

CURRICULUM VITAE

1. PERSONAL DATA

Official Name: Prof. Cristiane de Morais Smith Lehner

Professional Name: **Prof. C. Morais Smith**

Birth date: February 12, 1964

Nationality: Brazilian

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Professional career

- from 08/2004 - now: Full Professor
Instituut voor Theoretische Fysica, Universiteit Utrecht, **The Netherlands**
- 04/2001 to 08/2004: Associate Professor
10/1998 to 03/2001: Maître Assistante
Institut de Physique Théorique, Université de Fribourg, **Switzerland**
- 04/1995 to 10/1998: wissenschaftliche Assistentin, German public employee C-1 level,
Institut für Theoretische Physik, Universität Hamburg, **Germany**
- 08/1994 to 03/1995: Assistant (post-doctoral)
07/1992 to 07/1994: Academic Guest (PhD student)
Institut für Theoretische Physik, ETH Zürich, **Switzerland**
- 01/1992 to 07/1992: Visiting Scientist, ICTP, Trieste, **Italy**
- 05/1989 to 08/1994: Lecturer (permanent faculty position)
Department of Physics, State University of São Paulo (UNESP), Bauru, **Brazil**

Other professional activities

To financially support my Bachelor Physics studies at the University of Campinas, I worked during 2.5 years at the Brazilian Bank (6 hs/day, every day), from 02/1983 to 07/1985. During the Master Programme in Physics, I gave French lessons at the Brazilian Telecommunications Company (TELEBRAS), from 03/1986 to 11/1988, and later I founded a French language school, where I was also teaching. Although I had a Fellowship from the Brazilian agency CNPq for the Master, the payment was unstable (you could wait for 3 months to be payed).

Diplomas

Ph.D., University of Campinas, Brazil, August 1994 (the highest honor), most of the work developed at ETH-Zurich. Thesis title: Quantum and Classical Creep of Vortices Intrinsically Pinned in High-Tc Superconductors, Supervisors: Prof. Amir Caldeira / Prof. Gianni Blatter

Master's Degree, University of Campinas, Brazil, May 1989 (the highest honour). Thesis topic: The Effect of the Initial Preparation to Describe the Dynamics of a Quantum Brownian Particle, Thesis supervisor: Professor Amir Caldeira

Bachelor in Physics, University of Campinas, Brazil, June 1985

French Studies Superior Diplom, Degrees 1, 2, 3, 1986-1988, Nancy University II, France (Alliance Française, Campinas, Brazil), equivalent to a Univ. Degree in Letters

Languages

Fluent in Portuguese (mother tongue), English (excellent), French (excellent), Italian (very good), German (reasonable), Spanish (reasonable), and Dutch (reasonable).

Scientific Prizes, Awards and honours

- **“175 inspiring people”**, selected by the German Physical Society (DPG) as one of the 175 inspiring people to celebrate the 175th anniversary of the DPG
- **Emmy Noether Distinction** of the European Physical Society, Winter 2019, “for her outstanding contributions to the theory of condensed matter systems and ultracold atoms to unveil novel quantum states of matter”
- Invited member of the **International Advisory Council** (since 2018) and **Fellow** (2019-2022) of the **T.D. Lee Institute** in Shanghai Jiao-Tong University, **China**
- **2016 Dresselhaus Prize**, Hamburg University CUI, **Germany** Senior scientist Prize, Euro 20.000 (personal money), “for her outstanding contribution to the understanding of topological phases in two-dimensional atomic and electronic systems”
- **High-End Foreign Experts (HEFE)** Team Award, from the Chinese State Administration of Foreign Experts Affairs, to work at the Wilczek Quantum Center together with Frank Wilczek and Andreas Hemmerich, Hangzhou, **China**, 2015 and 2014
- **Special Visiting Professor Award, Science without Borders**, CNPq, **Brazil**, 2013-2016, collaboration with Prof. E. Marino, Federal University of Rio de Janeiro, Brazil
- **2008 VICI-Award** from the Dutch Research Organization (**NWO, the Netherlands**) N.680-47-312 (2 or 3 awarded per year in Physics in the Netherlands), Personal fellowship for developing a research project (3 PhDs, 3 post-docs), Value: Euro 1’350’000,00 Period: 2008-2013, Title: “Low-dimensional quantum matter: secrets between two and three dimensions”
- **2001-2004 Professeur Boursier du Fond National Suisse** N. 620-062868. (2 or 3 awarded per year in Physics in **Switzerland**), Personal fellowship for developing a research group (2 PhDs, 1 post-doc). Value: CH 1’097’770,00 Period: 2001-2004, Title: “Pattern Formation in 2D Strongly Interacting Electron Systems”
- Selected by the Utrecht Students Organisation (SONS) for the **second Prize as the Lecturer of the Year - Master** 2014/2015 and one of the **three finalists for the best lecturer of the year 2008**, the Netherlands
- **“Spotlight Prize”** of the Faculty of Sciences of Utrecht University for exceptional visibility of my work at the Press (September 2015), the Netherlands
- Selected for the **Dutch Highlights in Theoretical Physics** in 2008 and 2013, published in the magazine of the Dutch Research School on Theoretical Physics (2009 and 2014) (one work in condensed matter, one in high-energy physics selected per year)
- Invited member of the **Alexander von Humboldt** Foundation for Research Fellowships and Prizes, **Germany**, since 2014

Prizes for students that I supervised

- 2022 Lumen Eek was awarded the **Lorentz Prize for the Best Master Thesis in Theoretical Physics in the Netherlands**
- 2022 Tomas Koekkoek was awarded the **best Bachelor thesis presentation prize** (BONZ symposium June 23rd 2022)
- 2021 Robin Verstraten was awarded the **Best Master Thesis from the Graduate School in Science and the Best Master Thesis of the entire University of Utrecht**
- 2019 Mickey Brammer was awarded the **best BONZ talk** during the Physics Bachelor thesis event at Utrecht University, NL
- 2017 Anton Quelle was awarded a **Cum Laude for his PhD thesis (top 5%)**. DITP co-supervisor: J. S. Caux. University of Utrecht (NL)
- 2015 Guido van Miert was selected among the **3 finalists for the “Best Master Thesis Award”** of the University of Utrecht in 2015, all disciplines included
- 2015 **“Science and Technology Student Award for Master students”**: awarded to Marianne Knoester, for the idea of her Master thesis Value: EU 2.500,00
- 2008 Master-Prize for my Master student (Martijn Mink): awarded with the **Shell Prize 2008** for one for the best Master Theses in the Netherlands in 2008 (9 students awarded) (Co-advisor: Rembert Duine). Value: EU 2.000,00
- 2004 PhD-Prize for my PhD student (Mark Goerbig): awarded with the **Chorafas Prize 2004** for the best thesis from the Science Faculty of the University of Fribourg, Switzerland. Value: US\$ 4.000,00
- 2001 PhD-Prize for my PhD student (Nils Hasselmann): awarded with a **Suma Cum Laude** and a **“Dotierter Preis des Fachbereichs Physik”** for one of the best thesis of the University of Hamburg, Germany

2. EDUCATION ACTIVITIES

Courses taught in Brazil, Germany, Switzerland and Netherlands

Bachelor level: Applied Physics, Quantum Mechanics, General Physics I and II, Structure of the Matter I and II, Condensed Matter Physics, Mesoscopic Physics, Quantum Dissipation in Superconducting Microstructures, Transport, Superfluidity and Superconductivity (with J. Mesot), Quantum Field Theory (with D. Baeriswyl), Quantum Many-Body Theory, Thermal Physics II, Quantum Matter, Lab courses in Theoretical Physics and Mathematics, Lab course on Bose-Einstein Condensates Theory, The quantum-nano world (with F. Rabouw).

Master level: Electron Correlations, Student Seminar Course, Statistical Field Theory, Field theory in condensed matter, Advanced Topics in Theoretical Physics

Supervision of 31 Bachelor Theses

Fribourg, CH: Marc Rossier, Markus Niffenegger, Yannick Bochud, Claude Money.

