2005, IIASS "E.R.Caianiello" - Vietri sul Mare (Italy), on "Recenti risultati in teoria dei campi quantistici su orizzonti di Killing"

Invited plenary talk at the XVII SIGRAV Italian National Conference on General Relativity and Gravitation, Torino, September 4-7, 2006

Colloquium held at the University of Hamburg, on the occasion of Klaus Fredenhagen's sixtieth birthday. 7 December 2007

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)

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.

Invitation at the Workshop "Quantum Spacetime and Noncommutative Geometry" Rome "La Sapienza", September 29 - October 4, 2008

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,

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.

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

Invited plenary talk at the International Workshop "Foundational Aspects of Cosmology" 16 -18 February 2011, II. Institut für Theoretische Physik, Hamburg.

Invited plenary talk at the International Workshop "Modern Trends in Algebraic Quantum Field Theory" 14-16th September 2011, University of Pavia (fostered by the DAAD under the programme "Diaolghi Italo-Tedeschi")

Invited plenary talk at the Bayrischzell Workshop 2012 - Noncommutativity and Physics: General Relativity and Quantum Geometry Bayrischzell, Germany, May 25-28 2012

Invited talk at the XX SIGRAV Italian National Conference on General Relativity and Gravitation, Napoli, October 22-26, 2012

Invited plenary talk for the Mathematical Physics section at the DPG-Frühjahrstagung JENA 13, Jena, 25 February - 1 March 2013

Invitation at the workshop "New Crossroad between Mathematics and Field Theory", Oberwolfach (Germany) 21st to the 27th July 2013

Invited plenary speaker °Summer School 2014 - 16/06/2014-04/07/2014 - Institut Fourier Grenoble Asymptotic Analysis in General Relativity

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"

Invited plenary speaker at the XXIII International Fall Workshop on Geometry and Physics, Granada 2014

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.

Invited talk at the SISSA February 2015.

°Invited talk at the Fourteenth Marcel Grossmann Meeting - MG14 section QFT in curved spacetime, University of Rome "La Sapienza" - Rome, July 12-18, 2015

Invited Lecturer (International PhD school associated to the workshop) at the XXIV International Fall Workshop on Geometry and Physics, Saragoza 2015

Invitation to the INFN workshop Fundamental problems of quantum physics, Milano 16 June 2017

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)

°Invited talk at the international conference "Quantum fields, scattering and spacetime horizons: mathematical challenges" Ecole de Physique des Houches the 22-25 May 2018.

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).

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")

Invited speaker at the Workshop Ipercomplesso TN018 Trento University, September 2018

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

Invited talk at the University of Leipzig (Institute of theoretical Physics) 24 June 2019

Invited talk at the Higher School of Economics - Department of Pure Mathematics - Nizhny Novgorod, Russia 17 October 2019

Invited talk at the Faculty of Mathematics and Mechanics - Moscow State University, Russia, 21 October 2019

Invited talk at Operator algebras in quantum field theory and quantum probability December 4-7, 2019 Department of Mathematics, University of Rome Tor Vergata

Invited talk at the University of Regensburg - Mathematics, 16 January 2020

Attività editoriale

Member of the editorial board of **International Journal of Geometric Methods in Modern Physics**

Member of the editorial board of **Note di Matematica**

Associate Editor of **Frontiers in Mathematical Physics** (up to November 2015)

Attività di peer reviewing

Reviewer for Mathematical Reviews (by the American Mathematical Society) up to 2009;

Reviewer for Zentralblatt MATH (by the European Mathematical Society and Springer) up to 2009;

Book Referee for the Cambridge University Press

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 Springer-Verlag)

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),

Appartenenza a società scientifiche

Member of the international network Local Quantum Physics Crossroads

Member of the International Society on General Relativity and Gravitation

Member of the International Association of Mathematical Physics

Member of the American Mathematical Society (up to 2009)

Member of the SIGRAV (Italian Society of General Relativity and Gravitation).

Member of the GNFM (Mathematical Physics National Group), of the National Institute for High Mathematics "Francesco Severi".

Associate to the INFN (Istituto Nazionale di Fisica Nucleare).

