Curriculum Vitae et Studiorum : Fausto Borgonovi

July 8, 2024

Contents

1 GENERAL

Name: Fausto Borgonovi.

Place, date of birth: Milano, Italy, 23 January, 1960.

Citizenship: Italian.

home: via Annibal Caro 5A, I-20161- Milano, Italy

office: Dept. of Maths and Phys. Catholic Univ., via della Garzetta 48 41, I-25133, Brescia, Italy

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email-private fborgonovi@gmail.com

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web-private http://www.dmf.unicatt.it/∼borgonov/

2 ACADEMIC STUDIES

1980-1984 Degree in Physics at the University of Milan, Italy, (110/110 cum laude) with the thesis: *Generalized stochastic processes in quantum field theory*, tutor prof. L.Lanz.

1987-1989 PhD in Physics at the University of Pavia, Italy, with the thesis: *Analysis and phenomenology of the quantum stochasticity*, tutor prof. I.Guarneri.

1991-1993 post-doctoral fellowship at the University of Pavia, Italy.

1993 Researcher position at the Laboratoire de Chimique Quantique Univ. *Paul Sabatier* Toulouse, France.

1993-2005 Assistant professor in Theoretical Physics at the Faculty of Science of the Catholic University in Brescia, Italy.

2006-2019 Associate professor in Theoretical Matter Physics at the Faculty of Science of the Catholic University in Brescia, Italy.

2019-present Full professor in Theoretical Physics at the Faculty of Science of the Catholic University in Brescia, Italy.

3 VISITING POSITIONS

1989 Institute of Nuclear Physics , Novosibirsk (U.R.S.S.).

1990 Institute of Nuclear Physics , Novosibirsk (U.R.S.S.).

1993 Laboratoire de Physique Quantique, Universite Paul Sabatier, Toulouse (FRANCE).

1994 Laboratoire de Physique Quantique, Universite Paul Sabatier, Toulouse (FRANCE).

1998 Department of Physics, University of Maryland , Maryland (U.S.A.).

1998 International Center for Sciences, Cuernavaca, (MEXICO).

1999 Department of Physics, University of Maryland , Maryland (U.S.A.).

1999 Instituto de Fisica, Universidad Autonoma de Puebla, Puebla, (MEXICO).

2000 Los Alamos National Laboratories, Los Alamos, New Mexico, (U.S.A.).

2001 Instituto de Fisica, Universidad Autonoma de Puebla, Puebla, (MEXICO).

2002 Los Alamos National Laboratories, Los Alamos, New Mexico, (U.S.A.).

2003 International Center for Sciences, Cuernavaca, (MEXICO).

2003 Los Alamos National Laboratories, Los Alamos, New Mexico, (U.S.A.).

2005 Los Alamos National Laboratories, Los Alamos, New Mexico, (U.S.A.).

2012 Department of Mathematics, Institute H.Poincaré, Paris, France

2018 Istituto de Fisica, B.U.A.P., Puebla, Mexico

2023 Kauli Institute of Theoretical Physics, UCSC, USA

4 FUNDINGS

1998 Project : Advanced Computation (PRA I.N.F.M.)

2000-2002 PRIN *Theory of coherent fluids: bosonic gas, superfluids and superconductors*

2002-2004 PRIN *Error Resilience, control and stability in quantum information systems.* Local Project leader (Brescia) with the project : *Coherence and decoherence in quantum systems*

2003 Research Contract 79525-001-03 35, Los Alamos National Laboratory (MOSAIC - D.A.R.P.A.)

2005-2007 PRIN *Dynamics and Thermodynamics of long-range interacting systems* Local Project leader (Brescia) with the project : *Long range effects in micromagnets quantum tunnelling*

2008-2009 A2A Foundations, Project Leader : *Study on the small dust suspension in urban environment.*

2010 LISA - Cilea project for supercalculus *Magnetization Dynamics in Nanosystems* (CILEA).

2016 Fondazione EULO, 'Quantum transport in nanosystems with application to biosystems'

2019 PRIN 2017 'Engineering coherent transport of atoms and electrons in layered structures'

5 ASSOCIATIONS

- I.N.F.N. since 1988, Group IV, Milano, Italy (I.S. DYNSYSMATH)
- Member of the American Physical Society (APS)
- Member of Società Italiana di Fisica (SIF)
- Member of Società Italiana di Fisica Statistica (SIFS)

6 EDITORIAL ACTIVITY

6.1

Associate Divisional Editor for Physical Review E (2017-2023).

