

# Curriculum Vitae

## Iacopo Carusotto

### Personal data

- **Name:** Iacopo Carusotto
- **Born** in Pisa (Italy) on January 23rd, 1975
- **Actual position:** Research Director (*Dirigente di Ricerca*) at INO-CNR BEC Center
- **Postal address:**  
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### Studies and Jobs

- **July 1993:** has obtained high school degree (*Maturità Classica*) with full grades (60/60).
- From **october 1993** to **november 1997** has been an undergraduate student (*studente del corso ordinario*) at **Scuola Normale Superiore** (SNS) in Pisa, Italy and has followed courses both at Pisa University and at Scuola Normale Superiore.
- **October 1, 1997** has obtained the *Laurea* degree in Physics at Pisa University with full marks and honours (*110/110 e lode*)  
**Thesis:** "Linear and nonlinear optics in one dimensional photonic crystals". **Relatore** (Major professor): G.C. La Rocca
- **November 17, 1998** has obtained the *Licenza* degree at Scuola Normale Superiore with full marks and honours (*70/70 e lode*)  
**Thesis:** "Nonlinear optics in semiconductor microcavities". **Relatore** (Major professor): G.C. La Rocca
- From **january 1998** to **november 2000** has been a Ph.D. student at **Scuola Normale Superiore** (SNS) in Pisa, Italy. **Supervisor:** prof. G.C. La Rocca.

- From **january** to **june 1999** has collaborated with proff. Jean Dalibard and Yvan Castin at the Laboratoire Kastler-Brossel in Paris. The stay in Paris has been partially funded by EC (TMR network ERB FMRX-CT96-0002)
- **November 11, 2000** has defended with full marks and honours (*70/70 e lode*) the **Ph.D. Thesis**: *Linear and nonlinear optics of Bose fields: light waves in dielectric structures, matter waves in optical lattices*.  
**Supervisor**: prof. G.C.La Rocca. **Referees**: prof. L. P. Pitaevskii and prof. T. W. Hänsch.  
**Members of the jury**: prof. M. P. Tosi (president), dr. Y. Castin, prof. V. Agranovich, prof. F. Strocchi, dr. A. Tredicucci.
- During **january** and **february 2001** has visited the Dipartimento di Fisica “E. Caianiello” of the University of Salerno, Italy.
- From **march 2001** to **may 2003** has been a “Marie Curie” post-doctoral fellow at the Laboratoire Kastler-Brossel of the École Normale Supérieure in Paris in the “*cold atoms*” group directed by prof. Claude Cohen-Tannoudji and has collaborated with Yvan Castin and Jean Dalibard. Title of the project: “*Stochastic field methods for the interacting Bose gas*”.
- **May 2003**: has obtained a tenure track Junior Researcher position at the BEC Center in Trento. The position has been tenured during December 2008.
- During the **academic year 2003-04** has been on leave at the Collège de France in Paris as a Maître de Conférences associé to the Atomic and Molecular Physics chair of prof. C. Cohen-Tannoudji.
- From **April 2007** to **July 2007** has been on leave at the Institut Henri Poincaré in Paris as a CNRS fellow in the framework of the *Quantum gases* trimester.
- From **september 2008** to **march 2009** has been on leave at the ETH in Zürich (Switzerland) as a Visiting Professor in the Quantum Photonics group led by prof. A. Imamoglu.
- **February 2009**: has obtained a Senior Researcher position (*Primo Ricercatore*) at the INO-CNR BEC Center in Trento.
- **May 2019**: has obtained a Research Director position (*Dirigente di Ricerca*) at the INO-CNR BEC Center in Trento.

## Institutional, Evaluation, and Editorial tasks

- From **2018-21**: Member of the Management Board of the Q@TN (Quantum at Trento) joint initiative of Trento University, FBK and CNR in the field of Quantum Science and Technologies.
- Starting from **2018**: Head of the *Transdisciplinary Program in Quantum Science and Technology*, the interdisciplinary PhD School of the Q@TN (Quantum at Trento) initiative.
- **May 2019 (renewed in January 2021)**: Head of the Trento unit “Pitaevskii BEC Center” of INO-CNR (*Responsabile delegato alla gestione della Sede Secondaria di Trento*).
- From **January 2024**: member of the Scientific Committee of the Physics Institute of the French CNRS.
- Referee for Phys. Rev. A, B, D, E, Phys. Rev. Lett., EPJD, EPL, J. Phys., Nature, Nature Physics, Nature Photonics, Nature Communications, New J. Phys., Optica, Opt. Expr., etc.

- External Referee for funding and evaluation agencies: French ANR, Italian VQR and FIRB, Israeli ISF, US-Israel BSF, US NSF, Polish NSC, European ERC, Icelandic RANNIS, Swiss ETH, etc.
- Guest Editor for the focus issue on *Bose condensation phenomena in atomic and solid state physics* on New J. Phys. together with L. Vinã and J. Schmiedmayer. This special issue has been sponsored by the POLATOM ESF Research Networking Programme (2013).
- Guest editor for a special issue on *Physics of polaritons* on Comptes Rendus Physique together with A. Amo and J. Bloch.
- Editor for a EPL Focus Issue on *Turbulent regimes in Bose-Einstein condensates* on Europhysics Letter together with A. Lanotte and A. Bramati.
- Guest editor for a special issue on *Analog Models of Gravity* in memory of Renaud Parentani on Comptes Rendus Physique together with C. Westbrook and J. Bloch.
- Co-Editor for Europhysics Letters (April 2017-April 2020, renewed until April 2023).
- From June 1st, 2022 (until May 31st, 2025): Member of the Editorial Board of Physical Review X.

## Prizes and awards

- **June 1992:** Has participated to the “Giochi della Chimica” (italian national Chemistry Olimpiad) and has classified first in the B category.
- **July 1993:** Has participated as member of the italian team to the International Physical Olimpiad in Williamsburg, U.S., and has won a bronze medal.
- **July 1993:** Has participated as member of the italian team to the International Matematical Olympiad in Istanbul, Turkey, and has won a bronze medal.
- **November 2000:** has obtained the “*Le Scienze*” medal for physics offered by the italian edition of *Scientific American* to a young researcher.
- **September 2001:** has been awarded the first prize for the best talk on condensed matter physics at the 87th conference of the Italian Physical Society.
- **April 2002:** has obtained the *Berz Award* offered by the Institute Of Physics to a young theoretical physicist.
- **September 2002:** has obtained the prize of the Italian Physical Society (SIF) for a young physicist having had his degree after 1995 (*premio per giovani laureati*).
- **May 2010:** Honorable mention in the 2010 Gravity Research Foundation Essay Competition with the essay *Testing Hawking particle creation by black holes through correlation measurements* by R. Balbinot, I. Carusotto, A. Fabbri, A. Recati.
- **January 2014:** *Outstanding Referee Award* of the American Physical Society.
- **2015:** *Certificate of Recognition* of New Journal of Physics for the service as a referee.
- **2019:** *Google Quantum Innovation Award* for the proposal *Anyonic statistics in lattice fractional quantum Hall states* by E. Macaluso, T. Comparin and I. Carusotto.
- **Spring 2022:** Premio M.-T. Messori-Roncaglia and E. Mari of the italian *Accademia Nazionale dei Lincei*, Roma.