Utrecht, NL: Jildou Baarsma, Koen Havlik, Jacco Heres, Dejan Gajic, Robert Schoo, Stella Boeschoten, Daniel Rutten, Joren Brunekreef, Ezequiel Rodriguez, Astor Hermans, Tim A. Neutel, Ariane Dekker, Jaylesh Soebedar, Maarten Kries, Wies Uijttewaal, Simon de Groot, Mickey Bramer, Salma Ismaili, Luuk Goode, August Roell, Joppe Stokvis, Tomas Koekkoek, Koen van der Zee, Xiangqian Lu, Zebedeus Osseweijer, Ismail Sarti, David Zuilhof.

Supervision of 54 Master Theses

Fribourg, CH: Mark Görbig, Yannick Bochud, Claude Money, Thomas Farage.

Utrecht, NL: Lyudmyla Adamska, Dmytro Makogon (Cum Laude), Marnix Wakker, Nora de Jeu, Oleksandr Poplavsky (Cum Laude), Ties Lucassen, Miriam Loois (Cum Laude), Ardavan Alamir (Cum Laude), Martijn Mink (Cum Laude and Shell Prize), Olivier Tieleman (Cum Laude), Thomas Troppenz, Marco Di Liberto, (Cum Laude at Catania University, Erasmus student), Selma Koghee, Richard Olsen, Jeffrey C. Everts, Mathijs Janssen, Tommaso Comparin, Daniele Malpetti (Cum Laude), Ido Niesen, (Cum Laude, UvA), Jeroen van Dongen, Guido van Miert, Simon Stuij, Flore Kunst, Marianne Knoester, Peter Kristel (Honors Student Physics and Mathematics, Cum Laude), Sander Kooi (Cum Laude), Sander Kempkes (Cum Laude), Sam Eigenhuis, Victor Dagnelie, Jette van den Broeke, (Cum Laude), Peter Cats, (Cum Laude), Ruward Mulder, (Cum Laude), Charlotte Beneke (Erasmus student from TU Munich), Albert Pool, Stefan Boere, Robin Verstraten, Anouar Moustaj, Silke Schonecker, Wies Uitjewaal, Chen Chao, Maarten Droste, Lumen Eek (Cum Laude), Robert Canelas, Patrick Geraghty (Complexity part), Emiel Slootman (Cum Laude), Julius Krebbekx (Cum Laude), Monica Conte, Audrique Vertessen, Thijs Douwes (in progress), Yves Boels (in progress).

Supervision of 28 PhD Theses

1. Nils Hasselmann (Summa Cum Laude and Hamburg University Prize), 2001, “Spiral and Striped Phases in Cuprates: the Role of Disorder”, Hamburg University, Germany
2. Thorsten Dröse, October 2001, “Metastability & Depinning in Inhomogeneous Driven Dissipative Systems”, Hamburg University, Germany
3. Mark Görbig (Chorafas Prize 2004), 2004, “Theoretical studies of inhomogeneous phases in quantum Hall systems”, University of Fribourg, Switzerland
4. V. Juričić, 2006, “Field Theoretical Studies of a Doped Mott Insulator”, University of Utrecht, the Netherlands
5. Lih-King Lim, 2010, “Ultracold gases in 2D: novel superfluid phases for bosons and fermions”, University of Utrecht, the Netherlands
6. Dmytro Makogon, 2010, “Novel Quantum Phases, Excitations, and Transport in Low-D Systems”, University of Utrecht, the Netherlands
7. Wouter Beugeling, 2012, “Topological states of matter in two-dimensional fermionic systems”, University of Utrecht, the Netherlands
8. Ralph van Gelderen, 2013, “Magnetic properties of single-and multi-layer graphene”, University of Utrecht, the Netherlands
9. Christoph Horig, 2014, formal supervisor, real supervisor was Dr.D. Schuricht, “Nonequilibrium transport through Kondo quantum dots: a real-time renormalization group analysis”, University of Utrecht, the Netherlands
10. Marco Di Liberto, 2015, “Quantum phase transitions in low-dimensional optical lattices”, University of Utrecht, the Netherlands
11. Carolin Küppersbusch, 2015, formal supervisor, real supervisor was Dr. L. Fritz, “Magnetic oscillations in 2D Dirac systems and shear viscosity and spin diffusion in a 2D Fermi gas”, University of Utrecht, the Netherlands
12. Anton Quelle (Cum Laude), 2017, DITP co-supervisor: J. S. Caux, “Geometrical, non-

equilibrium, and thermodynamic effects in topological systems”, University of Utrecht, the Netherlands

13. Niklas Gerg, 2017, formal supervisor, real supervisor was Dr.D. Schuricht, “Transport and topological states in strongly correlated nanostructures”, University of Utrecht, the Netherlands
14. Guido van Miert, 2018, Co-supervisor: Dr.C.Ortix, “Dirac cones and defect charges”, University of Utrecht, the Netherlands
15. Natalia Menezes, 2018, “Quantum Field Theory in low-dimensional condensed-matter systems”, University of Utrecht, the Netherlands
16. Tycho Sykkenk, 2019, formal supervisor, real supervisor is Dr.L.Fritz, “Weyl-cone systems”, University of Utrecht, the Netherlands
17. Sander Kempkes, 2020 (Cum Laude), “Manipulating building blocks of nature: The quantum simulation of electronic toy models”, University of Utrecht, the Netherlands
18. Sander Kooi, 2020, co-supervisor C. Ortix, “Crystalline topological phases: from corner charge to hinge state”, University of Utrecht, the Netherlands
19. Mariya Lizunova 2020, co-supervisor: J. van Wezel, “Topology, defects, and topological defects”, University of Utrecht, the Netherlands
20. Jette van den Broeke, 2021, co-supervisor: D. Vanmaekelbergh , “Topology, flat bands and magnetic fields in artificial electronic lattices”, University of Utrecht, Netherlands
21. Rodrigo Arouca, 2021, co-supervisor, together with E. Marino, “Quantum phase transitions in topological matter and high-Tc cuprates”, University of Utrecht, the Netherlands and Federal University of Rio de Janeiro, Brazil
22. Rodrigo Ozela, 2022, partial-supervisor, together with Van Sergio Alves, thesis topic: “Pseudo QED in low dimensional systems”, University of Utrecht, the Netherlands and Federal University of Para, Brazil
23. Ward Vleeshouwers, 2023, co-supervisor together with V. Gritsev (UvA), “Unitary matrix integrals, long-range random walks, and spectral statistics”, University of Amsterdam/University of Utrecht (NL)
24. Anouar Moustaj (in progress), begin 2020, thesis topic: Non-Hermitian topological insulators, University of Utrecht, the Netherlands
25. Robin Verstraten (in progress), begin 2020, thesis topic: Fractional derivatives and correlated ultracold atoms, University of Utrecht, the Netherlands
26. Lumen Eek (in progress), begin 2022, thesis topic: Topological properties of non-Hermitian systems, University of Utrecht, the Netherlands
27. Diego Felipe Munoz Arboleda (in progress), begin 2022, thesis topic: Non-Hermitian systems and Black Holes, University of Utrecht, the Netherlands
28. David Santiago Quevedo Vega (in progress), begin 2022, thesis topic: Fractional derivatives in Finances, University of Utrecht, the Netherlands

Supervision of 20 postdocs

1. Dr. Lara Benfatto, 2001-2004, Fribourg University (CH), now **Full Professor** at Sapienza University of Rome, **Italy**
2. Dr. Marcello Barbosa da Silva Neto, 2004-2006, Fribourg University (CH) and Utrecht

University (NL), now **Associate Professor** at Federal University of Rio de Janeiro, **Brazil**