6.2

I am currently Referee for the following Journals:

- Physical Review Letters
- Physical Review A,B, E
- New Journal of Physics
- Journal of Physics A, Mathematics and General
- Physics Letters A
- Physica D
- Mathematical Review
- Chaos
- European Physics Journal
- European Physics Letters
- Scientific Reports, Nature
- Physica E

7 COLLABORATIONS

7.1 Staff

F.M. Izrailev,
Instituto de Fisica, Benemerita Universidad Autonoma de Puebla, Puebla, Mexico

G.L. Celardo
Dipartimento di Fisica, Università degli Studi di Firenze

Lea F. Santos, Department of Physics, University of Connecticut Storrs, CT 06269-3046 USA

L. Kaplan,
Department of Physics, Tulane University, New Orleans, Louisiana 70118, USA

Masaru Kuno,
Department of Physics and Department of Chemistry and Biochemistry, University of Notre Dame, Notre Dame, Indiana 46556, United States

Boldizsár Jankó
Department of Physics, University of Notre Dame, Notre Dame, Indiana 46556, United States

Shmuel Gurvitz,
Weizmann Institute, Rehovot, Israel

Francesco Mattiotti,
Univ. de Strasbourg, France

7.2 PhD Students

Matteo Zendra
International phD in SCIENCE, joint with KU Leuven, Belgium and Dipartimento di Matematica e Fisica, Universitá Cattolica, Brescia, Italy

Elisa Zanardini
International phD in SCIENCE, joint with University of Notre Dame, Indiana, USA and Dipartimento di Matematica e Fisica, Universitá Cattolica, Brescia, Italy

7.3 Post-doc

Nahum Calderon Chavez
Dipartimento di Matematica e Fisica, Universitá Cattolica, Brescia, Italy

8 TEACHING ACTIVITY

8.1 Undergraduate

1991-93 Analysis -
LIUC University "Carlo Cattaneo", (Castellanza, Italy)

1999-04 Electromagnetism and Optics -
Catholic University (degree in Mathematics and Physics), Brescia, Italy.

2005 Classical Mechanics
(degree in Mathematics and Physics) - Catholic University, Brescia, Italy.

2005-2024 Quantum Mechanics
(degree in Physics and Mathematics) - Catholic University, Brescia, Italy.

8.2 Graduate

2005-10 Advanced Quantum Mechanics -
Master Degree in Physics, Catholic University, Brescia, Italy.

2000-10 Applications of Statistical Mechanics -
Master Degree in Physics, Catholic University, Brescia, Italy.

2000-20 Statistical Mechanics
Master Degree in Physics, Catholic University, Brescia, Italy.

2021-24 Statistical Mechanics and Complex Systems -
Master Degree in Physics, Catholic University, Brescia, Italy.

8.3 PhD

1995 *Chaos and Irreversibility in Hamiltonian systems,*
PhD in Physics, Univ. of Pavia, Italy.

2003 *Nonlinear systems in classical and quantum systems,*
PhD in Physics, Univ. of Palermo Italy.

2007 "Chaos in Hamiltonian Systems",
PhD in Physics, , University of Trento, Italy.

9 STUDENTS

9.1 Graduate

1998 Daniela Rebuzzi (Full Professor, Univ. of Pavia, Italy)),
Ergodicity in conservative quantum systems,
Degree in Physics, Univ. of Pavia, Italy.

1998 Paolo Conti, (SVP at DBRS London, United Kingdom)
Dynamical localization in the Bunimovich stadium,
Univ. of Pavia, Italy.

2000 Giuseppe Luca Celardo,(Associate Professor, Univ. of Firenze (Italy)
Chaos and Thermalization in an interacting quantum bosons system ,
Degree in Physics, Univ. of Pavia, Italy.

2002 Emanuele Pedersoli, (Staff Member at Elettra Trieste, Italy)
Non ergodicity in classically chaotic systems,
Degree in Physics, Catholic Univ., Brescia, Italy.

2003 Stefania Mazzoni, (Project Manager, Quid Informatica spa)
Resonant and Non-resonant transitions in quantum computer model,
Degree in Mathematics, Catholic Univ., Brescia, Italy.

2003 Marco Maianti, (Teacher, Italy)
Dynamics of interacting spins,
Degree in Physics, Catholic Univ., Brescia, Italy.

2003 Francesco Tonolli, (Founder presso TFLab, Brescia)
Decoherence and quantum brownian motion,
Degree in Physics, Catholic Univ., Brescia, Italy.

2003 Luca Baldini, (Teacher, Italy)
Errors minimization in a solid state quantum computer,
Degree in Physics, Catholic Univ., Brescia, Italy.