Attività didattica

Corsi Triennale/Magistrale/Dottorato in Matematica e in Fisica

1998-1999 Lecturer An introduction to QFT in curved spacetime (PhD Math) Trento University

2000-2001 Lecturer Continuum Mechanics (undergrad.Mathematics) Trento University

2001-2002 Lecturer Continuum Mechanics (undergrad.Mathematics) Trento University

2000-2001 Lecturer Functional Analysis for Quantum Mechanics (reading course, PhD Math) Trento University

2001-2002 Lecturer Operator Algebras for Quantum Mechanics (reading course, PhD Math) Trento University

2002-2003 Lecturer Continuum Mechanics (undergrad.Math., Master Math., Master Phys., PhD Math.) Trento University

2002-2003 Lecturer Geometrical Methods in Mathematical Physics (Master Math. Master Phys.) Trento University

2002-2003 Lecturer Geometric structure of Special Relativity (reading course, PhD Math.) Trento University

2003-2004 Lecturer Mathematical structure of Quantum Mechanics and Spectral Theory in Hilbert Spaces (PhD Math.) Trento University

2004-2005 Lecturer Continuum Mechanics (undergrad.Math., Master Math., Master Phys., PhD Math.) Trento University

2004-2005 Lecturer Geometrical Methods in Mathematical Physics (Master Math. Master Phys.) Trento University

2005-2006 Lecturer Mathematical Physics I (undergrad.Mathematics) Trento University

2005-2006 Lecturer Geometrical Methods in Mathematical Physics (Master Math. Master Phys., PhD Phys.) Trento University

2005-2006 Lecturer Mathematical Physics II (undergrad.Mathematics) Trento University

2006-2007 Lecturer Geometrical Methods in Mathematical Physics (Master Math. Master Phys.) Trento University

2006-2007 Lecturer Analytic Mechanics (undergrad.Physics) Trento University

2006-2007 Lecturer Geometrical Methods in Quantum Relativistic Theories (Master Math., Master Phys., PhD Math.) Trento University

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

2007-2008 Lecturer Mathematical Physics I (undergrad.Mathematics) Trento University

2007-2008 Lecturer Geometrical Methods in Mathematical Physics (Master Math. Master Phys., PhD Phys.) Trento University

2007-2008 Lecturer Mathematical Physics II (undergrad.Mathematics) Trento University

2008-2009 Lecturer Geometrical Methods in Mathematical Physics (Master Math. Master Phys.) Trento University

2008-2009 Lecturer Analytic Mechanics (undergrad.Physics) Trento University

2008-2009 Lecturer Geometrical Methods in Quantum Relativistic Theories (Master Math., Master Phys., PhD Math.) Trento University

2009-2010 Lecturer Foundations of Mathematical Physics (undergrad.Mathematics) Trento University

2009-2010 Lecturer Mathematical Physics (Master Math. Master Phys., PhD Phys.) Trento University
2010-2011 Lecturer Analytic Mechanics (undergrad.Physics) Trento University
2010-2011 Lecturer Mathematical Physics of Quantum Relativistic Theories (Master Math., Master Phys., PhD Math.) Trento University
2011-2012 Lecturer Foundations of Mathematical Physics (undergrad.Mathematics) Trento University
2011-2012 Lecturer Mathematical Physics (Master Math. Master Phys., PhD Phys.) Trento University
2012-2013 Lecturer Analytic Mechanics (undergrad.Physics) Trento University
2012-2013 Lecturer Mathematical Physics of Quantum Relativistic Theories (Master Math., Master Phys., PhD Math.) Trento University
2013-2014 Lecturer Foundations of Mathematical Physics (undergrad.Mathematics) Trento University
2013-2014 Lecturer Mathematical Physics (Master Math. Master Phys., PhD Phys.) Trento University
2014-2015 Lecturer Analytic Mechanics (undergrad.Physics) Trento University
2015-2016 Lecturer Foundations of Mathematical Physics (undergrad.Mathematics) Trento University
2015-2016 Lecturer Mathematical Physics (Master Math. Master Phys., PhD Phys.) Trento University
2016-2017 Lecturer Analytic Mechanics (undergrad.Physics) Trento University
2016-2017 Lecturer Foundations of Mathematical Physics (undergrad.Mathematics) Trento University
2017-2018 Lecturer Foundations of Mathematical Physics (undergrad.Mathematics) Trento University
2017-2018 Lecturer Mathematical Physics: quantum relativistic theories (Master Math. Master Phys., PhD Phys.) Trento University
2017-2018 Lecturer Analytic Mechanics (undergrad.Mathematics) Trento University
2017-2018 Lecturer Mathematical Physics of Quantum Relativistic Theories (Master Math., Master Phys., PhD Math.) Trento University
2018-2019 Lecturer Analytic Mechanics (undergrad.Mathematics) Trento University
2018-2019 Lecturer Foundations of Mathematical Physics (undergrad.Mathematics) Trento University
2019-2020 Lecturer Foundations of Mathematical Physics (undergrad.Mathematics) Trento University
2019-2020 Lecturer Mathematical Physics of Quantum Relativistic Theories (Master Math., Master Phys., PhD Math.) Trento University

Tesi triennali e Magistrali in Matematica ed in Fisica

1998-1999 advisor for a graduation thesis in Physics concerning "Proper time diagrams in Special Relativity".