3. Dr. Ricardo Luis Doretto, 2005-2007, Utrecht University (NL), now **Assistant Professor** at UNICAMP, Campinas, **Brazil**
4. Dr. Achilleas Lazarides, 2008-2010, Utrecht University (NL), now **Senior Lecturer** at Loughborough University **UK**
5. Dr. Lih-King Lim, 2010-2010, Utrecht University (NL), now **Tenure Track Research Professor** at Zhejiang University, Hangzhou, **China**
6. Dr. Dmytro Makogon, 2010-2011, Utrecht University (NL), now **Senior Modelling Analyst**, ABN AMRO Bank N.V., **Netherlands**
7. Dr. Charles Creffield, 2012, Utrecht University (NL), now **Lecturer** at Universidad Complutense de Madrid, **Spain**
8. Dr. W. Beugeling, 2012, Utrecht University (NL), now postdoc in Molenkamp's group, **Germany**
9. Dr. V. Juricic, 2013-2014, Utrecht University (NL), now **Professor** at University of Valparaíso, **Chile**
10. Dr. E. Cobanera, 2014-2015, Utrecht University (NL), now **Assistant Professor** at SUNY Polytechnic Institute, New York, **USA**
11. Dr. C. Ortix, 05/2015-04/2017, Utrecht University (NL), DFG fellowship to do a Habilitation Thesis in my group, now **Associate Professor** at Università di Salerno, **Italy**
12. Dr. M. Caracanhas, 01/2016 - 01/2017, Utrecht University (NL), now **permanent technical position** at USP Sao Carlos, **Brazil**
13. Dr. G. Palumbo, 01/2016 - 09/2017, Utrecht University (NL), now research Fellow of Dublin Institute for Advanced Studies, **Ireland**
14. Dr. C. Silva Farias, from 12/2018 to 07/2019, Utrecht University (NL)
15. Prof. Lizardo Nunes, visitor, from 07/2020 to 06/2021, Utrecht University, NL, now **Associate Professor** of Federal University of Sao Joao del Rey, **Brazil**
16. Dr. Danilo Beli, from 01/2022 to 06/2022, Utrecht University, NL, now **lecturer at TU-Eindhoven, NL**
17. Dr. Vinicius Zampronio, from 02/2022 to 01/2023, Utrecht University, NL
18. Dr. Tiago Santiago do Espirito Santo, from 02/2022 to 01/2023, Utrecht University, NL
19. Dr. Flavio Noronha, from 07/2022 to 12/2022, Utrecht University, NL
20. Dr. Marcus Bäcklund (before Stalhammar), from 10/2024 to 09/2026, Utrecht University, NL

3. ADMINISTRATION ACTIVITIES

Boards and Councils

- Member of the **Advisory Council of the T.D. Lee Institute**, Shanghai, China, since 2018
- Member of the **EDI Beta Faculty Committee**, Utrecht University, since 2019
- Member of the **Advisory Council of the LION**, Leiden University, since 2021

- Member of the **Advisory Board of QuMat**, Utrecht University, since 2022
- Member of the **NWO Ehrenfest-Afanassjewa Thesis Prize**, Netherlands, since 2023
- Member of the **ERC Starting Grant committee**, 2021
- Member of the **SNSF Starting Grant committee**, Switzerland, 2022, 2023
- Member of the **CWI Utrecht University**, 2021-2023
- Member of the Netherlands Research Organisation (**NWO**) **Physics Table** (Utrecht University representative for Physics), 2017 - 2023
- **Director of the ITP Master Programme** 2016 - 2022
Programme coordinator from 2006-2016
- **Member of the Delta ITP Executive Board** 2016 - 2023, a collaboration among the universities of Amsterdam, Leiden and Utrecht, awarded 18 Million euro in the framework of a Dutch Gravitation Program (NWO, 2012-2022)
- **Director of the Center for Extreme Matter and Emergent Phenomena EM-MEPH**, 2014 - 2018
- **Member of the Selection Committee of the Feodor Lynen Research fellowships of the Alexander von Humboldt Foundation**, 2014 - 2020
- **Member of the Governing board of the Dutch Research School in Theoretical Physics**, 2008 - 2018
- **Member of the Nano-Committee of FOM, NWO**, 2013-2018
- **Member of the Advisory Board of the Lorentz Center**, Leiden, NL, 2012-2017
- **Science Fellow**, representing the Physics and Mathematics Departments of the Utrecht University at the University College Utrecht (2011-2017)
- **Member of the “Board of Governors”** representing the Dutch Consortium (Utrecht, Leiden, and Amsterdam Universities) at ICAM (2008-2014)
- **Member of the NWO-VICI Committee**, 2013 and 2014
- **Member of the FOM Best PhD thesis Committee**, 2011 and 2012
- **Member of the NWO-Rubicon Committee**, 2009 and 2010
- **Member of the Advisory Committee for Education (OAC) for the Bachelor Program** of the Physics and Astronomy Department, University of Utrecht (2006-2007)
- **Responsible for Landelijk Seminarium Gecondenseerde Materie** (2006 -2012)
- **Study-mentor (Tutor)** of a group of first and second year Bachelor students (2005/2006, 2006/2007, 2012-2013)
- **Member of the Science Faculty Council of the University of Fribourg**, Switzerland, from March 2001 to July 2004
- **Member of the Physics Department Council of the University of Fribourg**, Switzerland, from March 2001 to July 2004

Fundraising:

- **Gravitation Project QuMAT 2022-2032** (in progress) Joint Project for 6 Universities in the Netherlands, total 18 million euro “Quantum Materials”, co-applicant, expected to be Head of the Consortium for the second period (5 + 5 years)

- **NWO-program** 2020 - 2025 (in progress) “Driving phase transitions in topological correlated matter” total 2.99 million euro; co-applicant, 1 PhD position starting 2020 (Anouar Moustaj)
- **NWO-program** 2019 - 2024 (in progress) “Atomic Quantum Simulators 2.0 - taming the long-range electronic interactions” total 2.3 million euro; co-applicant, 1 PhD position starting 2020 (Robin Verstraten)
- **CAPES-NUFFIC project Brazil/Holland** (2018-2023), “Dinâmica e correlações de sistemas quânticos em baixas dimensões”, Joint Project with Federal Univeristy of Rio Grande do Norte, Prof. Tommaso Macri (Brazilian Project Leader), Prof. C. Morais Smith (Dutch Project Leader) funding for 5 year postdocs, 5 year PhD students, and visit of involved professors; PhD student: Rodrigo Ozela
- **Gravitation Project, the Netherlands** - co-applicant (2012-2023), Joint Project for 3 Universities (Leiden, Amsterdam, Utrecht), Delta ITP , co-applicant, total 18 million euro ”Matter at all scales”, 3 shared PhD student positions: Anton Quelle (graduated 2017), Maryia Lizunova, (graduated 2020) Ward Vleeshouwers (graduated 2023); 1 Postdoc position: Cobanera/ Palumbo (finished)
- **FOM Projectruimte, the Netherlands** together with Ingmar Swart (2016-2020), “Functionalized Organo-Metal (FOM) Networks”, PhD student: Sander Kempkes
- **NWO Free Program, the Netherlands** - co-applicant (2014-2019), Joint Project for Utrecht University, Technical University Eindhoven, and Technical University Delft, PhD student: Guido van Miert, graduated 2018
- **Science without Borders - Brazil**, 2013 - 2016, Fellowship for joint PhD and post-doc position with Federal University of Rio de Janeiro, Brazil US \$ 138.000,00 (in addition to normal PhD fellowship for same period in Brazil) “Applications of Field Theory to condensed matter” PhD student visitor: Leandro Oliveira Nascimento
- **VICI, the Netherlands** N.680-47-312, 2008-2014, Personal fellowship for developing a research project (3 PhDs, 3 post-docs), Euro 1’350’000,00 “Low-dimensional quantum matter: secrets between two and three dimensions”
- **Professeur Boursier du Fond National Suisse** N. 620-062868, 2001-2004, Personal fellowship for developing a research project (2 PhDs, 1 post-doc), CH 1’097’770,00 “Pattern Formation in 2D Strongly Interacting Electron Systems”
- **National Fond Project, Switzerland** 20-61470.00, 2001-2002 (co-applicant with Prof. D. Baeriswyl and Prof. X. Bagnoud), CH 525’672,00 “Correlations and Disorder in Models of Strongly Interacting Electrons and in Classical Non-equilibrium Systems”
- **Project Superconducting Structures** 1996-1998 (responsible for one of the research groups taking part in the **Graduiertenkolleg** “Physik nanostrukturierter Festkörper” at the Univ. of Hamburg, **Germany**)
- **European Project** FMRX-CT96-0042, co-applicant with Prof. B. Kramer, 1997
- **Project DAAD-PROBRAL** N. 415-PROBRAL/SCHÜ, (Scientific Collaboration between **Brazil and Germany**), co-applicant, “Dynamics of Domain Walls in Doped Antiferromagnets under the Influence of Classical and Quantum Fluctuations”, 1997-1999
- **Project Daimler-Benz, Germany** N. 02/23-96, (fellowship for Nils Hasselmann for visiting University of California, Riverside), “Dynamical and Statical Properties of the Striped Phase”, 1997-1999
- **DFG Germany** MO 815, (PhD position from Deutsche Forschungsgemeinschaft-BAT