2003 Andrea Passerini, (Teacher, Italy)
Quantum Computers ,
Bachelor in Physics, Catholic Univ., Brescia, Italy.

2003 Massimo Lombardi,
Path Integrals,
Bachelor in Physics, Catholic Univ., Brescia, Italy.

2004 Diego Fasoli,
Quantum Teleportation,
Bachelor in Physics, Catholic Univ., Brescia, Italy.

2004 Abramo Agosti, (Junior Researcher , Univ. Pavia)
Quantum Brownian motion,
Bachelor in Physics, Catholic Univ., Brescia, Italy.

2004 Valentina Pusceddu, (Teacher)
The Lorenz attractor: Order within chaos.,
Bachelor in Maths, Catholic Univ., Brescia, Italy.

2004 Michela Ciuffreda, (teacher)
Sincronization of coupled biological oscillators: the cardiac pulse generation,
Bachelor in Maths, Catholic Univ., Brescia, Italy.

2006 Giulio Giusteri, (Associate professor at Univ. Padova, Italy)
The Wilczek-Zee Geometric Phase and the Holonomic Quantum Calculus,
Bachelor in Physics, Catholic Univ., Brescia, Italy.

2006 Giovanni Acquaviva, (Senior Researcher Physics - Arquimea Research Center, San Cristobal de La Laguna, Canary Islands, Spain)
Cloning quantum states,
Bachelor in Physics, Catholic Univ., Brescia, Italy.

2007 Luca Spadafora, (Executive Director, Global Head of Principal Algotrading Validation at UBS, London, United Kingdom)
Broken Ergodicity in Dipolar Spin Systems,
Master Degree in Physics, Catholic Univ., Brescia, Italy.

2007 Marco Rizzinelli,(Teacher, Italy)
Ergodicity breaking in anisotropic systems,
Master Degree in Physics, Catholic Univ., Brescia, Italy.

2008 Fulvio Berardi,(Machine Learning Developer at COPAN Group S.P.A, Italy)
Many-body Localization in a quantum computer model,
Master Degree in Physics, Catholic Univ., Brescia, Italy.

2008 Matteo Rossi,(Global Manufacturing Quality Supervisor - Electric-Hybrid Vehicles at Eldor Corporation)
Decoherence Models,
Bachelor in Physics, Catholic Univ., Brescia, Italy.

2008 Alessandro Raffelli, (Teacher)
EPR Paradox and Bell Inequalities,
Bachelor in Physics, Catholic Univ., Brescia, Italy.

2008 Angelo Ziletti, (Principal Data Scientist at Bayer Pharmaceuticals, Berlin, Germany)
Quantum Simulators,
Bachelor in Physics, Catholic Univ., Brescia, Italy.

2010 Alberto Biella, (Researcher, CNR, Trento (Italy))
Single Spin Measurement and MRFM Tecniques,
Bachelor in Physics, Catholic Univ., Brescia, Italy.

2010 Valerio Rizzi, (Postdoctoral Researcher at Istituto Italiano di Tecnologia)
Quantum Effects in energy transport of phosynthetic systems.
Bachelor in Physics, Catholic Univ., Brescia, Italy.

2011 Angelo Ziletti, (Principal Data Scientisti at Bayer, Berlin Germany)
Coherent Quantum Transport in a Star Graph,
Master Degree in Physics, Catholic Univ., Brescia, Italy.

2011 Beatrice Sterzi, (teacher)
Superposition of quantum states : interference and decoherence.
Bachelor in Physics, Catholic Univ., Brescia, Italy.

2012 Jacopo Bertoli,(Sound Engineer, JB Audiotecnica)
Nonlinearity and Chaos : sound propagation and acustic cavitation in dispersive media.
Bachelor in Physics, Catholic Univ., Brescia, Italy.

2012 Rosa Silletta, (Teacher, Italy)
Practical- theoretical interpretation of spaghetti multiple fragmentations.
Bachelor in Physics, Catholic Univ., Brescia, Italy.

2012 Damiano Archetti,(Researcher at IRCCS Centro San Giovanni di Dio, Fatebenefratelli di Brescia - Centro Alzheimer)
Bell Inequalities
Bachelor in Physics, Catholic Univ., Brescia, Italy.

2012 Luca Ponzoni,(Postodoctoral Scholar at University of California, San Francisco Bay Area USA)
Focusing in Multi-well Potentials : Application to Ion Channels,
Master Degree in Physics, Catholic Univ., Brescia, Italy.