## Teaching

- During **2000** has participated to the *Concorso a cattedre* held by the Italian Ministry of Education and has obtained a permanent position as high school mathematics and physics professor. Position declined.
- During the **academic years 2001-02, 2002-03, and 2003-04** has led the *Travaux Dirigés* of the *Mécanique Quantique Avancée* (Advanced Quantum Mechanics) course at the *DEA de Physique Quantique* (graduate school of Quantum Physics) at the École Normale Supérieure in Paris.
- During the **academic year 2002-03** has worked as a tutor at the l'ŮTES (department for the application of multimedial technologies in the teaching of sciences) of Paris 6 "Pierre et Marie Curie" University.
- From **september 2003 to july 2004** has taught basic french reading and writing to newly arrived immigrants at the Foyer Pinel, Saint-Denis, Paris.
- During the **academic year 2004-05** has been charged of the "Thermodynamics and Statistical Mechanics" course for 3rd year undergraduate students in applied physics (*laurea di primo livello in Fisica Applicata*) at the University of Trento.
- From **september to december 2008** has given a one-semester course on "New trends in Bose-Einstein condensation" to graduate students at ETH in Zürich (Switzerland).
- Starting from the **academic year 2009-10 onward** is responsible of the one-semester course on "Quantum Optics" for master students in physics (*laurea magistrale in Fisica*) at the University of Trento.
- During **February 2011** has given a short course on "New trends in BEC" at the Centre for Quantum Technologies of National University of Singapore (Singapore).
- During **February 2012** has given a short course on "Quantum fluids of light" at the PhD school in Physics of the Centre for Quantum Technologies of National University of Singapore (Singapore).
- During **February-March 2014** has given a short course on "Superfluidity and Bose-Einstein Condensation" in the framework of prof. La Rocca and Fazio's course on "Teoria degli stati condensati" for Master and PhD students at Scuola Normale Superiore (Pisa, Italy).
- During **March 2016** has given a short course on "Quantum Fluids of Light" at the Graduate Days of The Hamburg Centre for Ultrafast Imaging, Hamburg (Germany).
- During **May 2016** has given a short course on "New trends in BEC and superfluidity" in the framework of the course "Ciclo di Seminari – Fisica della Materia Condensata" for Master and PhD students at Scuola Normale Superiore (Pisa, Italy).
- During **Spring 2017** has given a short course on "Quantum Optics" in the framework of the course "Ciclo di Seminari – Fisica della Materia Condensata" for Master and PhD students at Scuola Normale Superiore (Pisa, Italy).
- During **Spring 2018** has given a short course on "Photonic Crystals" in the framework of the course "Solid state physics" for Master students at University of Pisa (Italy).
- During **Spring 2019 and Spring 2021** has given a short course on "Topological States of Matter" in the framework of the course "Ciclo di Seminari – Fisica della Materia Condensata" for Master and PhD students at Scuola Normale Superiore (Pisa, Italy).

- During **Spring 2023** has given a short course on “Light matter interaction in condensed matter systems” in the framework of the course “Ciclo di Seminari – Fisica della Materia Condensata” for Master and PhD students at Scuola Normale Superiore (Pisa, Italy).

## Participation and coordination of projects. Other external funding

- May 2010-2015: Member of the steering committee of the POLATOM (*Common perspectives for cold atoms, semiconductor polaritons and nanoscience*) ESF Research Networking Programme. Coordinator: G. Kavoulakis (Crete).
- September 2013-2017: Principal Investigator of the INO-CNR node of the SiQuRo “On silicon chip quantum optics for quantum computing and secure communications” project funded by Provincia Autonoma di Trento under the Call “Grandi Progetti 2012”. Budget of the node: 320keuro (out of a total of 2.3Meuro). Coordinator: L. Pavesi (University of Trento).
- Principal Investigator of the INO-CNR node of the AQuS “Analog Quantum Simulators for many-body dynamics” project funded by the UE under the FET-Proactive call. Budget of the node 245keuro (out of a total of 2.0Meuro). Start date: January 2015 for 3 years. Coordinator: T. Gasenzer (Heidelberg).
- October 2015-2017: Scientific Supervisor of Hannah Price’s Marie Skłodowska Curie Individual Fellowship “Synthetic Gauge Fields in Quantum Optics – SynOptic”.
- Principal Investigator of the INO-CNR node (sub-node of CNR) of the MIR-BOSE “Mid- and far-IR optoelectronic devices based on Bose-Einstein condensation” project funded by the UE under the H2020-FETOPEN-2016-2017 call. Budget of the node 192.5 keuro (out of a total of 3.8Meuro). Start date: January 2017 for 3.5 years. Coordinator: R. Colombelli (IEF Orsay, France).
- Scientific Supervisor of Salvatore G. Butera’s post-doctoral fellowship “Back-reaction effects of the Dynamical Casimir and the Hawking emission” funded by the Julian Schwinger foundation. Start date November 2017 for 2 years.
- From 2018 to 2021: CNR Scientist in Charge and member of the Management Board of the Q@TN (Quantum at Trento) joint initiative of Trento University, FBK and CNR in the field of Quantum Science and Technologies.
- Principal Investigator of the INO-CNR node of the PhoQuS “Photons for quantum simulation” FET project to be funded by the UE under the FET Flagship on Quantum Technologies call. Budget of the node 150keuro (out of a total of 3.0Meuro). Start date: October 2018 for 3 years. Coordinator: A. Bramati (LKB, Paris, France).
- During 2019: “Google Quantum Innovation Award”, with budget of 30k\$.
- Co-Investigator (with A. Bernardi, Mathematics Department of Trento University) of the Trento node of the TENORS “Tensor modELiNg, geOmetRy and optimiSation” Marie Skłodowska-Curie Doctoral Network / Joint Doctorate. Start date: January 2024 for 4 years. Coordinator: B. Mourrain (Inria center at Université Cote d’Azur, France).

## Organization of conferences

- Main responsible for the local organization of the XXIV meeting “Fisica teorica e struttura della materia”, Levico Terme (Trento) during september 2006.

- Member of the scientific programme committee of the ICSCE-4 conference (*International Conference on Spontaneous Coherence in Excitonic Systems*), Cambridge (UK), september 2008.
- Has collaborated with A. Fabbri (Valencia) and R. Balbinot (Bologna) to the scientific organization of the workshop *Towards the observation of Hawking radiation in condensed matter systems*, Valencia (Spain), February 1-7, 2009.
- Coordinator of the organization of the International workshop *New Frontiers in Graphene Physics*, ECT\*, Trento (Italy), April 12-14, 2010. Co-organizers: S. Hands (Swansea), A. Richter (Darmstadt), S. Stringari (Trento), B. Trauzettel (Univ. Würzburg).
- Co-organizer of the summer school *Bose-Einstein Condensation in Solids and Atomic Gases* at ITAP, Marmaris (Turkey), September 9-19, 2010.
- Member of the scientific programme committee of the ICSCE-5 conference (*International Conference on Spontaneous Coherence in Excitonic Systems*), Lausanne (Switzerland), February 2011.
- Coordinator of the organization of the International workshop *New trends in the physics of the quantum vacuum: from condensed matter, to gravitation and cosmology*, ECT\*, Trento (Italy), June 27th-July 1st, 2011. Co-organizers: R. Balbinot (Bologna), A. Fabbri (Valencia), C. Ciuti (Paris).
- Member of the scientific programme committee of the OECS-12 conference (*Optics of excitons in confined structures*), Paris, September 2011.
- Co-organizer of the POLATOM school on *Cold atoms, excitons and polaritons* in Toledo (Spain), May 21-23, 2012.
- Co-organizer of the summer program on *Synthetic gauge fields for atoms and photons*, Trento, July 1-12, 2013.
- Co-organizer of the Advanced Workshop on *Coherent phenomena in disordered optical systems* at ICTP, Trieste, May 26-30, 2014.
- Coordinator of the organization of the Winter School and Workshop on *Strongly correlated fluids of light and matter*, ECT\*, Trento (Italy), January 12-23, 2015. Co-organizers: C. Ciuti (Paris), R. Fazio (SNS Pisa), A. Imamoglu (ETH Zurich).
- Coordinator of the organization of the Winter School on *Topological effects in photonics*, Fai della Paganella, Trento (Italy), March 16-20, 2015. Co-organizers: A. Amo (LPN, Paris), M. Hafezi (JQI Maryland).
- Member of the Sub-Committee EF (Nonlinear Phenomena, Solitons and Self-organization) for the Conference on Lasers and Electro-Optics Europe (CLEO / Europe) and European Quantum Electronics Conference (EQEC) 2015 (Munich, Germany, June 21st-25th, 2015).
- Member of the Programm Committee of the Final POLATOM Meeting (Physik-Zentrum Bad Honnef, June 20th-24th, 2015).
- Member of the scientific committee of the Solvay Workshop on *Quantum simulation with cold matter and photons* (Brussels, Feb. 8th-10th, 2016). Chair: N. Goldman (ULB Brussels).
- Co-organizer of the International Informal Workshop *Topodays 2016 – Topological effects in Photonics* at University of Trento, Apr.18-20, 2016. Co-organizers: H. M. Price (BEC Trento), F. Ramiro-Manzano (Univ. Trento).
- Member of the Scientific Board of the *Analog Quantum Simulators for Many-Body Dynamics*, September 5th-8th, 2016, Heidelberg (Germany). Chair: T. Gasenzer (Heidelberg).