4. RESEARCH ACTIVITIES

Research interests

Strongly Correlated Electron Systems, Topological insulators, Transport and Spectroscopy in Low-Dimensional Systems, Quantum simulations in electronic and cold-atom systems, Quantum Dissipative Systems, Quantum Hall Systems, Artificial gauge fields in Bose-Einstein Condensates in optical lattices, Single- and Multi-Layer Graphene and other 2D Honeycomb Materials (transition-metal dichalcogenides, silicene, phosphorene), Floquet systems, High- T_c Superconductors, Vortex dynamics (creep and flow) in High- T_c Superconductors, Anisotropy and Pattern Formation in 2D Systems, Doped Mott Insulators: Nickelates and Manganites, Effects of Impurities and Glassy Behavior in Strongly Correlated Systems, Josephson Junction Devices and Arrays

Invited talks in conferences, colloquia, Summer schools

I have been invited to give **about 375 talks (conferences and colloquia) in 36 different countries in Europe, Asia, Africa, Australia, North and South America**. Among them, I gave talks in Brussels (Solvay Colloquium), Oxford (UK), Cambridge (UK), ETH Zurich and EPFL (CH), Harvard (USA), Princeton (USA), Santa Barbara (USA), Aspen (USA), Urbana-Champaign (USA), Ecole Normale Supérieure (Paris and Lyon, F), Tsukuba, Kyoto, and Sendai (J), La Sapienza-Rome, Trieste, Florence, Erice (I), Max-Planck Institutes (Dresden and Stuttgart), Hamburg, Hanover, Munich (D), Madrid and Barcelona (S), KITPC, Tsinghua University Beijing, and Tsung-Dao Lee Institute, Shanghai (PRC), Rio de Janeiro, São Paulo, Natal and Campinas (BR), Vienna (A), Stockholm (S), Copenhagen (D), Leiden (Ehrenfestii colloquium, NL), and Veldhoven (plenary talk FOM meeting, NL), Tbilisi (G), Luxembourg, Singapore, South Korea, Armenia, Lithuania. I accept about 15 invitations per year to give talks in conferences, and decline about 20 more. I was also invited to teach in Summer/Spring/Winter Schools in Italy, France, Brazil, Germany, Sweden, and in the Netherlands.

Conferences, Colloquia, and Schools: invited talks and lectures (since 2017), highlights in bold

2024

1. 2024 December 3, invited talk “The impact of topological fractals on energy saving” at Dutch Student Association of Physics in Amsterdam (NSA). Symposium “Gravity and Impact”. Amsterdam, The Netherlands
2. 2024 November 11-15, invited talk “Quantum Fractals: from meta- to real- materials” at Advances in Topological Condensed Matter Workshop, Trieste, Italy
3. **2024 September 23-25, invited talk “Materials for the Quantum Age” at the Biannual Meeting of the Pontifical Academy of Science (PAS), Vatican**
4. **2024 September 19-20 invited plenary talk, CSPM Annual Meeting of the Macedonia Physical Society, Macedonia (online)**
5. **2024 September 9-13, participation on a conference to celebrate my 60th anniversary: TOPOCris, Les Houches, France**

6. **2024 September 2-6, invited semi-plenary talk “Quantum Fractals” at the Condensed-Matter Division of the EPS Annual Conference, Braga, Portugal**
7. 2024 August 28-30, invited talk “Quantum Fractals”, SELEQ, San Sebastian, Spain
8. **2024 August 12-15, invited plenary talk “Quantum Fractals” at Brazilian Symposium of Fractional Calculus, Campinas, Brazil (online)**
9. **2024 July 3-5, 32nd Annual International Laser Physics Workshop, LPHYS’24, invited talk, Sao Carlos, Brazil**
10. **2024 June 28, invited lectures at ICTP Physics LATAM, Venezuela (online)**
11. **2024 June 9-19, Summer School Quantum Connections, invited series of lectures on Thermodynamic description of topological insulators, Stockholm, Sweden**
12. 2024 May 29, QuMat Colloquium “Quantum Fractals: from meta- to real-materials”, Utrecht, The Netherlands
13. 2024 May 13-17, invited talk at Conference NanoPQIQO, Yerevan, Armenia
14. 2024 May 6-8, Conference to celebrate the 70th anniversary of Prof. E. C. Marino, Pseudo QED conference, invited talk “Quantum Fractals”, Rio de Janeiro, Brazil
15. 2024 April 22-23 QuMat Spring Meeting, talk Methods and Techniques Pillar, Delft, The Netherlands
16. 2024 March 14-15, 10th Jubilee of the Mildred Dresselhaus Guest Professorship conference, invited talk “Quantum Fractals”, Hamburg, Germany
17. **2024 March 3-8, March Meeting, invited talk on focus session about fractals, “Quantum fractals: from meta- to real-materials”, Minneapolis, USA**
18. **2024 February 5-10, Winter School on Quantum Field Theory, series of lectures on “Quantum Dissipation”, Florence, Italy**
19. 2024 February 6, Galileo Galilei Institute, invited seminar on “Quantum Fractals and Fractional Calculus”, Florence, Italy

2023

20. 2023 December 18th, Science Honours Academy, invited talk to Workshop on Patterns, “Quantum Fractals”, Utrecht University, NL
21. **2023 November 30th – December 02nd, Invited talk at 100 Years of Quantum Mechanics celebration, Workshop on Quantum Science and Technology: recent advances and new perspectives, “Quantum Fractals, Vatican, Italy**
22. 2023 November 27-29, Workshop on Fractional Derivatives, transferred invited talk to Robin Verstraten, “The fractional Langevin equation”, Lorentz Center, Leiden, NL
23. 2023 October 25th, invited Colloquium at Fribourg University, Dionys Baeriswyl in memorium, “The Fractal Hubbard Model”, Fribourg, Switzerland
24. 2023 October 23-24, QuMat Annual Conference, presentation of pillar on New Methods and Techniques, Nijmegen, NL
25. 2023 September 25-27th, Invited talk at Workshop: GOENoneq 2023, “Quasi-crystals, fractals and other beauties”, Göttingen, Germany
26. **2023 September 20th, Opening of the Academic Year Colloquium, selected**

by the ETH students “Quantum Fractals”, ETH Zurich, Switzerland

- 27. 2023 September 6-8th, Invited talk at Time Crystal Conference, “Time glasses, imaginary time crystals, and all that”, Krakow, Poland
- 28. 2023 August 13-19th, Invited talk at Conference on Non-Hermitian Topology, “Quantum geometry and Monomodes in non-Hermitian topological systems”, MPI Dresden, Germany
- 29. 2023 June 12-23rd, Invited talk at Conference “Periodically and quasi-periodically driven complex systems, “Quasi-crystals, Fractals, and other Beauties” (online talk on 22nd) Bangalore, India
- 30. 2023 March 27th, invited colloquium at AMOLF, “Quantum Fractals”, Amsterdam, NL
- 31. 2023 March 20th, invited seminar at Uppsala University, “Quantum Fractals”, Uppsala, Sweden
- 32. 2023 March 15, talk “Topological Quantum Fractals”, Mini-Workshop Topological Connections between Japan and the Netherlands, Utrecht NL