1999-2000 advisor for a graduation thesis in Physics concerning "Renormalization by means of zeta-function theory and Schwinger decaying of vacuum state".

2001-2002 co-advisor for a graduation thesis in Mathematics concerning "Geodesic metrics in metric spaces".

2002-2003 advisor for a first-level thesis in Physics concerning "Flatness properties of spacetime in General Relativity".

2003-2004 advisor for a graduation thesis in Physics concerning "QFT in the local algebraic approach in the presence of event horizons".

2007-2008 advisor for a first-level thesis in Mathematics concerning topics on Mathematical Foundations of General Relativity.

2008-2009 advisor for a first-level thesis in Physics concerning singularity theorems in General Relativity.

2009-2010 advisor for a first-level thesis in Mathematics positive mass theorem in general relativity

2009-2010 advisor for a first-level thesis in Mathematics concerning noncommutative geometry

2009-2010 advisor for a first-level thesis in Physics concerning the cosmic censorship theorem

2010-2011 advisor for a first-level thesis in Physics concerning relativistic issues

2010-2011 advisor for a first-level thesis in Physics concerning relativistic issues and the Dirac-Lorentz equation

2010-2011 advisor for a second-level (Master) thesis in Physics concerning mathematical foundations of quantum mechanics

2010-2011 advisor for a second-level thesis (Master) in Physics concerning QFT in curved spacetime

2010-2011 advisor for a second-level thesis (Master) in Physics concerning Loop Quantum Gravity

2011-2012 advisor for a second-level thesis (Master) in Mathematics concerning mathematical foundations of quantum mechanics

2011-2012 advisor for a first-level thesis in Physics concerning mathematical foundations of quantum mechanics

2011-2012 advisor for a first-level thesis in Physics concerning relativistic issues

2012-2013 advisor for a second-level thesis (Master) in Physics concerning QFT in curved spacetime

2013-2014 advisor for a second-level (Master) thesis in Physics concerning mathematical foundations of quantum mechanics

2013-2014 advisor for a second-level thesis (Master) in Physics concerning QFT in curved spacetime

2013-2014 advisor for a first-level thesis in Physics concerning relativistic issues

2013-2014 advisor for a first-level thesis in Physics concerning relativistic issues

2013-2014 advisor for a first-level thesis in Physics concerning relativistic issues

2014-2015 advisor for a second-level thesis (Master) in Physics concerning QM

2014-2015 advisor for a second-level thesis (Master) in Physics concerning QM
2014-2015 advisor for a first-level thesis in Mathematics concerning relativistic issues
2014-2015 advisor for a first-level thesis in Mathematics concerning relativistic issues
2014-2015 advisor for a first-level thesis in Physics concerning relativistic issues
2014-2015 advisor for a second-level thesis (Master) in Mathematics concerning QM
2014-2015 advisor for a second-level thesis (Master) in Physics concerning QM
2014-2015 advisor for a second-level thesis (Master) in Physics concerning QM
2015-2016 advisor for a first-level thesis in Physics concerning relativistic issues
2016-2017 advisor for a first-level thesis in Physics concerning mechanical statistical issues
2017-2018 advisor for a first-level thesis in Physics concerning relativistic issues
2017-2018 advisor for a first-level thesis in Physics concerning quantum issues
2018-2019 advisor for a second-level thesis (Master) in Physics concerning QM
2018-2019 advisor for a first-level thesis (Master) in Mathematics concerning Analytical Mechanics/Statistical Mechanics
2018-2019 advisor for a first-level thesis in Mathematics concerning relativistic issues
2018-2019 advisor for a first-level thesis in Mathematics concerning relativistic issues
2018-2019 advisor for a first-level thesis in Mathematics concerning relativistic issues
2019-2020 advisor for a first-level thesis in Mathematics concerning relativistic issues
2019-2020 advisor for a first-level thesis in Mathematics concerning relativistic issues
2019-2020 advisor for a first-level thesis in Physics concerning relativistic issues
2019-2020 advisor for a first-level thesis in Physics concerning relativistic issues

LISTA DELLE PUBBLICAZIONI

Libri

**[8] Meccanica Analitica: Meccanica Classica, Meccanica Lagrangiana e Hamiltoniana e Teoria della Stabilità
Springer 2020**

[7] From Classical Mechanics to Quantum Field Theory. A Tutorial (with M. Asorey and E. Ercolessi) World Scientific 2020

**[6] Fundamental Mathematical Structures of Quantum Theory
Spectral Theory, Foundational Issues, Symmetries, Algebraic Formulation
Springer 2018**

[5] Hadamard States from Light-like Hypersurfaces (with C. Dappiaggi and N. Pinamonti) 2017 Springer