- Co-organizer of the *Fluids of Light* Workshop, October 17th-19th, 2016, Edinburgh, Scotland. Chair: D. Faccio (Heriot-Watt, Edinburgh).
- Member of the Scientific Board of the *Quantum Fluids of Light and Matter* conference (Cargèse, May 8-12, 2017). Chair: C. Ciuti (MPQ Paris).
- Member of the Sub-Committee EF (Nonlinear Phenomena, Solitons and Self-organization) for the Conference on Lasers and Electro-Optics Europe (CLEO / Europe) and European Quantum Electronics Conference (EQEC) 2017 (Munich, Germany, June 25st-29th, 2017).
- Co-organizer of the International workshop on *Quantum Physics and Geometry*, July 4th-6th, 2017, Levico Terme (Trento), Italy. Co-organizers: E. Ballico, A. Bernardi, S. Mazzucchi, V. Moretti.
- Co-organizer of the International workshop on *Synthetic Dimensions and Synthetic Gauge Fields*, November 20th-23rd, 2017, ETH Zürich, Switzerland. Chair: O. Zilberberg (ETH).
- Member of the technical program subcommittee on “Nonequilibrium systems, active and driven nonlinear photonic structures” for the OSA Nonlinear Photonics conference, Zurich, July 2nd-5th, 2018.
- Member of the scientific committee of the Solvay Workshop on “Quantum Simulation 2019”, to be held in Brussels on Feb. 17th-20th, 2019. Chair: N. Goldman (ULB Brussels).
- Member of the Sub-Committee on “Topological States of Light” for the Conference on Lasers and Electro-Optics Europe (CLEO / Europe) and European Quantum Electronics Conference (EQEC) 2019 (Munich, Germany, June 23rd - 27th, 2019).
- Co-organizer of the International workshop “Simulating gravitation and cosmology in condensed matter and optical systems”, ECT\*, Trento (Italy), July 22th-25th, 2019. Co-organizers: R. Balbinot (Bologna), M. Rinaldi (Trento), R. Sturani (Natal).
- Member of the program committee of the “PLMCN20 – International Conference on Physics of Light-Matter Coupling in Nanostructures”, Clermont-Ferrand (France), October 27th-30th, 2020. Finally moved online.
- Member of the Sub-Committee on “Topological States of Light” for the Conference on Lasers and Electro-Optics Europe (CLEO / Europe) and European Quantum Electronics Conference (EQEC) 2021 (June 21st - 25th, 2021, online).
- Co-organizer of the International workshop on “Tensor Networks: Quantum Physics, Geometry and Applications”, July 26th-28th, 2021, Levico Terme (Trento), Italy. Co-organizers: A. Bernardi, P. Hauke (Trento).
- Co-organizer of the workshop “Analogue models of gravity and fluctuation-induced phenomena”, June 27th-29th, 2022, Higgs Center for Theoretical Physics, Glasgow (Scotland). Main organizer: S. Butera (Glasgow), Suddhasattwa Brahma (University of Edinburgh).
- Co-organizer of the 209th course of the International School of Physics “Enrico Fermi” on “Quantum Fluids of Light and Matter – QFLM 2020”, Varenna (Italy). Co-organizers: C. Ciuti (MPQ Paris), A. Bramati (LKB Paris) – Initially schedule in July 2020, postponed to July 2022 for COVID-19.
- Co-organizer of the workshop “Circuit QED: from Quantum Devices to Analogues on Superconducting Circuits”, Oct.3rd-5th, 2022, Trento (Italy). Co-organizers: Andrea Vinante (IFN-CNR), Benno Margesin (FBK), Claudio Gatti, Danilo Babusci (INFN), Federica Mantegazzini, Paolo Falferi (FBK).

- Co-organizer of the International workshop “Quantum simulation of gravitational problems on condensed matter analog models”, ECT\*, Trento (Italy), June 19th-23rd, 2023. Co-organizers: R. Balbinot (Bologna), M. Rinaldi (Trento), G. Ferrari (Trento), J. Bloch (Palaiseau), S. Robertson (Orsay).
- (planned) Co-organizer of the meeting on “Turbulence and Vortex dynamics in 2D quantum fluids” at the International Centre for Theoretical Sciences (ICTS) of the Tata Institute of Fundamental Research, Bangalore (India), February 26th-March 1st, 2024. Co-organizers: D. Ballarini, A. S. Lanotte, D. Sanvitto (CNR NANOTEC, Italy), Samriddhi Sankar Ray (ICTS-TIFR, India).
- (planned) Co-organizer of the International workshop “Universal themes of Bose Einstein Condensation”, ECT\*, Trento (Italy), November 4th-8th, 2024. Co-organizers: D. W. Snoke (U. Pittsburgh, USA), N. Proukakis (Univ. Newcastle, UK), T. Giamarchi (Univ. Geneva, Switzerland), P. Littlewood (Chicago, USA), F. M. Marchetti (UAM Madrid, Spain), M. Wouters (Univ. Antwerp, Belgium), G. Ferrari and S. Giorgini (Univ. Trento, Italy).
- (planned) Co-organizer of the International Workshop on “Quantum Fluids of Light and Matter – QFLM 2024”, E. Majorana School, Erice (Italy), November 15th-19th, 2024. Co-organizers: C. Ciuti (Univ. Paris, Chair), A. Bramati (LKB Paris).

## Invited talks at workshops, conferences and schools

1. **June 2001:** International Workshop “Theory of Quantum Gases and Quantum Coherence” in Salerno (Italy).
2. **June 2001:** “Quantum Optics V” conference in Koscielisko (Zakopane, Poland)
3. **March 2001:** “Fisica teorica e struttura della materia”, XXI Convegno, Fai della Paganella (Trento)
4. **May 2002:** VI Congresso SIMAI (Italian Society of Applied and Industrial Mathematics), Chia Laguna (Cagliari, Italy)
5. **December 2002:** “Soliton – Quanteninformation – Workshop”, Forchheim (Germany).
6. **February 2003:** “BECQI’03 Workshop on Bose-Einstein Condensation and Quantum Information”, Rydges Oasis Resort - Caloundra (Queensland, Australia).
7. **September 2003:** “Bose-Einstein condensation, EuroConference on the New Trends in the Physics of Quantum Gases”, San Feliu de Guixols (Catalunya, Spain).
8. **June 2007:** “Recent progress in the studies of quantum gases: theory and experiments”, Institut Henri Poincaré, Paris (France).
9. **July 2007:** “13th International Conference on Modulated Semiconductor Structures”, Genova (Italy)
10. **September 2007:** “10th Conference on the “Optics of Excitons in Confined Systems”, Patti (Messina, Italy).
11. **July 2008:** “Frontiers of Quantum and Mesoscopic Thermodynamics” conference, Praha (Czech Republic).
12. **December 2008:** Workshop “Solid State Quantum Information”, Pisa (Italy).
13. **February 2009:** Workshop “Towards the observation of Hawking radiation in condensed matter systems”, Valencia (Spain).