2022

- 33. 2022 December 14-20, invited talk “Quantum Fractals” at Conference TeraMetaNano, Natal, Brazil
- 34. 2022 October 2, Kick-off Meeting of QuMat, Talk on “Topological Insulators: Theory state-of the art”, Utrecht, NL
- 35. 2022 September 25-27, invited talk “Topological properties at fractal dimensions” at Conference on Advances in Quantum Transport, London, UK
- 36. 2022 September 12, invited talk “Materials for the Quantum Age”, Instituto Tecnológico da Aeronautica, ITA, Sao Jose dos Campos, Brazil
- 37. 2022 August 1-6, invited talk “Time glasses, imaginary time crystals and all that”, at FQMT22 Prague, Czech Republic
- 38. **2022 July 24-29, invited plenary talk “Topological properties at fractal dimensions” at SCES 2022, Amsterdam, NL**
- 39. 2022 July 7-9, invited talk “Emmy Noether: the queen of invariants”, Grete Hermann workshop, Utrecht, NL
- 40. 2022 June 27 – July 2, invited talk “Quantum Fractals”, ECAMP 14, Vilnius, Lithuania
- 41. 2022 June 20-23, invited talk “Quantum Fractals”, Quantum Materials Conference, Barcelona, Spain
- 42. **2022 June 14, invited talk “Can consciousness be explained by quantum physics?” at “Fisica ao Vivo, Brazilian Physical Society (SBF) (online)**
- 43. 2022 June 2nd, invited seminar “Quantum Fractals”, KTH, Stockholm, Sweden
- 44. 2022 May 17, invited talk “Can consciousness be explained by quantum physics?” at UU Department Day, Utrecht, NL
- 45. 2022 May 13, invited talk “Can consciousness be explained by quantum physics?” at UU-Science Honours Academy, Utrecht, NL
- 46. 2022 May 12, invited talk “Can consciousness be explained by quantum physics?” at QBIO event, Utrecht, NL

47. 2022 May 2-6, invited talk “Atom-by-atom engineering of novel states of matter“ at CRC TR183 Conference Entangled States of Matter, Berlin, Germany
48. **2022 April 6th**, invited Ehrenfest Colloquium, “Atom-by-atom engineering of novel states of matter“ Leiden, NL
49. **2022 March 17**, invited talk “Compact localized boundary states in a quasi-1D electronic necklace-diamond chain” at the Annual Meeting of the German Physics Society (DPG), (online)
50. **2022 March 14-18**, March Meeting, invited plenary talk “Atom-by-atom engineering of novel states of matter“ at Kavli Symposium, Chicago, USA
51. 2022 January 26, invited talk “Time glasses, imaginary time crystals and all that” at Physics at Veldhoven, Annual Dutch Physics Meeting, Veldhoven, NL
52. 2022 January 25, invited talk “Thermodynamic description of topological insulators: the search for universal behaviour” at Physics at Veldhoven, Annual Dutch Physics Meeting, Veldhoven, NL
53. **2022 January 9**, invited colloquium “Atom-by-atom engineering of novel states of matter”, (online) Pabna University of Science and Technology, Bangladesh

2021

54. **2021 December 2nd**, invited online colloquium “Atom-by-atom engineering of novel states of matter”, Australian Institute of Physics theory talk, Zoom webinar Canberra, Melbourne, Sydney, Australia
55. **2021 November 24**, invited online talk “Quantum simulators: fractals”, TDLI Frontier in Physics Forum to celebrate the 95th birthday of Prof. Tsung-Dao Lee, China
56. 2021 October 4-5, invited talk “Atom-by-atom engineering of topological states of matter” at Conference EPS-IOP topical session “Real-space simulations of topological matter and disordered materials”
57. 2021 September 5-11, invited talk “Quantum simulators: Fractals” at Quantum Optics X Conference, Torun, Poland
58. **2021 August 16-27**, 2 invited keynote lectures “Thermodynamic description of topological phase transitions: the search for universal behaviour”, at Topological Matter School 2021, DIPC San Sebastian, Spain
59. 2021 July 6-8, invited online talk “Quantum simulators: Fractals” at VI EGAS52 Conference, Zagreb, Croatia
60. **2021 July 5**, invited online talk “Quantum Fractals”, SBF Atomic Physics, Brazilian Physical Society, Brazil
61. **2021 May 26-28**, invited keynote lecture “Atom-by-atom designed graphene-like structures” at Graphene Korea, South Korea
62. **2021 April 14**, invited online plenary talk “Atom-by-atom engineering of topological states of matter”, Pittsburgh Quantum Institute (PQI), USA
63. 2021 March 11, invited online talk “Atom-by-atom engineering of topological states of matter”, ct-qmat Topological Insulator Meeting, Würzburg , Germany

64. 2021 March 1, invited online keynote lecture “Atom-by-atom engineering of electronic states of matter”, Marie Curie Symposium, Nijmegen, NL
65. 2021 February 22, invited colloquium “Thermodynamic description of topological insulators: the search for universal behaviour”, Grete-Hermann network, Wurzburg, Germany
66. 2021 February 16, invited online Colloquium “Atom-by-atom engineering of topological states of matter”, UNESP Guaratingueta, Brazil
67. 2021 February 05, invited online Colloquium “Atom-by-atom engineering of topological states of matter”, University of Urbana Champaign, USA
68. 2021 February 03, invited online Colloquium “Atom-by-atom engineering of topological states of matter”, University of Manchester, UK
69. 2021 January 18, invited talk “Unconventional scaling at non-Hermitian critical points” Focus Session on Non-Hermitian Topological Insulators, Annual Meeting of the Dutch Physics Society, NWO Veldhoven, NL
70. 2021 January 07, invited online Colloquium “Atom-by-atom engineering of topological states of matter”, University of California, Riverside, USA

2020

71. 2020 December 15, invited online talk Quantum Fractals, Bad Honnef, Germany
72. 2020 November 26, invited online keynote talk ”Atom-by-atom engineering of electronic states of matter” at the Annual Meeting of the Brazilian Physical Society (SBF)
73. 2020 September 9, invited online colloquium ”Atom-by-atom design of topological states of matter”, Federal University of Para, Belem, Brazil
74. 2020 July 14, invited online talk ”Atom-by-atom engineering of topological states of matter” Grete Herman Network, Würzburg, Germany
75. 2020 July 10, invited online talk ”Atom-by-atom design of novel quantum states of matter” Les Houches Summer School, France
76. 2020 July 7, invited online keynote talk ”Atom-to-atom design of graphene-like structures”, Graphene and 2D Materials
77. 2020 July 2, invited online seminar ”Compact localized states” at Federal University of RN, Natal, Brazil
78. 2020 May 28, invited online talk ”Quantum Fractals” on Quantum Science Seminar (Youtube)
79. 2020 April 06, invited online colloquium ”Quantum Fractals” AMOLF, Amsterdam, NL
80. 2020 February 23-28, invited talk ”Atom-by-atom engineering of electronic states of matter”, Quantum Optics 2020 Conference, Obergurgl, Austria
81. 2020 January 9, invited talk ”Atom-by-atom engineering of electronic states of matter”, DPG meeting Dresden, Germany

2019

82. 2019 November 21, invited seminar ”Atom-by-atom engineering of electronic states of matter”, Xianmin Jin group seminar, Shanghai Jiao Tong University, China
83. 2019 November 12, invited seminar: Atom-by-atom engineering of electronic states of

