

# Valter Moretti's Curriculum Vitae (November 2024)

## Work address:

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## Present position

Full Professor of Mathematical Physics at the Department of Mathematics of the University of Trento

## Present departmental roles

Head of the departmental Research Group of Mathematical Physics and Analytical and Geometrical Methods in Physics

## Present External roles

Head of the local research group on Mathematical Methods for Physics BELL at the Trento institute for Fundamental Physics and Applications

Member of the editorial board of *International Journal of Geometric Methods in Modern Physics (World Scientific Publishing)*

## Education and previous working positions

2015 In charge as Full Professor of Mathematical Physics at the University of Trento

2013. National qualification of Full Professor of Mathematical Physics.

2005. Associate Professor of Mathematical Physics at the University of Trento.

2000. Assistant Professor of Mathematical Physics at the University of Trento.

2000. Research fellow in Differential Geometry at the Department of Mathematics of Trento University

1999. Grant by the national project "Young Researchers"

1998. Post doc fellow in Differential Geometry at the Department of Mathematics of Trento

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

1996. Ph.D. graduation in Theoretical Physics

1993. Graduation in Physics (Summa cum Laude) at the University of Genova.

### **Research Interests**

- *Mathematical Methods for Physics.*
- *Mathematical Foundations of Quantum Theories.*
- *Algebraic Quantum Field Theory also in Curved Spacetime.*
- *Applications of Operator Algebras, Functional Analysis and Geometric Analysis to Quantum Theories.*

### **H indices (2024)**

- **20 Web of Science**
- **20 SCOPUS**
- **28 Google Scholar**

### **Ph.D. thesis supervision**

2000-2003 (unofficial) Supervisor of a PhD thesis in Mathematical Physics (Physics) about topics in quantum field theories in curved spacetime (student: N.Pinamonti)

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

2012 - 2015 Supervisor of a PhD thesis in Mathematical Physics (Mathematics) about topics in quantum field theories in curved spacetime (student: D. Pastorello)

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

2014 - 2017 Supervisor of a PhD thesis in Mathematical Physics (Physics) about topics in quantum field theories in curved spacetime (student: A. Melati)

2018- 2021 supervisor of a PhD thesis in Mathematical Physics (Mathematics) about quantization maps (student: C. van de Ven, H2020-MSCA-COFUND-2015)

2019- 2022 Supervisor of a PhD thesis in Mathematical Physics (Mathematics) about topics in QFT in curved spacetime (student: D. Volpe)

2023-2026 Supervisor of a PhD thesis in Mathematical Physics (Mathematics) about topics in QT/QFT (student C. De Rosa)

2023-2026 co-Supervisor of a PhD thesis in Mathematical Physics (Mathematics) about topics in QT (student L. Pettinari)

### **Post-doctoral Research Tutoring**

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

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.

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 group of Trento.

2007-2008 Tutor of a post doc fellowship (Dr. C. Dappiaggi) funded by INdAM (Italian National Institute for Higher Mathematics)

2013-2015 Tutor, with R. Brunetti, of a post doc fellow (Assegno di Ricerca: Dr I. Khavkine) funded by PRIN 2012

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

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

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

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

## **Organization and participation in scientific activities and events during the last 20 years**

**2006** Organizer of the Graduate school Topics in Operator Algebras and Non-commutative Geometry 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** In collaboration with R. Brunetti. International doctorate course on quantum field theory in curved spacetime, Lecturer: prof S. Hollands (Cardiff University)

**2009** In collaboration with R. Brunetti. Successful proposal to CIRM for a visiting professor position for Prof. C.J. Fewster (York University) The project was partially supported by 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 July 2017 Organizers S.Ballico, A. Bernardi, I. Carusotto, S. Mazzucchi, V.Moretti

**2015** Invited lecturer at the International PhD school associated to the workshop, XXIV International Fall Workshop on Geometry and Physics, Saragoza 2015

**2020** Invited lecturer at IUSS (Scuola Universitaria Superiore Pavia) "Corso Ordinario per classe di Scienze e Tecnologia, V anno"

**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, Quantum@TN, TIFPA-INFN

**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 the Trento University. It includes a public lecture by the Nobel prize laureate Alain Aspect.

Organizers F. Laudisa, V. Moretti, S. Stringari

**2025** Napoli, member of the scientific panel of the **International Conference on Relativistic Quantum Information** (*International Society for Relativistic Quantum Information (ISRQ)*).

**2025** Tropea (Italy), member of the scientific panel of the international conference of the **International Quantum Structures Association (IQSA)**.

**2025** Invited lecturer at the **SIGRAV (Società Italiana di Relatività Generale e Fisica della Gravitazione)** school 2025 Vietri sul Mare January 2025

### **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

### **Patents**

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

n. 102020000005521. Inventors S. Mazzucchi, V. Moretti, M.Pasini, D. Pastorello, L. Pavesi, Patent

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

### **Scientific-administrative roles**

Since 2010 Head of the local research group on Mathematical Methods for Physics BELL at the Trento institute for Fundamental Physics and Applications

Since 2015 Head of the departmental Research Group of Mathematical Physics and Geometric Methods in Physics

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 Quantum@TN representative of the Department of Mathematics

### **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

### **Participation in Scientific and Selection Panels, local, national, and international**

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

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

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

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, 2008.

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.

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

Invited Referee for the assessment of national research projects of Romania, 2011.