14. **September 2009:** Workshop “Finite-Temperature Non-Equilibrium Superfluid Systems”, Durham (UK).
15. **September 2009:** Summer School “Electronic/Optical Coherence in Low Dimensional Semiconductors and Atomic Gases”, ITAP, Marmaris (Turkey)
16. **November 2009:** CECAM Workshop “Ab-initio Modeling of Cold Gases”, ETH Zürich (Switzerland).
17. **February 2010:** International Conference on “Quantum Optics”, Obergurgl (Austria).
18. **April 2010:** “Atom Lasers” conference, École de Physique, les Houches (France)
19. **October 2010:** Workshop “Nonequilibrium quantum many-particle correlated systems”, National Institute for Theoretical Physics, Stellenbosch Institute of Advanced Study (South Africa).
20. **February 2011:** “International Conference on Spontaneous Coherence in Excitonic systems”, ICSCE-5, Lausanne (Switzerland).
21. **May 2011:** 9th edition of the SIGRAV graduate school in contemporary relativity and gravitational physics on “Analogue Gravity”, Villa Olmo, Como (Italy).
22. **June 2011:** Workshop on “Dynamical Casimir Effect : Theory and Experiments”, Padova University (Italy).
23. **September 2011:** BEC2011 Conference “Bose-Einstein Condensation: Frontiers in Quantum Gases”, San Feliu de Guixols (Catalunya, Spain).
24. **October 2011:** Workshop on “Entanglement in solid state systems” WESSS, Lecce (Italy).
25. **June 2012:** Singapore school of physics on “Strong light-matter coupling: from atoms to solid-state systems”, Nanyang Technological University of Singapore (Singapore).
26. **June 2012:** Workshop on “Nonequilibrium Phenomena in Ultra-cold Atoms and Strongly Interacting Photons”, Princeton, NJ (USA)
27. **June 2012:** Workshop “ICARUS”, Pisa (Italy)
28. **July 2012:** “23rd International Conference on Atomic Physics”, ICAP 2012, to be held at École Polytechnique in Palaiseau (France)
29. **July 2012:** Workshop on “Effective Gravity in Fluids and Superfluids”, ICTP, Trieste (Italy).
30. **August 2012:** “International Conference on Spontaneous Coherence in Excitonic systems”, ICSCE-6, Stanford, California (USA).
31. **September 2012:** “POLATOM Network conference”, Cambridge (UK).
32. **October 2012:** “Holographic applications, out-of-equilibrium phenomena, gravity & analogue gravity”, ENS, Paris (France).
33. **March 2013:** “Universal Themes of Bose-Einstein Condensation workshop”, Lorentz Center, Leiden (The Netherlands).
34. **April 2013:** Lecture at the 7th Optoelectronics and Photonics Winter School on “Optical Resonators”, Levico Terme, Trento (Italy)
35. **May 2013:** “Ultracold atoms and gauge theories”, ICTP, Trieste (Italy)

36. **May 2013:** “Out-of-equilibrium dynamics of 1D condensates”, Institut d’Optique, Palaiseau, Paris (France)
37. **June 2013:** “Relativistic Quantum Information Workshop”, University of Nottingham (UK).
38. **August 2013:** “Quantum Many Body Systems out of Equilibrium”, MPIPKS, Dresden (Germany)
39. **September 2013:** POLATOM network school on “Cold atoms, excitons, exciton-polaritons and surface plasmon-polaritons”, Maratea (Italy).
40. **September 2013:** 13th Conference on the “Optics of Excitons in Confined Systems”, Roma (Italy).
41. **September 2013:** Plenary talk at the 100th Congresso Nazionale of the Italian Physical Society (SIF), Pisa (Italy).
42. **October 2013:** Royal Society workshop on “Many body quantum optics and correlated states of light”, Chicheley Hall, Buckinghamshire (UK)
43. **December 2013:** Workshop on “Waves in Complex Media”, Grenoble (France).
44. **February 2014:** Winter College on “Fundamentals of Photonics”, ICTP, Trieste (Italy).
45. **June 25th, 2014:** Seminar at Collège de France in the framework of the course *Atomes et rayonnement* by Jean Dalibard.
46. **July 2014:** School on “Non-linear dynamics, instabilities and patterns in classical and quantum systems”, ICTP, Trieste (Italy).
47. **September 2014:** Workshop on “Ultracold Rydberg Physics”, Granada (Spain).
48. **November 2014:** Workshop on “Quantum Correlations Out of Equilibrium”, ETH Zurich (Switzerland).
49. **March 2015:** March Meeting of the American Physical Society, San Antonio (Texas, US).
50. **March 2015:** Lecture at the 8th Optoelectronics and Photonics Winter School on “Topological effects in photonics”, Fai della Paganella, Trento (Italy).
51. **June 2015:** Lecture and plenary invited talk at the final school and meeting of the ESF POLATOM network (Physik-Zentrum Bad Honnef, Germany).
52. **July 2015:** 14th Marcel Grossmann meeting, Roma.
53. **August 2015:** “Workshop on Photonics: Fundamentals and Applications”, ICTP-ECAR and Izmir Institute of Technology (Turkey).
54. **September 2015:** Conference “Finite-Temperature Non-Equilibrium Superfluid Systems” - FINESS2015, Sopot (Poland).
55. **October 2015:** Conference on “Non-equilibrium dynamics of strongly interacting photons”, KITP-UCSB, Santa Barbara (USA).
56. **January 2016:** Workshop on “Condensates of Light”, Chicheley Hall, Buckinghamshire (UK)
57. **February 17th, 2016:** Seminar at the condensed matter division of ICTP, Trieste (Italy).
58. **March 10th, 2016:** QSIT Colloquium at ETH Zürich (Switzerland).
59. **April 2016:** Italy-Israel meeting on non-equilibrium physics, Bar-Ilan University, Tel Aviv (Israel).