- matter, Joint Seminar of the WQC and TDL Institute, Shanghai, China
84. 2019 October 23-25, invited talk *Surely you are joking, Giuseppe*, Workshop The wonders of theoretical physics: celebrating the 60 years of Giuseppe Mussardo, Trieste, Italy,
 85. 2019 October 21-25, invited talk "Atom-by-atom engineering of electronic states of matter", Conference on Signatures of topology in condensed matter, ICTP, Trieste, Italy
 86. 2019 October 14-17, invited talk "Atom-by-atom engineering of electronic states of matter", Conference on Quantum Simulation and Computation, QSC2019, Madrid, Spain
 87. 2019 October 10, invited seminar "Atom-by-atom engineering of electronic states of matter", Condensed Matter Seminar, University Paris-Sud, Orsay, Paris, France
 88. 2019 October 9, invited seminar "Atom-by-atom engineering of electronic states of matter", IMPMC Seminar, Sorbonne University Jussieu, Paris, France
 89. **2019 October 3-5, invited plenary talk "The fascinating world of electrons in 1.58 dimensions", Annual Meeting of the Swedish Physical Society, "Fysikdagarna" Linköping, Sweden**
 90. **2019 September 16-18, invited talk "Atom-by-atom engineering of electronic states of matter", Joint DesOEQ-QSUM Workshop, Oxford, UK**
 91. **2019 September 7-14, invited hot topics talk "Atom-by-atom engineering of electronic states of matter", BEC2019 Conference, Saint Feliu, Spain**
 92. **2019 August 27-29, opening talk "Thermodynamic description of topological insulators: the search for universal behaviour" at Quantum and Topological Thermodynamics Workshop, Istanbul, Turkey**
 93. **2019 July 15-19, invited keynote talk "Atom-by-atom engineering of topological states of matter", Designing Artificial Quantum Matter, San Sebastian, Spain**
 94. 2019 July 8, invited Physics colloquium "Atom-by-atom engineering of topological states of matter", Regensburg, Germany
 95. 2019 July 1-3, invited talk "Atom-by-atom engineering of topological states of matter", DIEP Conference on Topology and Broken Symmetries, Utrecht, NL
 96. **2019 June 4-10, invited talk "There is plenty of room at the bottom... but even more in a fractal", Conference on Low-dimensional emergent phenomena in correlated systems and topological quantum matter, Tbilisi, Georgia**
 97. 2019 May 20-24, invited talk "There is plenty of room at the bottom... but even more in a fractal", Lorentz Center Conference on Compound (atomic) quantum simulators, Leiden, NL
 98. 2019 May 1st, invited Colloquium "There is plenty of room at the bottom... but even more in a fractal", Birmingham University, Birmingham, UK
 99. **2019 April 5-6, invited talk "There is plenty of room at the bottom... but even more in a fractal", Dresselhaus Conference, plenary talk, Hamburg, Germany**
 100. **2019 March 27-29, Graphene Korea, plenary talk "Controlled design of 2D structures", Incheon, South Korea**
 101. 2019 March 18-20, SFB/TR49 Symposium, "Atom-by-atom engineering of novel quantum states of matter", Bad Neuenahr, Bonn, Germany
 102. 2019 March 13, ITP Colloquium, "There is plenty of room at the bottom, but even more

in a fractal", Utrecht, Netherlands

- 103. 2019 March 11, USP Colloquium (Bagnato group), *"Quantum simulations with electrons"*, Sao Carlos, SP, Brazil
- 104. **2019 January 29, Solvay Colloquium**, *"There is plenty of room at the bottom, but even more in a fractal"*, **Bruxelles, Belgium**
- 105. 2019 January 23, Focus Session at National NWO Dutch Meeting , *"Atom-by-atom engineering of novel quantum states of matter"*, Veldhoven, Netherlands

2018

- 106. 2018 November 22, Stockholm University Colloquium, *"There is plenty of room at the bottom, but even more in a fractal"*, Stockholm, Sweden
- 107. 2018 November 19, Würzburg University Colloquium, *"There is plenty of room at the bottom, but even more in a fractal"*, Würzburg, Germany
- 108. 2018 November 15, SONS Colloquium, *"There is plenty of room at the bottom, but even more in a fractal"*, Utrecht, Netherlands
- 109. 2018 October 29 - November 9, two invited lectures at Summer School and conference on "Advances on Quantum Simulation with Ultracold Atoms", International Institute of Physics (IIP) in Natal, Brazil
- 110. 2018 October 27-28, Closing remarks and conclusions at Wilczek Quantum Center Conference, Shanghai, China
- 111. **2018 October 22-26, invited talk** *"Feynman integrals: setting the path and the pace in physics"*, **Celebrating 100 years of Feynman birth Conference, Singapore**
- 112. 2018 October 4-5, Workshop on *"Artificial Gauge Fields and Interacting Topological Phases in Ultracold Atoms"* DFG Research Unit FOR 2414, Frankfurt/Main, Germany
- 113. 2018 October 1-5, International Conference on Nano-Structured Materials and Devices (ICNSMD-2018), University of Delhi, New Delhi, India (cancelled participation due to change in date)
- 114. 2018 September 10-14, *"There is plenty of room at the bottom, but even more in a fractal"* at the 23rd ETSF Workshop on Electronic Excitations, Milan Italy
- 115. 2018 August 23-24, *"There is plenty of room at the bottom, but even more in a fractal"* at UK & NL meeting, Oxford, UK
- 116. 2018 August 21, Summer School, University of Utrecht, invited lecture *"What the frac? Electrons in 1.58 dimensions?"*, Utrecht, Netherlands
- 117. 2018 August 14-18, *"Thermodynamic description of topological insulators: the search for universal behaviour"*, at ITF conference, Sao Paulo, Brazil
- 118. 2018 August 9, UNICAMP Colloquium, *"There is plenty of room at the bottom, but even more in a fractal"*, Campinas, Brazil
- 119. 2018 July 23-27, *"There is plenty of room at the bottom, but even more in a fractal"* at ICSNN, Madrid Spain
- 120. 2018 July 8-20, Nordita conference "Topological matter: beyond the ten-fold way", talk on July 10th, *"Thermodynamics of Topological Insulators: search for universalities"*, Stockholm, Sweden
- 121. 2018 June 24-28, Nordita, 3rd. Quantum Connections, under invitation only, topic

Quantum Topology and Time, talk “*There is plenty of room at the bottom, but even more in a fractal*”, Stockholm, Sweden

122. **2018 April 15-17, (after-dinner colloquium at the Quantum Gases and Quantum Coherence 2018, “*There is plenty of room at the bottom, but even more in a fractal*” Bad Honnef, Germany**
123. 2018 April 11, CUI Colloquium, Hamburg, Germany “*Thermodynamic description of topological insulators: the search for universal behaviour*”

2017

124. 2017 September 15-16, Tsung-Dao Lee Institute, Shanghai, China, International Symposium on the Future of Physics and Astronomy, “*Electrons in non-integer dimensions*”
125. **2017 September 9, Young German Physical Society Meeting (JDPG), Bad Honnef, Germany (plenary talk)** “*Graphene: the good, the bad, and the nano*”
126. 2017 August 28 - 31, Buzios, Brazil, Meeting of the Brazilian Physical Society, “*Graphene: the good, the bad, and the nano*”
127. 2017 August 13-21, Stockholm, Sweden, Nordita Workshop on Topological Phases in Cold Atom Systems “*Floquet topological insulators*”
128. 2017 July 24-26, Luxembourg, Spin-Orbit Materials 2017 Conference, “*Thermodynamic signatures of topological edge states*”
129. 2017 July 3-7, Nordita, Stockholm, Sweden, II Quantum Connections in Sweden, “*Fermionic Lieb lattice and thermodynamics of topological insulators*”
130. 2017 June 28-30, Yale-NUS, Singapore, Workshop on interactions in Topological Materials, “*Effect of interactions in graphene and transition-metal dichalcogenides*”
131. 2017 May 10, Wuerzburg, Germany, Seminar at Molenkamp group, “*Thermodynamic signatures of topological states*”
132. 2017 May 5, Stockholm, Sweden, Nordita Conference Frontiers of topological quantum matter, “*Thermodynamic signatures of topological edge states*”
133. April 12, 2017, Sao Carlos, Brazil, Seminar Bagnato group, “*Ultracold atoms in optical lattices as cond-mat quantum simulators*” Talk: “*Graphene: the good, the bad, the nano and the pseudo*”
134. 2017 April 3, Madrid, Spain, Colloquium at Universidad Autonoma de Madrid
135. **2017 March 28-31, Graphene 2017 Meeting, Barcelona, Spain**
136. 2017 March 21-26, Natal, Brazil, IIP Conference on Topological States of Matter, “*Graphene: the nano, the high and the hot*”

