

**UNIVERSITÀ DEGLI STUDI DI MILANO**

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## **[SIMONE MURRO] CURRICULUM VITAE**

**INFORMAZIONI PERSONALI (NON INSERIRE INDIRIZZO PRIVATO E TELEFONO FISSO O CELLULARE)**

<b>COGNOME</b>	<b>MURRO</b>
<b>NOME</b>	<b>SIMONE</b>
<b>DATA DI NASCITA</b>	23/04/1988

### **INSERIRE IL PROPRIO CURRICULUM (non eccedente le 30 pagine)**

#### **EDUCATION**

- |                        |  |
|------------------------|--|
| 1 Apr 2014–24 Apr 2017 | <b>Dr. Rer. Nat. in Mathematics</b><br>Universität Regensburg, Regensburg (Germany)<br>passed with Magna cum Laude             |
| 1 Oct 2011–17 Oct 2013 | <b>M. Sc. in Mathematical and Theoretical Physics</b><br>Università degli studi di Pavia, Pavia (Italy)<br>passed with 110/110 |
| 1 Oct 2007–29 Apr 2011 | <b>B. Sc. in Physics</b><br>Università degli studi di Pavia, Pavia (Italy)<br>passed with 92/110                               |

#### **AWARDS, GRANTS AND FELLOWSHIP**

Fellowship - **DFG Research Fellowship** "Hadamard States in Linearized Quantum Gravity" from 2020 to 2021  
Fellowship - **INFN-TIFPA** project "Bell" from 2019 to 2020  
Fellowship - **DFG Graduiertenkolleg GRK 1821** "Cohomological Methods in Geometry" from 2017 to 2019  
Short Visit Grant - **R.I.P. in Oberwolfach** (with N. Drago) in March 2019  
Short Visit Grant - **Centre de recherches mathématiques** de l'Université de Montréal in August 2018  
Short Visit Grant - **COST Action MP 1405** "Quantum Structure of Spacetime" in October 2015  
Fellowship - **DFG Graduiertenkolleg GRK 1692** "Curvature, Cycles, and Cohomology" from 2014 to 2017

## WORK EXPERIENCE

- 1 Oct 2020–Present    **Postdoc**  
Université Paris-Saclay, Paris (France)
- 1 Oct 2019–30 Sep 2020    **Postdoc**  
Università degli studi di Trento, Trento (Italy)
- 1 Aug 2017–30 Sep 2019    **Postdoc**  
Albert-Ludwigs-Universität Freiburg, Freiburg im Breisgau (Germany)
- 1 May 2017–31 Jul 2017    **Postdoc**  
Universität Regensburg, Regensburg (Germany)

## RESEARCH VISITS

**Christian Bär and Penelope Gehring** at the University of Potsdam from 26 to 30 October 2020  
**Institute Mittag-Leffler** "Scattering, Microlocal Analysis and Renormalization" from 1 June To 5 June 2020  
**Federico Bambozzi and Kobi Kremnitzer** at the University of Oxford from 22 September to 5 October 2019  
**Emanuela Radici** at the University of L'Aquila from 8 to 12 April 2019  
**Nicola Pinamonti** at the University of Genova from 17 to 20 December 2018  
**Federico Bambozzi** at the University of Regensburg from 28 May to 1 June 2018  
**Federico Bambozzi** at the University of Regensburg from 12 to 16 February 2018  
**Nicola Pinamonti** at the University of Genova from 12 to 14 July 2017  
**Giuseppe Dito and Jose-Luis Jaramillo** at the University of Bourgogne from 8 to 11 May 2017  
**Giuseppe De Nittis** at the Pontificia Universidad Catolica de Chile from 24 October to 8 November 2016  
**Alexander Schenkel** at the Heriot-Watt University from 10 to 25 October 2015  
**Erwin Schrödinger Institute**, "Modern theory of wave equations" from 1 to 12 September 2015  
**Claudio Dappiaggi** at the University of Pavia from 12 to 15 January 2015  
**Claudio Dappiaggi** at the University of Pavia from to 21-24 January 2014

## CONFERENCES AND WORKSHOP ORGANIZATION

**Algebraic and Geometric aspects in Quantum Field Theory** at the University of Freiburg, 16-18 April 2019  
**Analysis of Differential Operators on Manifolds** at the University of Freiburg, 24-26 September 2018

## INVITED TALKS

### WORKSHOP

**title: Symmetric systems on manifolds**

"Cross-diffusion systems, gradient flows, and their perturbations" – GSSI, l'Aquila