60. **June 2016:** Conference *Quantum simulations and many-body physics with light*, Chania (Greece).
61. **July 2016:** Workshop “NEqFluids2016: Classical and Quantum Fluids out of Equilibrium”, Grenoble (France)
62. **July 2016:** Conference *META’16, – 7th International Conference on Metamaterials, Photonic Crystals and Plasmonics*, Malaga (Spain).
63. **September 2016:** Special event speaker at the *BEC2016 – Quantum gases and quantum coherence* workshop, Salerno (Italy).
64. **September 2016:** Workshop on “Testing the limits of the quantum superposition principle in nuclear, atomic and optomechanical systems”, ECT\*, Villazzano (Italy).
65. **September 2016:** Workshop on *Analog Quantum Simulators for Many-Body Dynamics*, Heidelberg (Germany).
66. **September 2016:** Keynote speaker at the *Quantum Technologies Conference VII*, Warsaw (Poland).
67. **October 2016:** International Workshop on “Advances in mechanical metamaterials”, University of Trento, Trento (Italy).
68. **November 2016:** Q-MAC Symposium, Venice (Italy)
69. **March 2017:** Lecture at the 9th Optoelectronics and Photonics Winter School on “Integrated Quantum Photonics”, Andalo, Trento (Italy).
70. **May 2017:** Conference “Quantum science approaches to strongly correlated systems: from ultracold atoms to high-energy and condensed matter physics”, GGI, Florence (Italy).
71. **September 2017:** BEC2017 Conference “Bose-Einstein Condensation: Frontiers in Quantum Gases”, San Feliu de Guixols (Catalunya, Spain).
72. **September 10th-15th, 2017:** BIRS workshop on “Photonic Topological Insulators”, Banff (Canada).
73. **October 1st-5th, 2017:** FisMat Conference, Trieste (Italy).
74. **November 2017:** Les Houches School on “Nano and Quantum Optics”, Les Houches (France).
75. **February 2nd, 2018:** Hamburg Photon Science Colloquium, Hamburg (Germany).
76. **March 2018:** March Meeting of the American Physical Society, Los Angeles (California, US).
77. **March 19th-20th, 2018:** IoP Topical Research Meeting on “Topological states in strongly interacting light-matter systems”, Chicheley Hall, Buckinghamshire (UK).
78. **June 2018:** “Analogue-Gravity workshop”, Technion, Haifa (Israel).
79. **June 2018:** Lecture series at the Summer School on “Quantum Fluids of Light and Matter”, Les Houches (France).
80. **July 2018:** Keynote speaker at the Workshop on “Current trends in open and nonequilibrium quantum optical systems”, Erlangen (Germany).
81. **August 2018:** Workshop “Frontiers in Analogue Gravity and High Energy Physics for Condensed Matter Physics” at the Journées de la Matière Condensée, Grenoble (France).

82. **November 2018:** Nature Conference on “Topological Photonics – From Concepts to Devices”, St. Louis (USA)
83. **November 2018:** Workshop “Gran Sasso Quantum Meetings: from many particle systems to quantum fluids”, GSSI (Italy).
84. **April 2019:** Conference “ECAMP – European Conference on Atoms, Molecules, Photons”, Firenze (Italy).
85. **May 2019:** Conference on “Exploring Open Quantum Systems in Quantum Simulators”, KITP-UCSB, Santa Barbara (USA).
86. **May 2019:** Workshop on “Synthetic topological matter (SYNTOM 2019)”, MPI-PKS Dresden (Germany).
87. **September 2019:** Workshop “ITQW – Infrared Terahertz Quantum Workshop” Ojai (California, USA).
88. **January 13th, 2020:** Colloquium at the Vienna Graduate School CoQuS, Vienna (Austria).
89. **June 17th-19th, 2020:** Online workshop on “New Horizons in Analogue Gravity” organized by Yaron Kedem (Stockholm University, Sweden), Jaakko Nissinen (Aalto University, Finland), Justin H. Wilson (Rutgers University, NJ, USA).
90. **August 17th-19th, 2020:** Online workshop on “Analog Computational Methods” organized by David Snoke and Vincent Liu (Pittsburgh, USA).
91. **September 29th-30th, 2020:** Online Tohoku University - RIKEN 2nd Joint Workshop on “Math meets Quantum Materials (MMQM)” organized by T. Ozawa, C. Bourne, H. Suito and T. Hatsuda (Tohoku AIMR / RIKEN iTHEMS).
92. **October 27th-30th, 2020:** “PLMCN20 – International Conference on Physics of Light-Matter Coupling in Nanostructures”, Clermont-Ferrand (France). Finally moved online.
93. **November 30th-December 2nd, 2020:** annual workshop of the “GdR Complexe”, organized online by Nicolas Cherroret and Alexandre Aubry.
94. **November 11th, 2020:** ITAMP virtual seminar, Institute for Theoretical Atomic, Molecular and Optical Physics, Cambridge, USA.
95. **November 17th, 2020:** Online colloquium at the Max-Planck Institute of Quantum Optics (Garching, Germany).
96. **March 14th, 2021:** Invited lecture at the Tutorial Session on “Synthetic photonic systems” at the 2021 March Meeting of the American Physical Society (online).
97. **April 12th, 2021:** Online workshop on “Gravity and Emergent Gauge Fields in Condensed and Synthetic Matter” organized by the Mainz Institute for Theoretical Physics (MITP). Organizers: R. A. Duine (Utrecht), A. G. Grushin (Grenoble, CNRS), G. Tarnopolsky (Harvard).
98. **June 4th, 2021:** Online worksup on “Topology meets Quantum Optics” organized by the Benasque Science Center. Organizers: A. Amo, A. González-Tudela, A. Metelmann, D. Porras.
99. **July 20th, 2021:** Online workshop on “Nuclear Physics Meets Condensed Matter” organized by ECT\* in Trento. Organizers: A. Gezerlis, A. Roggero, C. Sa de Melo.

100. **September 2021:** Lecture series at the Doctoral Training on “Quantum Simulations with Ultracold Atomic Gases”, Les Houches (France).
101. **December 2021:** Invited talk at the “Lattice-based Quantum Simulation” workshop at the Physikzentrum, Bad Honnef (Germany). Finally moved online due to COVID-19.
102. **May 2022:** Invited talk at the “Finite-Temperature Non-Equilibrium Superfluid Systems” - FINESS2022 conference, St. Martin Deutsche Weinstrasse (Germany).
103. **May 2022:** Invited talk at the CLEO 2022 conference – Symposium on Topological Lasers (San José, California – online participation because of COVID-19 issues)
104. **June 2022:** Invited talk at the conference on “Open System Control of Atomic and Photonic Matter”, Physik-zentrum, Bad Honnef (Germany).
105. **August 2022:** Invited talk at the Solvay Workshop on “Quantum Simulation”, Brussels (Belgium).
106. **September 2022:** Workshop on “Ultra-strong light-matter coupling: where are we standing?”, Oryahovitzza (Bulgaria).
107. **October 2022:** Invited talk at the workshop “TOPDYN22 – Topology and non-equilibrium dynamics in engineered quantum systems”, MPIPKS, Dresden (Germany).
108. **January 2023:** Lectures at the School “PQIP2023 – Photonic Quantum Information Processing”, Trento (Italy).
109. **March 2023:** Invited tutorial talk at the Winter workshop on “Out-of-equilibrium physics with photons and atoms”, Les Houches (France).
110. **June 2023:** Invited talk at the workshop “Topological Photonics 2023”, Madrid (Spain).
111. **June 2023:** Invited talk at the workshop “Nuclear and particle physics on a quantum computer: Where do we stand now?”, ECT\*, Trento (Italy).
112. **June 2023:** Invited participation and talk at the workshop “New perspectives in the out-of-equilibrium dynamics of open many-body quantum systems– OpenQMBP2023”, Institut Pascal, Orsay (France).
113. **July 2023:** Invited talk at the Humboldt Kolleg on “Synthetic Quantum Matter”, Vilnius (Lithuania).
114. **September 2023:** Invited talk at the Session on “Hybrid quantum simulators for condensed matter physics problems II” at the Joint CMD30-FisMat 2023 conference, Milano (Italy).
115. **October 2023:** Colloquium at the Center for Quantum Technologies, NUS Singapore.
116. **November 2023:** (Online) Invited talk at the Workshop “2nd Liverpool Workshop on Muon Precision Physics 2023 – MPP2023”, Liverpool (UK). Organizers: G. Venanzoni and G. L. Casse (Liverpool).
117. **November 2023:** Invited talk at the “International Conference on Quantum Simulation – IC-QSIM2023”, École Polytechnique, Palaiseau (France).
118. **November 2023:** Invited tutorial talk on “Quantum Simulation” at the 1st Colloquium of the CNRS research network “Quantum Technologies” (GdR TeQ), Montpellier (France).