Selected outreach talks and activities

1. **November 20-26th 2023, Popular talk for the inauguration of the new Pudong Library, Shanghai, China**
2. **January 30- February 17 2023 – Workshop on “Quantum Technologies in Sao Paulo, Brazil and Latin America” (invited plenary popular talk “A consciencia pode ser explicada pela fisica quantica?” on February 2nd at the DOM of the Instituto Principia), Sao Paulo, Brazil**

3. January 07 2023, "Can consciousness be explained by quantum physics?", Goethe Institute organization, Shanghai, China (online)
4. June 14 2022, invited talk "Can consciousness be explained by quantum physics?" Science for Life Cafe, Utrecht, NL
5. May 24 2022, invited talk "Can consciousness be explained by quantum physics?" Leiden, City of Science, Pesthuis Leiden, NL
6. **April 4 2022, invited lecture "Can consciousness be explained by quantum physics?" at Hendrik de Waard Annual Lecture, Groningen, NL**
7. October 27 2021, invited online public lecture "Tem muito lugar la embaixo... mas ainda mais num fractal", University of Maringa, Brazil
8. **September 21 2021, invited public lecture "Can we explain consciousness with quantum theory" at Vredenburg theater, Betweter Festival, Studium Generale, Utrecht, NL**
9. February 11 2021, Secondary Schools NL, NNV celebration (2 lectures on Quantum Fractals), Utrecht, NL
10. November 20 2020, invited talk "Quantum Fractals", UU Open Day, Utrecht, NL
11. May 11 2021, Invited panel discussion WISE (Women in Science and Engineering), Groningen, NL
12. October 4 2019, Swedish Physical Society meeting, plenary talk, Linköping, Sweden, **"The quantum world of electrons in 1.58 dimensions"**
13. May 15 2018, Louis Hartlooper Cinema, Utrecht, the Netherlands, **The Pint of Science**, "Physics a la Picasso "
14. April 25 2018, **Descartes lecture**, Utrecht University, the Netherlands, "What the frac? Electrons in 1.58 dimensions?"
15. March 2 2016 , **Descartes Lecture**, Utrecht University, the Netherlands, "Graphene: the good, the bad and the beauty"
16. June 1st 2015 an June 3rd 2016, Utrecht University, the Netherlands, **EMMEPH, PHEMME and PHAME** seminar, "Emmy Noether, the queen of invariants"
17. September 21 2015, University College Utrecht, the Netherlands, **(general lecture)** "The ultrathin world of graphene"
18. October 1 2014, Jaarbeurs, Utrecht, the Netherlands, invited talk in the event **Tomorrow's Electronics**, talk title: Artificial Graphene, Trade show World of Technology & Science 2014
19. April 24 2014, **Club of Amsterdam**, Amsterdam, the Netherlands, Title of the talk: How f-male a woman should be to succeed? Invited talk in the event Future of Women in Business
20. 2013 **Youtube Short movie**: "Physics a la Picasso" by Huub Rutjes, <http://www.youtube.com/watch?v=QrBaJKLcBY0>
21. September 6 2013, Utrecht University, the Netherlands, The cool world of ultracold atoms, **Inaugural lecture** to new Physics students
22. July 4 2011, University College Utrecht, the Netherlands, "100 years of superconductivity", **"Summer School for Secondary level students"**
23. February 20 2011, **Utrecht University Museum**, the Netherlands (public lecture),

- "The cool world of ultracold particles", "Physics exposition: Master the Universe"
24. October 28 2010, University College Utrecht, the Netherlands (talk), "Extremely thin", "**Masterclass** theoretical physics: the extreme world of physics"
 25. April 22 2008, Utrecht, the Netherlands (talk), "Sociology of electrons", "**College van Bestuur**" University of Utrecht.
 26. Participation on part of the Art Event at **Museum Casco** "Re-projecting Utrecht", by Ricardo Basbaum, on April 20 2008:"Me and You, choreographies, games and exercises (talk about diagrams in physics).
 27. January 21 2008, Veldhoven, the Netherlands (talk), "Fund-raising" (hints to female physicists about grant applications), **f-FOM Symposium** 2008.
 28. November 28 2007, The Hague, the Netherlands (talk), "Know-how: Possible connections between Switzerland and the Netherlands", Launching of the "Swiss Business Club", invited by the Ambassador of Switzerland, **Swiss Embassy, The Hague**.
 29. Participation in the **film "Be(com)ing Dutch"** (reading and round table discussions) filmed in Den Haag (Mauritshuis) Museum and exhibited in CASCO Museum (Utrecht) from September 22nd to October 22nd (2006), and then exhibited in Schiller Theater on October 22nd. The "Maurits Script" is the third part of an art project by Wendelien van Oldenborgh called "A certain Brasilianess". Later the film was exhibited in Recife and Rio de Janeiro (Brazil), New York (USA), Rotterdam, and since 2008 it became part of the permanent collection of the Van Abbemuseum in Eindhoven.
 30. October 26-27 2006, Driebergen, the Netherlands, (seminar), "**The future of condensed matter theory**", "DRSTP-Young Symposium: The Future of Theoretical Physics in the Netherlands"
 31. April 04 2006, Utrecht, the Netherlands (colloquium), "The magic world of electrons in two-dimensions", "**Natuurkundig Gezelschap**", University of Utrecht
 32. Seminar about the history of vacuum, **Art Gallery, Fribourg, Switzerland**, during the finissage of the exposition "Vacuum" by a Spanish artist (2004).

Conferences: organization (selected)

1. February 5-16 2024, QFT Winter School and 1-day Workshop "Forty years of Conformal Field Theory" (Andrea Cappelletti @65) Florence, Italy (co-organizer)
2. March 12-18 2023, Organisation of the Mini-Workshop "Topological Connections between Japan and the Netherlands, Several talks by members of Xiao Hu group and ITP and Debye UU members
3. February 5-16 2023, QFT Winter School Florence, Italy (co-organizer)
4. February 1-10 2023, Workshop on Quantum Technologies in Sao Paulo, Brazil, and Latin America (co-organizer)
5. November 13-16 2019 Shanghai, China, Wilczek Quantum Center Conference "**Quo Vadis Quantum Simulators**", co-organizer together with Carlos Navarrete Benlloch, Andreas Hemmerich, and Zi Cai
6. November 4-5 2019 **NanoGe**, 2D Layered Semiconductors, co-organizer with Efrat Lifshitz and Doron Naveth, Berlin, Germany
7. July 2018, co-organizer of the "**Nordita Workshop Topological Matter beyond the ten-fold way**", together with V. Juricic, A. Bernevig, D. Abergel, A. Balatsky

and H. Hansson (1 month program), Stockholm, Sweden.