**[4] Spectral Theory and Quantum Mechanics: Mathematical Structure of Quantum Theories, Symmetries and introduction to the Algebraic Formulation
2017 Springer, 2nd edition**

**[3] Spectral Theory and Quantum Mechanics with an introduction to the Algebraic Formulation.
2013 Springer**

**[2] Teoria Spettrale e Meccanica Quantistica: Operatori in Spazi di Hilbert.
2010 Springer**

[1] Analytic aspects of quantum fields (with A Bytsenko, G Cognola, E Elizalde, S Zerbini) 2003 World Scientific

Preprints

**[67] V.Moretti, C.J.F van de Ven: Bulk-boundary asymptotic equivalence of two strict deformation quantizations
arxiv.org/abs/2005.04422 27 pages**

**[66] S. Mazzucchi, V.Moretti, I. Remizov, S. Smolyanov: Feynman type formulas for Feller semigroups in Riemannian manifolds
arxiv.org/abs/2002.06606 34 pages**

**[65] S. Azzini, S. Mazzucchi, V.Moretti, D. Pastorello, L. Pavesi: Single-Particle Entanglement (Review paper)
57 pages**

**[64] S. Pasini, N. Leone, S. Mazzucchi, V.Moretti, D. Pastorello, L. Pavesi: Bell inequality violation by entangled single photon states generated from a laser, a LED or a Halogen lamp
arxiv.org/abs/2003.09961 32 pages**

[63] N.Drago, S. Mazzucchi, V.Moretti: An operational construction of the sum of two non-commuting observables in quantum theory and related constructions

arxiv.org/abs/1909.10974 42 pages

Articoli pubblicati

[62] K. Landsman, V. Moretti, C.J.F. van de Ven: A Strict Deformation Quantization Map on the state space of $M_k(\mathbb{C})$ and the Classical Limit of the Curie-Weiss model

Rev. Math. Phys. Vol. 32 (2020) 2050031 DOI: 10.1142/S0129055X20500312

arxiv.org/abs/1909.10947 54 pages

[61] N. Drago and V. Moretti: The notion of observable and the moment problem for $*$ -algebras and their GNS representations

Lett. Math. Phys. (2020) DOI: 10.1007/s11005-020-01277-x

arXiv.org:1903.07496 48 pages

[60] V. Moretti and M. Oppio, Quantum theory in quaternionic Hilbert space: How Poincaré symmetry reduces the theory to the standard complex one

Rev. Math. Phys. 31, (2019) 1950013 DOI: 10.1142/S0129055X19500132

arXiv:1709.09246 71 pages

[59] I. Khavkine, A. Melati, V. Moretti, On Wick polynomials of boson fields in locally covariant algebraic QFT

Ann. Henri Poincaré 26, (2019), 929–1002 DOI: 10.1007/s00023-018-0742-y

arXiv:1710.01937 73 pages

[58] V. Moretti and M. Oppio, The correct formulation of Gleason's theorem in quaternionic Hilbert spaces

Ann. Henri Poincaré 19 (2018), 3321-3355 DOI: 10.1007/s00023-018-0729-8

arXiv:1803.06882 37 pages

[57] R. Ghiloni, V. Moretti and A. Perotti: Spectral representations of normal operators via Intertwining Quaternionic Projection Valued Measures

Rev. Math. Phys. 29 (2017) 1750034 DOI: 10.1142/S0129055X17500349

arXiv:1602.02661 73 pages

[56] V. Moretti and M. Oppio: Quantum theory in real Hilbert space: How the complex Hilbert space structure emerges from Poincaré symmetry

Rev. Math. Phys. 29 (2017) 1750021 DOI: 10.1142/S0129055X17500210

arXiv:1611.09029 85 pages

[55] V. Moretti: Mathematical Foundations of Quantum Mechanics: An Advanced Short Course. Lectures given by the author at the ``XXIV International Fall Workshop on Geometry and Physics''

Int. J. Geom. Methods Mod. Phys...13 Issue Supp.1 1630011 (2016) DOI:10.1142/S0219887816300117
arXiv:1508.1302 103 pages

[54] **I.Khavkine and V. Moretti: Analytic Dependence is an Unnecessary Requirement in Renormalization of Locally Covariant QFT**
Commun. Math. Phys. 344 (2016), 581-620 34 pages DOI: 10.1007/s00220-016-2618-7

[53] **V. Moretti and D. Pastorello: Frame functions in finite-dimensional Quantum Mechanics and its Hamiltonian formulation on complex projective spaces**
Int. J. Geom. Methods Mod. Phys. 13 1650013 (2016) DOI: 10.1142/S0219887816500134
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