# Supervision and examination of students and postdocs

## Supervision of Master students

- Director of **Francesco Bariani**'s undergraduate work at the University of Insubria (Como, Italy): *Photonic band structure in a system of ultracold atoms trapped in an optical lattice*. Thesis defended on October 18th, 2006.
- From October 2011 supervisor of **Alessio Chiocchetta**'s master thesis at the Trento University. Thesis defended on September 26th, 2013.
- From October 2011 supervisor of **Marco Cominotti**'s master thesis at the Trento University. Thesis defended on September 26th, 2013.
- From March 2013 supervisor of **Chen Xiaolong**'s master thesis at the joint SISSA-Trento master in physics. Thesis defended on March 26th, 2014.
- During 2014 internal supervisor of **Matteo Silva**'s master thesis at the Trento University. Thesis defended on October 23rd, 2014. Main supervisor: P. V. Lagoudakis (Southampton).
- During 2014-5 internal supervisor of **Lorenzo Scarpelli**'s master thesis at the Trento University. Thesis defended on March 25th, 2015. Main supervisor: M. Kroner (ETH Zurich)
- During 2015-6 internal supervisor of **Fabiano Lever**'s master thesis at the Trento University. Thesis defended on March 25th, 2015. Main supervisor: Otfried Gühne (Univ. Siegen, Germany).
- During 2015-6 internal supervisor of **Daniele De Bernardis**'s master thesis at the Trento University. Thesis defended on March 24th, 2016. Main supervisor: Michiel Wouters (Antwerp University, Belgium).
- During 2015-6 internal supervisor of **Gianluca Aiello**'s master thesis at the Trento University. Thesis defended on March 24th, 2016. Main supervisor: J. Estève and J. Gabelli (Univ. Paris-Sud, France).
- During 2015-16 supervisor of **Lorenzo Crippa**'s master thesis at the joint SISSA-Trento master in physics. Thesis defended on March 24th, 2016.
- During 2015-16 internal supervisor of **Lorenzo Pastori**'s master thesis at the Trento University. Thesis defended on July 20th, 2016. Main supervisor: Jan-Carl Budich (Innsbruck University, Austria).
- During 2015-16 supervisor of **Claudio Benzoni**'s master thesis at the Trento University. Thesis defended on October 26th, 2016.
- During 2015-16 supervisor of **Matteo Soriente**'s master thesis at the Trento University. Thesis defended on October 26th, 2016.
- During 2015-16 supervisor of **Elia Macaluso**'s master thesis at the Trento University. Thesis defended on October 26th, 2016.
- During 2016-17 supervisor of **Matteo Secli**'s master thesis at the Trento University. Thesis defended on October 25th, 2017.
- During 2018 supervisor of **Fabio Caleffi**'s master thesis at the joint SISSA-Trento master in physics. Thesis defended on October 24th, 2018.

- From Spring 2019 supervisor of **Alberto Nardin**'s master thesis at the Trento University. Thesis defended on Oct. 23rd, 2019.
- From Spring 2019 supervisor of **Sebastiano Bresolin**'s master thesis at the Trento University. Thesis defended on March 17th, 2020.
- From 2019 co-supervisor of **Chiara Alessi**'s master thesis at the Mathematics Department of Ferrara University. Main supervisor: prof. Michele Miranda. Thesis defended on December 18th, 2020.
- From Spring 2020 supervisor of **Anna Berti**'s master thesis at the Trento University. Thesis defended on October 21st, 2020.
- From Spring 2020 supervisor of **Riccardo Cominotti**'s master thesis at the Trento University. Thesis defended on October 21st, 2020.
- During 2019-20 supervisor of **Valentina Errani**'s master thesis at the Trento University. Thesis defended on Oct.21th, 2020.
- During 2019-21 supervisor of **Alberto Canali**'s master thesis at the Trento University. Thesis defended on May 26th, 2021.
- During 2020-21 supervisor of **Zeno Bacciconi**'s master thesis at the Trento University. Thesis defended on Oct. 20th, 2021.
- From April 2022 internal supervisor of **Greta Villa**'s master thesis at the Trento University. External supervisor Tomoki Ozawa (Tohoku Univ., Sendai, Japan). Thesis defended in October 2022.
- During 2022-23 supervisor of **Denis Nabari**'s master thesis at the Trento University. Thesis defended on Oct. 19th, 2023.

## Supervision of PhD students

- From November 2006 supervisor of **Francesco Bariani** PhD work at the University of Trento on *Optics of slow polaritons in ultracold and strongly correlated atomic systems*. Thesis defended on November 20th, 2009.
- From November 2012 supervisor of **Grazia Salerno**'s PhD work at the University of Trento on *Artificial Gauge Fields in Photonics and Mechanical Systems*. Thesis defended on April 19th, 2016.
- From October 2013 supervisor of **José Lebreuilly**'s PhD work at the University of Trento on *Strongly Correlated Quantum Fluids and Effective Thermalization in Non-Markovian Driven-Dissipative Photonic Systems*. Thesis defended on December 7th, 2017.
- From October 2016 supervisor of **Elia Macaluso**'s PhD work at the University of Trento on *Probing Quasihole and Edge Excitations of Atomic and Photonic Fractional Quantum Hall Systems*. Thesis defended on January 27th, 2020.
- From October 2017 co-supervisor (together with M. Capone) of **Matteo Seclì**'s PhD work at SISSA, Trieste (Italy) on *Topology and Nonlinearity in Driven-Dissipative Photonic Lattices: Semiclassical and Quantum Approaches*. Thesis defended on September 29th, 2021.
- From November 2017 supervisor of **Ivan Amelio**'s PhD work at the University of Trento on *Coherent Dynamics of Low Dimensional Quantum Fluids of Light and Matter*. Thesis defended on December 4th, 2020.

- From November 2017 co-supervisor (together with M. Rinaldi) of **Luca Giacomelli**'s PhD work at the University of Trento on *Superradiant phenomena - Lessons from and for Bose-Einstein condensates*. Thesis defended on March 4th, 2021.
- From November 2018 supervisor of **Alberto Muñoz de las Heras**'s PhD work at the University of Trento on *Non-Hermitian and Topological Features of Photonic Systems*. Thesis defended on February 24th, 2022.
- From November 2018, co-supervisor (together with A. Bernardi, Dep. of Mathematics) of **Claudia De Lazzari**'s PhD work at the University of Trento on *Algebraic, geometric and numerical methods for Tensor Network Varieties*. Thesis defended on December 7th, 2022.
- From November 2019 supervisor of **Alberto Nardin**'s PhD work at the University of Trento on *Linear and nonlinear edge dynamics and quasiparticle excitations in fractional quantum Hall systems*. Thesis defended on July 12th, 2023.
- From November 2019 co-supervisor (together with A. Szameit) of **Francesco Piccioli**'s PhD work at the University of Trento in co-tutelle with the University of Rostock (Germany) on *Topological photonics in guided wave geometries*. Thesis defended on December 20th, 2023.
- From November 2020 co-supervisor (together with G. Ferrari) of **Anna Berti**'s PhD work at the University of Trento. Thesis to be defended in early 2024.