8. June 2018, scientific committee of "**Graphene 2018**", Dresden, Germany
9. September 05-09 2016, member of the organization board of the **Condensed-Matter Division (CMD)26 International Conference**, Groningen, and main organiser of a Mini-Colloquium "Geometric 2D semiconductors " as part of the CMD26 (with C. Delerue, D. Vanmaekelbergh, V. Pellegrini).
10. December 2015, co-organisation of the **New Spin 4 Conference**, Utrecht, with D. Schuricht, R. Duine, L. Fritz, and H. Stoof.
11. May 3 2013, co-organisation, together with I. Swart and D. Vanmaekelbergh of the "**Graphene Day**", Utrecht, NL
12. August 20-31 2012, International Institute of Physics, Natal, Brazil, Co-organization of the **School and Conference "Advances in Quantum Technology: from quantum information to quantum devices"**
13. April 15 2011, co-organiser of the **workshop "Theoretical Physics in Fribourg: Past, Present, and Future"**, Fribourg, Switzerland, together with V. Gritsev
14. April 23 2010, Utrecht, the Netherlands, main organizer of the **FYSICA 2010, joint conference of the Dutch and Belgian Physical Societies**
15. May 14-15 2009, Dalfsen, the Netherlands, member of the organizing committee of the **"Biannual meeting of the Dutch Research School on Theoretical Physics (DRSTP)"**
16. January 23-24, 2007 Veldhoven, the Netherlands, co-organizer, together with K. Schoutens (Amsterdam) of the **session on "Quantum Matter" in the annual FOM meeting**
17. July 02-08 2006, Monte Verità, Ascona, Switzerland, co-organizer, together with R. Morf (PSI) and J. Fröhlich (ETH Zurich) of the **international conference "Strongly correlated systems in low dimension"**
18. September 2004, Rome, Italy, **Microsymposium on "Stripes in quantum Hall systems"**, co-organizer, together with A. Bianconi (Università di Roma "La Sapienza")
19. October 2000 and 2001, Fribourg, Switzerland, **"Rencontre romande sur les systèmes fortement corrélés"**
20. October 1998, Sion, Switzerland, **"Coherence and Decoherence in Quantum Systems"**, together with P. Hänggi (Univ. of Augsburg, Germany) and A. Hemmerich (Univ. of Hamburg, Germany)

Outreach: organization

1. Organisation of EMMEPH 't Hooft Lecture (500 people, single organizer):
September 17 2014 (**Prof. Dan Shechtman**)
October 7 2015 (**Prof. François Englert**)
September 14 2016 (**Prof. Frank Wilczek**)
September 27 2017 (**Prof. Wolfgang Ketterle**)
September 5 2018 (**Prof. Duncan Haldane**)
September 4 2019 (**Prof. Gerard 't Hooft**)
September 30 2020 (**Prof. Kip Thorne**)
September 15 2021 (**Prof. William (Bill) Phillips**)
October 14 2022 (**Prof. Frank Wilczek**)
2. Organisation of EMMEPH Colloquium (200 people):

April 23 2015 (**Dr. Fabiola Gianotti**), June 26 2015 (**Prof. Thomas Stocker**), April 13 2016 (**Prof. Laurens Molenkamp**), June 08 2016 (**Prof. Charlie Kane**), May 30 2018 (**Prof. Tom Lubensky**).

3. Organization of the event **EMMEPH, PHEMME and PHAME** (series of lectures about Gender, Science and Technology), May-June 2015 and 2016.
4. Chair of the “Denktank” for organizing the **Exposition “Master the Universe”** about Theoretical Physics in the University Museum, Utrecht, from April 2010 to May 2011.
5. Organization of two Masterclasses in Theoretical Physics (for secondary school pupils), Utrecht University June 9-10 and October 28-29, 2011 **Fascination for Extreme Worlds**.
6. Organisation of one workshop during the “**Beta onder the Dom**” event, with the title Master the Universe June 11 2010, for physics teachers.
7. Editor of the Outreach magazine “**It’s only Natural**” - Master Magazine Utrecht University, 2010-2011.

5. General services

1. Participation in about **60 PhD Theses committees** in the Netherlands, France, Germany, Switzerland, Sweden, Denmark, Spain and Brazil.
2. Participation in **16 nomination and promotion committees** (Tenure-Track, Full Professor and Director positions) in Germany, Denmark, Netherlands, Sweden, China, in Physics and Mathematics.
3. **Referee for funding agencies:** Humboldt (Germany), since 2014; NWO-VICI (2014, 2015), NWO-Rubicon (150 projects in 2010), FOM (Projectruimte 2006 and Best PhD Thesis Prize 2011-2013) (the Netherlands); Swiss National Science Foundation (Switzerland); , National Science Foundation (USA), Department of Energy (DOE-USA); CNRS Programme JCJC 2008 (France); DFG Research Unit 723 (Germany), DFG TRR 49 (Germany), DFG Trans-National- Humboldt Foundation (Germany), Helmholtz Foundation (Germany), National Sciences and Engineering Research Council (Canada), Marsden Fund (New Zealand), CNPq (Brazil).
4. **Referee for scientific journals:** Science, Nature, Nature Physics, Physical Review Letters, Physical Review A, B, D, and E, Europhysics Letters, Physica B and C, and Nuclear Physics B.
5. **Editorial board European Physics Journal B**, from 2011 - 2019 and Nature Quantum Frontiers (since 2022).

6. Press commentary on my work and media interviews

1. The paper *Quantum transport in fractal networks* by X. Y. Xu, X. W. Wang, D. Y. Chen, C. Morais Smith*, and X. M. Jin*(*corresponding authors) **Nature Photonics 15, 703 (2021)** is among the 1% most visible papers in terms of access online, and it was the 1st most visible paper from Nature Photonics right after its publication (currently still ranked 1st among 35 tracked papers of same age). The result of this research has featured in an interview on the UK website “The conversation”, and it was the most read piece of 2021 from Utrecht University academics, read 390.000 times

across the United States, United Kingdom, Canada, Australia and India, and republished by Science Alert, SciTechDaily, The Next Web, Singularity Hub and Big Think. Its Spanish translation was the sixth most-read piece, read 44.000 times across Spain, Mexico, Argentina, Colombia and Chile, and republished by The Objective, Formación IB, El Obrero, Contrainformación, and Newsify (App). This publication also led to an invitation for an interview in “The Jet Set Breakfast” with Michel Constant in SAFm radio (South Africa). I have declined other radio interviews by the UK Islamic radio. The paper has attracted an enormous interest of the general public: the connection between Quantum Physics and consciousness attracts the interest of laymen, as well as researchers. This has reflected into a large number of invitations for public lectures, e.g. the Betweter Festival at Tivoli-Vredenburg theater in Utrecht (October 16 2021), the annual Hendrik de Waard lecture in Groningen (April 4 2022), the NRC event to celebrate Leiden, the City of Science 2022 (April 29 2022), as well as an invited talk at the Kavli Symposium during the March Meeting 2022, with an interview at the APS TV.

See <https://www.nature.com/articles/s41566-021-00845-4/metrics> for more outreach links.

2. **Nature Materials Highlights** ”Robust zero-energy modes in an electronic higher-order topological insulator” by S. Kempkes, ... and C. Morais Smith, Nature Materials **18**, 1292 (2019) featured in News and Views: ”Protected corners”, by Motohiko Ezawa, Nature Materials **18**, 1266 (2019)

3. **Nature Physics Highlights:** ”Design and characterization of electrons in a fractal geometry ”by S. Kempkes, ... and C. Morais Smith, Nature Physics **15**, 127 (2019) has featured in:

15 Years of Nature Physics, Nature Physics 16, 999 (2020), a collection made by the Nature Physics editors of the most important publications from the last 15 years.

<https://www.nature.com/articles/s41567-020-01051-9>

Youtube: Seeker (745K views)

<https://youtu.be/OsZHRCuTIS8>

Youtube: Multiverse (2.5K views)

<https://www.youtube.com/watch?v=7XG1N3C2bSU>

Physics Today 72, 1, 14 (2019)

<https://physicstoday.scitation.org/doi/full/10.1063/PT.3.4105>

NRC 12 November 2018

<https://www.nrc.nl/nieuws/2018/11/12/elektronen-met-een-dimensie-van-158-a2754897>

Others

<https://phys.org/news/2018-11-physicists-fractal-electrons.html>

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Signed: Cristiane Morais Smith