**title: On the Cauchy problem for the Dirac operator on Lorentzian spin manifolds**

"Journées nancéiennes de géométrie" – Nancy

**title: A taste of microlocal analysis on supermanifolds**

"Microlocal analysis: a tool to explore a quantum world" – Genoa

### SEMINARS

**title: On the Cauchy problem for symmetric hyperbolic systems**

in the "Seminar über Mathematische Physik" at the University of Regensburg

**title: On the Cauchy problem for the Dirac operator**

in the "Seminario di Fisica Matematica" at the University of Genova

**title: On the initial-boundary value problem for symmetric positive systems**

in the "Seminar über Mathematische Physik" at the University of Regensburg

**title: Looking at the quantum states with the eyes of algebraic quantum field theory**

in the "Seminario di Fisica Matematica" at the University of Roma 3

**title: Linearized gravity and Hadamard states**

in the "Séminaires Math-Physique" at the University of Bourgogne

**title: Is there a natural state for Abelian Chern-Simons theory?**

in the "Seminario di Fisica Matematica" at the University of Genova

**title: On the algebraic approach to quantum Dirac fields**

in the "Mathematica Colloquium" at the Pontificia Universidad Católica de Chile

**title: A novel way of constructing Hadamard states in absence of symmetry**

In the "Seminario de Teoria Espectral" at the Pontificia Universidad Católica de Chile

**title: On quasi-free states on CAR algebras and the Fermionic Signature Operator**

in the "Münchner Mathematische" at the LMU München

**title: Introduction to Microlocal Analysis**

in the "Seminars on Analysis and Nonlinear Partial Differential Equations" at the Friedrich-Alexander-Universität Erlangen-Nürnberg

**title: A new construction of algebraic states for CAR algebras**

in the "Seminars of Mathematical Physics" at the Heriot-Watt University in Edinburgh

**title: Hadamard states in a time-dependent external potential**

in the "Seminario di Fisica Matematica" at the University of Genoa

**title: The fermionic projector on globally hyperbolic spacetimes**

in the "Seminario di Fisica Matematica" at the University of Pavia

## TEACHING

Seminars on **Mathematical Aspects of Quantum and Classical Physical Theories**

from 10/2019- 06/2020 at the University of Trento

Seminars on **Operator Algebras and Quantum Field Theory**

10/2018 - 02/2019 at the University of Freiburg

Seminars on **Operator Algebras and Quantum Mechanics**

04/2018 – 08/2018 at the University of Freiburg

Seminars on **Microlocal Analysis**

10/2017- 02/2018 at the University of Freiburg

Tutoring on **Analysis II for Physicists**

04/2017- 08/2017 at the University of Regensburg

Tutoring on **Physics for Biologists**

03/2013- 06/2013 at the University of Pavia

## Ph.D. STUDENTS

Daniele Volpe (University of Trento) – TBA

## RESEARCH PAPERS

### PEER REVIEW ARTICLES

- S. Murro and D. Volpe: **"Intertwining operators for symmetric hyperbolic systems on globally hyperbolic manifolds"** *Annals of Global Analysis and Geometry* (2021) vol 59: 1-25
- F. Bambozzi, S. Murro: **"On the uniqueness of invariant states"** *Advances in Mathematics* (2021) vol 376 : 107445
- N. Große, S. Murro: **"The well-posedness of the Cauchy problem for the Dirac operator on globally hyperbolic manifolds with timelike boundary"** *Documenta Mathematica* (2020) vol 25: 737-765
- C. Dappiaggi, F. Finster, S. Murro and E. Radici: **"The Fermionic Signature Operator in De Sitter Spacetime"** *Journal of Mathematical Analysis and Applications* (2020) vol 485: 123808.
- F. Bambozzi, S. Murro, N. Pinamonti: **"Invariant states on noncommutative tori"** *International Mathematics Research Notices* (2019) vol 2021: 3299-3313
- N. Drago, S. Murro: **"A new class of Fermionic Projectors: Møller operators and mass oscillation properties"** *Letters in Mathematical Physics* (2017) vol 117: 2433-2451.
- F. Finster, S. Murro, C. Röken: **"The Fermionic Signature Operator and Quantum States in Rindler Space-time"**, *Journal of Mathematical Analysis and Applications* (2017) vol. 454: 385-411.
- C. Dappiaggi, S. Murro, A. Schenkel: **"Non-existence of natural states for Abelian Chern-Simons theory"** *Journal of Geometry and Physics* (2017) vol 116: 119-123
- C. Dappiaggi, H. Gimperlein, S. Murro, A. Schenkel: **"Wavefront sets and polarizations on supermanifolds"** *Journal of Mathematical Physics* (2017) vol 58: 023504
- F. Finster, S. Murro, C. Röken: **"The fermionic projector in a time-dependent external potential: mass oscillation property and Hadamard states"** *Journal of Mathematical Physics* (2015) vol. 57: 072303.
- M. Benini, C. Dappiaggi, S. Murro: **"Radiative observables for linearized gravity on asymptotically flat spacetimes and their boundary induced states"** *Journal of Mathematical Physics* (2014) vol 55: 082301

### PRE-PRINT

- N. Ginoux and S. Murro **"On the Cauchy problem for Friedrichs systems on globally hyperbolic manifolds with timelike boundary"** arXiv:2007.02544 [math.AP] (2020).
- S. Murro and C.J.F. van de Ven **"Injective tensor products in strict deformation quantization"** arXiv:2010.03469 [math-ph] (2020).

## REFERENCES

**Prof. Dr. C. Dappiaggi,**

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Data

04/03/2021

Luogo

SANREMO