## Supervision of PostDocs

- From April 2009 to March 2010 scientific supervisor of **Davide Sarchi**'s post-doctoral research at the BEC Center, supported by a *Fonds National Suisse* grant.
- From October 2010 to September 2012 scientific supervisor of **Rifat Onur Umucalılar**'s post-doctoral research at the BEC Center.
- From October 2011 to September 2013 scientific supervisor of **Stefano Finazzi**'s post-doctoral research at the BEC Center.
- From November 2013 to September 2017 scientific supervisor of **Hannah Price**'s post-doctoral research at the BEC Center.
- From November 2013 to August 2016 scientific supervisor of **Pierre-Élie Larré**'s post-doctoral research at the BEC Center.
- From January 2015 to December 2017 scientific supervisor of **Tomoki Ozawa**'s post-doctoral research at the BEC Center.
- From September 2015 to September 2017 scientific supervisor of **Marco Di Liberto**'s post-doctoral research at the BEC Center.
- From December 2017 to May 2020 scientific supervisor of **Jacopo Nespolo**'s post-doctoral research at the BEC Center.
- From February 2018 to September 2019 scientific supervisor of **Alex Leymann**'s post-doctoral research at the BEC Center.
- From August 2021 to August 2023 scientific supervisor of **Daniele De Bernardis**'s post-doctoral research at the BEC Center.



## Supervision of exchange students

- From December 2014 to June 2015: scientific supervisor of exchange PhD student **Andrei C. Berceanu**'s 6 months stay in Trento under a POLATOM exchange grant. Main PhD supervisor: Francesca M. Marchetti (UAM Madrid)
- From Dec. 2015 to March 2018: scientific supervisor of exchange PhD student **Mathias Van Regemortel**'s many months stays in Trento. Main PhD supervisor: Michiel Wouters (Antwerp University, Belgium).
- From April to July 2016: scientific supervisor of exchange PhD student **Salvatore G. Butera**'s 4 months stay in Trento. Main PhD supervisor: Patrik Öhberg (Heriot-Watt, Edinburgh).
- From November 2017 to October 2019 scientific supervisor of **Salvatore G. Butera**'s post-doctoral research at the BEC Center.
- From October 2018 to June 2019 supervisor of exchange master student **Aurélian Loirette-Pelous** from École Normale de Cachan, France.
- From February to July 2021 supervisor of exchange master student **Romain Usciati** from École Normale Supérieure, Paris, France.
- From March to July 2021 supervisor of exchange master student **Quentin Lamouret** from École Normale Supérieure, Paris, France.
- From September 2021 to January 2022 supervisor of exchange PhD student **Esben Rohan Christensen** from Aarhus University, Danmark.
- From February to July 2022 supervisor of exchange PhD student **Lennart Fernandes** from Univ. Antwerp, Belgium.
- From April to July 2022 supervisor of exchange master student **Mattheus Burkhard** from École Normale de Cachan, Paris, France.
- From September to November 2022 supervisor of exchange PhD student **Chris Oliver** from Univ. of Birmingham, UK.

## Examination committees

- Member of the PhD jury of **Sylvain Schwartz** at the École Polytechnique in Palaiseau (France) and main responsible for the chapters on atom optics. Title of the thesis: *Solid state gyrolasers and applications of atom lasers to gyrometry*. Supervisor: prof. Alain Aspect. PhD defended on November 11th, 2006.
- Referee of **Anders Mouritzen** PhD thesis at the University of Aarhus (Danmark). Title of the thesis: *Quantum State reconstruction in several-particle systems*. Supervisor: prof. Klaus Mølmer. PhD defended on October 11th, 2007.
- Referee of **Dmitry Solnyshkov** PhD thesis at the Université Blaise Pascal in Clermont-Ferrand (France). Title of the thesis: *Exciton-Polaritons in planar microcavities*. Supervisor: dr. Guillaume Malpuech. PhD defended on December 6th, 2007.
- Member of the PhD jury of **Tung-Lam Dao** at the École Polytechnique in Palaiseau (France). Title of the thesis: *Strongly-correlated ultracold atoms in optical lattices*. Supervisor: prof. Antoine Georges. PhD defended on October 9th, 2008.

- Member of the PhD jury of **Dario Ballarini** at Universidad Autónoma de Madrid (Spain). Title of the thesis: *Dynamics of microcavity polaritons at the non-linear regime crossover*. Supervisor: prof. Luis Viña. PhD defended on November 28th, 2008.
- Member of the PhD jury of **Simone De Liberato** at the University Paris VII-Diderot (France). Title of the thesis: *Cavity quantum electrodynamics and intersubband polaritonics of a two dimensional electron gas*. Supervisor prof. Cristiano Ciuti. PhD defended on June 24th, 2009.
- Referee of **Taofiq Paraïso** PhD thesis at the École Polytechnique Fédérale de Lausanne (Switzerland). Title of the thesis: *Dynamics of interactions of confined microcavity polaritons*. Supervisor: prof. Benoît Deveaud-Plédran. PhD defended on May 11th, 2010.
- Referee of **Jagoda Radogostowicz** PhD thesis at the Università di Pisa (Italy). Title of the thesis: *Investigation of dipole blockade in ultracold atomic ensembles*. Supervisor: prof. Ennio Arimondo. PhD defended on Dec.20th, 2010.
- Member of the PhD jury of **Carlos Mayoral Sáenz** at the University of Valencia (Spain). Title of the thesis: *Correlation functions for black holes and white holes in Bose-Einstein condensates*. Supervisor prof. Alessandro Fabbri. PhD defended on June 31th, 2011.
- Referee of **Stefano Finazzi** PhD thesis at SISSA, Trieste (Italy). Title of the thesis: *Analogue gravitational phenomena in Bose-Einstein condensates*. Supervisor: prof. Stefano Liberati. PhD defended on July. 5th, 2011.
- Member of the PhD jury of **Tarik Yefsah** at the Université Pierre et Marie Curie-Paris VI (France). Title of the thesis: *Thermodynamique du gaz de Bose à deux dimensions*. Supervisor prof. Jean Dalibard. PhD defended on September 29th, 2011.
- Referee of **Andreas Reinhard** PhD thesis at ETH-Zurich (Switzerland). Title of the thesis: *Strong Photon-Photon Interactions in Solid State Cavity QED*. Supervisor prof. Atac Imamoglu. PhD defended on December 17th, 2012.
- Referee of **Pierrick Cheiney** PhD thesis at the Université de Toulouse 3 Paul Sabatier (France). Title of the thesis: *Matter wave scattering on complex potentials*. Supervisor prof. D. Guéry-Odelin. PhD defended on June 4th, 2013.
- Referee of **Gabriele Grosso** PhD thesis at the École Polytechnique Fédérale de Lausanne (Switzerland). Title of the thesis: *Hydrodynamics and nonlinear phenomena in polariton fluids*. Supervisor: prof. Benoît Deveaud-Plédran. PhD defended on Feb. 18th, 2014.
- External member of **Hashem Zoubi** Habilitation jury at the University of Innsbruck (Austria). Title of the thesis: *Excitons and Cavity Polaritons in Organic Crystals and for Ultracold Atoms in Optical Lattices*. Thesis defended on Apr. 29th, 2014.
- Referee of **Yuxin Hu** PhD thesis at the Center of Quantum Technologies (Singapore). Title of the thesis: *Artificial gauge fields and topological effects in quantum gases*. Supervisor dr. Benoît Grémaud. Thesis defended on March 25th, 2015.
- Referee of **Anton Nalitov** PhD thesis at the Université Blaise Pascal, Clermont Ferrand (France). Title of the thesis: *Spin dynamics and topological effects in physics of indirect excitons and microcavity polaritons*. Supervisor dr. Guillaume Malpuech. Thesis defended on May 6th, 2015.
- Examiner of **Mena Issler** PhD thesis at ETH-Zurich (Switzerland). Title of the thesis: *Anomalous and critical dynamics in a dissipative central spin system*. Supervisor prof. Atac Imamoglu. PhD defended on Apr. 21st, 2015.