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

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, 2015. Invited external referee of a PhD thesis in Mathematics University of Milano, 2016.

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

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

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, 2017

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"), 2018.

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. 2019

Reviewer for workshop proposals at the Erwin Schrödinger Institute Vienna (ESI). 2019

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

President of the selection panel for a Researcher (type B) at the University of Bergamo. Department of Mathematics, 2020

Member of the selection panel for a Researcher (type B) at the University of Genova. Department of Mathematics, 2020

Member of the Program Committee of the international conference One-parameter Semigroups of Operators (OPSO) 2021

Invited external examiner for the PhD graduation, University of Milano 2021

Invited external examiner for the PhD graduation, University of Genova 2022

Member of the selection panel for a Researcher (type B) at the Politecnico di Milano. Department of Mathematics, 2022

President of the selection panel for a Post doc position at the University of Trento. Department of Mathematics, 2022

Invited external examiner for the PhD graduation exam, Dept. of Mathematics, University of York, UK, 2023.

Invited Examiner by DFG for establishment of Research Training Groups. 2023 (declined)

Invited referee for SNS (Scuola Normale Superiore) of Pisa to select full professor candidates 2024

President of the selection panel for a Researcher (RTT) at the University of Genova. Department of Mathematics, 2024

### **Participation in national and international scientific meetings and invited talks during the last 20 years**

Invitation at 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.Caianello" - 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 lecturer at the PhD course in Physics of Florence University 2007

Invited plenary talk at the International Workshop "The Manifold Geometries of Quantum Field Theory", Hausdorff 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" 14-16 September 2011, University of Pavia (fostered by the DAAD under the program "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) 21 to the 27 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

Invited talk at the University of Hagen - Mathematics, 12 January 2021

Invited talk at the international conference One-parameter Semigroups of Operators (OPSO) 2021 2021

Invited talk at the Third Italian Meeting on Probability and Mathematical Statistics Bologna June 13-16 2022

Invited Participant in the ESI Workshop on "Non-regular Spacetime Geometry" (CKM23) Erwin Schrödinger International Institute for Mathematics and Physics (ESI) March 2023

Invited plenary talk at the international conference Quantum Effects in Gravitational Fields, Leipzig University August-September 2023

Invited talk at the university of Erlangen, March 2023    Invited talk at the SISSA March 2024

Invited talk at the university of Pavia (PhD course in Physics) June 2024

Invited lecturer at the SIGRAV (Società Italiana di Relatività Generale e Fisica della Gravitazione) school 2025 Vietri sul Mare January 2025

### **Lecturing**

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  
2020-2021 Lecturer Analytic Mechanics (undergrad Physics) Trento University  
2020-2021 Lecturer Foundations of Mathematical Physics (undergrad.Mathematics) Trento University  
2020-2021 Lecturer Advanced course on mathematical foundations of Quantum Theories at the IUSS (University School for advanced Studies - Pavia)  
2021-2022 Lecturer Foundations of Mathematical Physics (undergrad.Mathematics) Trento University  
2021-2022 Lecturer Mathematical Physics of Quantum Relativistic Theories (Master Math., Master Phys., PhD Math.) Trento University  
2021-2022 Lecturer short course on BELL inequality, international undergraduate spring school organized by the Q@TN laboratory  
2022-2023 Lecturer Mathematical Physics of Quantum Relativistic Theories (Master Math., Master Phys., PhD Math.) Trento University  
2022-2023 Lecturer Analytic Mechanics (undergrad Physics) Trento University  
2023-2024 Lecturer Analytic Mechanics (undergrad Mathematics) Trento University  
2023-2024 Lecturer Mathematical Physics of Quantum Relativistic Theories (Master Math., Master Phys., PhD Math.) Trento University  
2024-2025 Lecturer Analytic Mechanics (undergrad Physics) Trento University  
2025 January Invited lecturer at the SIGRAV (Società Italiana di Relatività Generale e Fisica della Gravitazione) school 2025 Vietri sul Mare January 2025

### **Thesis Supervision**

1998-1999 advisor of a graduation thesis in Physics concerning "Proper time diagrams in Special Relativity".  
1999-2000 advisor of a graduation thesis in Physics concerning "Renormalization by means of zetafunction theory and Schwinger decaying of vacuum state".  
2001-2002 co-advisor of a graduation thesis in Mathematics concerning "Geodesic metrics in metric spaces".  
2002-2003 advisor of a first-level thesis in Physics concerning "Flatness properties of spacetime in General Relativity".  
2003-2004 advisor of 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

2020-2021 advisor for a first-level thesis in Physics concerning relativistic issues

2020-2021 advisor for a first-level thesis in Mathematics concerning relativistic issues

2020-2021 advisor for a first-level thesis in Physics concerning quantum relativistic issues  
2021-2022 advisor for a first-level thesis in Mathematics concerning relativistic issues  
2021-2022 advisor for a first-level thesis in Physics concerning quantum relativistic issues  
2023-2024 advisor for a first-level thesis in Mathematics concerning quantum relativistic issues  
2023-2024 advisor for a second-level thesis (Master) in Physics concerning QM and Relativity UNITS  
2023-2024 advisor for a second-level thesis (Master) in Mathematics concerning Loop Quantum Gravity  
2023-2024 advisor for a first-level thesis in Mathematics concerning quantum relativistic issues

### **Editorial activities**

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

### **Public Engagement (Terza Missione)**

**2022 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!

### Peer reviewing activity

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 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),