- Referee of **Maxime Richard**'s Habilitation Thesis at the Université de Grenoble (France). Title of the thesis: *Light-exciton-photons interactions in semiconductor nanostructures: from thermodynamics to optomechanics*. Thesis defended on Sept. 25th, 2015.
- Referee of **Selma Koghee**'s PhD thesis at the University of Antwerp (Belgium). Title of the thesis: *The dynamical Casimir effect in exciton-polariton quantum fluids*. Supervisor prof. Michiel Wouters. Thesis defended on May 27th, 2016.
- Referee of **Matteo Biondi**'s PhD thesis at ETH Zürich (Switzerland). Title of the thesis: *Strongly Correlated Photons In Nonequilibrium Cavity Arrays*. Supervisor prof. J. Blatter. Thesis defended on December 5th, 2016.
- Member of the PhD jury of **Florent Michel** at Université Paris-Saclay (France). Title of the thesis: *Nonlinear and quantum effects in analog gravity*. Supervisor prof. Renaud Parentani. PhD defended on October 10th, 2017.
- Member of the PhD jury of **Léo-Paul Euvé** at Université de Poitiers (France). Title of the thesis: *Interactions Ondes-Courant-Obstacle : Application à la Physique des Trous Noirs*. Supervisor prof. Germain Rousseaux. PhD defended on October 10th, 2017.
- Member of the PhD jury of **Lorenzo Privitera** at SISSA, Trieste (Italy). Title of the thesis: *Non-equilibrium aspects of topological Floquet quantum systems*. Supervisor prof. Giuseppe Santoro. PhD defended on October 16th, 2017.
- Member of the PhD jury of **Mathias Van Regemortel** at University of Antwerp (Belgium). Title of the thesis: *Quasiparticles in out-of-equilibrium quantum systems: correlations and equilibration*. Supervisor prof. Michiel Wouters. PhD defended on March 14th, 2018.
- External Referee of **Bernhard Rauer**'s PhD thesis at Technical University of Vienna (Austria). Title of the thesis: *Non-equilibrium dynamics beyond dephasing: Recurrences and loss induced cooling in one-dimensional Bose gases*. Supervisor prof. Jörg Schmiedmayer.
- Member of the Habilitation jury of **Quentin Glorieux** at Sorbonne Université (Paris, France). Title of the thesis: *Quantum Optics in Dense Atomic Media. From Optical Memories to Fluid of Light*. Thesis defended on Dec. 3rd, 2018.
- Member of the PhD jury of **Jirawat Tangpanitanon** at the Center of Quantum Technologies (Singapore). Title of the thesis: *Towards quantum simulation with interacting photons in superconducting circuits*. Supervisor prof. Dimitris Angelakis. Thesis defended on January 29th, 2019.
- Member of the PhD jury of **Adrien Fusaro**'s PhD thesis at the Université Bourgogne Franche-Comté (Dijon, France), Title of the thesis: *Auto-organisation d'ondes optiques incohérentes : Condensation, thermalisation et repolarisation*. Supervisor prof. Antonio Picozzi. PhD defended on Oct. 1st, 2019.
- Referee of **Quentin Fontaine**'s PhD thesis at Sorbonne Université (Paris, France). Title of the thesis: *Paraxial fluid of light in hot atomic vapors*. Supervisor prof. Q. Glorieux. PhD defended on Jan. 31st, 2020.
- Referee of **Omar Boughdad**'s PhD thesis at Université de la Côte d'Azur (Nice, France). Title of the thesis: *Fluids of light in a photorefractive crystal*. Supervisors prof. F. Mortessagne and C. Michel. PhD defended on March 11st, 2020.
- November 2020: Reviewer of the PhD thesis of **Udvas Chattopadhyay** at Nanyang Technological University (Singapore). Title of the thesis: *Transport and Lasing in Topological Photonic Systems*. Supervisor prof. Y. Chong.

- Reviewer of **Patrick Knüppel**'s PhD thesis at ETH Zürich (Switzerland). Title of the thesis: *Fluids of light in a photorefractive crystal*. Supervisors prof. A. Imamoglu. PhD defended on August 27th, 2021.
- Referee of **Valerii Kozin**'s PhD thesis at University of Iceland. Title of the thesis: *Topology and symmetry-breaking in the strong light-matter coupling regime*. Supervisor prof. I. Shelykh. PhD defended on August 30th, 2021.
- Referee of **Kilian Baudin**'s PhD thesis at the Université Bourgogne Franche-Comté (Dijon, France). Title of the thesis: *Dynamique et turbulence d'ondes dans les systèmes optiques multimodes*. Supervisors prof. Guy Millot and prof. Antonio Picozzi. PhD defended on Dec. 17th, 2021.
- Reviewer of **Konstantinos Deligiannis**'s PhD thesis at the Université Grenoble-Alpes (Grenoble, France). Title of the thesis: *Kardar-Parisi-Zhang universality in the phase of a condensate of exciton polaritons: from the scaling of correlation functions to advanced statistics of the phase in  $1 + 1$  and  $2 + 1$  dimensions*. Supervisors prof. Anna Minguzzi and Léonie Caned. PhD defended on May. 4th, 2022.
- Member of the PhD jury of **Nicolas Pernet**'s PhD thesis at the Université Paris-Saclay (Palaiseau, France), Title of the thesis: *Physique non-linéaire associée à la symétrie chirale de réseaux de microcavités à polaritons*. Supervisor prof. Jacqueline Bloch. PhD defended on June 20th, 2022.
- Member of the Habilitation jury of **Florent Baboux** at Université Paris Cité (Paris, France). Title of the thesis: *Quantum information with III-V semiconductor photonic chips*. . Thesis defended on July 13th, 2022.
- Referee of **Jan Kosata**'s PhD thesis at ETH Zürich (Switzerland). Title of the thesis: *Spatial and temporal mode engineering in nonlinear media*. Supervisor prof. O. Zilberberg. PhD Defended on September 28th, 2022.
- Referee of the Habilitation thesis of **Claire Michel** at the Université Côte d'Azur (Nice, France). Title of the thesis: *Chaos ondulatoire, turbulence et fluides quantiques en optique*. Thesis to be defended on Jan. 20th, 2023.
- Reviewer of **Alice Roitberg**'s PhD thesis at the Università di Milano Bicocca (Milano, Italy). Title of the thesis: *Extension of the Gross-Pitaevskii hydrodynamics and relation with pseudosphere geometry*. Supervisor prof. Renzo Ricca.

# Publications on peer-reviewed international journals

## Bibliometric indices

According to Web of Science (updated on December 25th, 2023):

- Total of 287 publications
- Citations: 14878 (excluding self citations: 13672; 1584 citations in 2022)
- H-index: 55

According to Scholar Google (updated on December 25th, 2023):

- Citations 22678 (2384 in 2022)
- H-index 64

## Linear and nonlinear optics of semiconductor microstructures

1. I. Carusotto and G. C. La Rocca, *Optical response of linear and nonlinear photonic superlattices near the first photonic band gap*, Phys. Stat. Sol. (a) **164**, 377 (1997).
2. I. Carusotto and G. C. La Rocca, *Nonlinear optics of coupled semiconductor microcavities*, Phys. Lett. A **243**, 236 (1998).
3. I. Carusotto and G. C. La Rocca, *Two photon Rabi splitting and optical Stark effect in semiconductor microcavities*, Phys. Rev. B **60**, 4907 (1999)
4. V. Pellegrini, R. Colombelli, I. Carusotto, F. Beltram, S. Rubini, R. Lantier, A. Franciosi, C. Vinegoni and L. Pavesi, *Resonant second harmonic generation in ZnSe bulk microcavity*, Appl. Phys. Lett. **74**, 1945 (1999)
5. G. Ferrari and I. Carusotto, *Cavity-enhanced single frequency synthesis via DFG of mode-locked pulse trains*, J. Opt. Soc. Am. B **22**, 2115 (2005).
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