2012 Alberto Biella (Researcher, CNR, Trento, Italy)
From Dicke to Anderson : Interplay of Superradiance and Disorder,
Master Degree in Physics, Catholic Univ., Brescia, Italy.

2013 Andrea Galasso (Phd Unimib)
Two different approaches to tunneling problems,
Bachelor in Mathematics, Catholic Univ., Brescia, Italy.

2013 Diego Ferrari (Teacher, Italy)
Superradiant Transition and Asymmetry in Photosynthetic Reaction Centers,
Master Degree in Physics, Catholic Univ., Brescia, Italy.

2013 Paolo Poli
Interplay of Superradiance and Dephasing,
Master Degree in Physics, Catholic Univ., Brescia, Italy.

2014 Beatrice Sterzi, (Teacher)
Preservation of Coherence in Disordered Photosynthetic Systems,
Master Degree in Physics, Catholic Univ., Brescia, Italy.

2016 Lorenzo Eugenio Guarneri, (Software developer presso EDERA - Banking Solutions Brescia, Italy)
Quantum transport in disordered systems with applications to single-walled carbon nanotubes.
Master Degree in Physics, Catholic Univ., Brescia, Italy.

2016 Stefano Ferrari, (Teacher)
Interplay of Coherence and Noise in Quantum Transport with applications to Metal-Oxide Heterostructures.
Master Degree in Physics, Catholic Univ., Brescia, Italy.

2017 Mattia Angeli, (post-doc at Harvard Univ. Boston, USA)
Towards Anderson localization of light in 3D cold atomic clouds.
Master Degree in Physics, Catholic Univ., Brescia, Italy.

2017 Federica Airoldi (HR Business Partner at Fondital, Brescia)
Thermalization in isolated quantum systems,
Bachelor in Physics, Catholic Univ., Brescia, Italy.

2017 Pietro Bolpagni (Data Analyst at TOOLS for SMART MINDS, Brescia, Italy)
Classification of Quantum States using machine learning techniques
Bachelor in Physics, Catholic Univ., Brescia, Italy.

2018 Guido Farinacci (Data Analyst at iWIM srl)
Two-electron correlated motion due to Coulomb repulsion
Bachelor in Mathematics, Catholic Univ., Brescia, Italy.

2018 Alessia Valzelli (Teacher)
Interplay between structure and macroscopic coherence in nanotubular molecular aggregates
Master in Physics, Catholic Univ., Brescia, Italy.

2019 Marco Gulli (Research and Development Scientist at P&P Holding)
An analysis of low-dimensional entangled states with neural networks
Master in Physics, Catholic Univ., Brescia, Italy.

2019 Pietro Bolpagni (Data Analyst at TOOLS for SMART MINDS, Brescia, Italy)
Robustness to disorder as an emergent property of Photosynthetic Nanotubular aggregates
Master in Physics, Catholic Univ., Brescia, Italy.

2019 Federica Airoldi (HR Business Partner at Fondital, Brescia, ITALY)
Quantum excitation and robustness to disorder in molecular Nanotubes
Master in Physics, Catholic Univ., Brescia, Italy.

2020 Michele Zanotti
Modelli di Quantum Computers: Liquid and Solid State NMR e Trapped Ions and Atoms Bachelor in Mathematics, Catholic Univ., Brescia, Italy.

2020 Guido Farinacci
Cooperative Effects and many-body tunnelling
Master in Physics, Catholic Univ., Brescia, Italy.

2021 Alessio Bolpagni
Paradosso EPR, dalla Disuguaglianza di Bell fino ai giorni nostri
Bachelor in Mathematics, Catholic Univ., Brescia, Italy.

2021 Elisa Zanardini
Transport in a 1D chain: interplay of disorder and dephasing Bachelor in Mathematics, Catholic Univ. Brescia, Italy

2023 Maria Teresa Fais
La Meccanica Quantistica Applicata allo Studio della Coscienza Bachelor in Mathematics, CAtholic Univ., Brescia, Italy

2023 Elisa Zanardini
Transport in a 1D chain: robustness to fluctuations of the long-range interaction Master in Physics, Catholic Univ. Brescia, Italy

9.2 PhD

2004 Giuseppe Luca Celardo -(Associate Professor at Univ. Firenze)
Long-Range Interacting Systems : The non-ergodicity Threshold,
PhD School in Physics, Astrophysics and Applied Physics, Univ. of Milan., Italy

2010 Luca Spadafora - (Executive Director, Algorithmic Trading Strategies Validation at UBS, London, United Kingdom),
PhD School in Physics, Astrophysics and Applied Physics, Univ. of Milan., Italy

2012 Abramo Agosti -(Junior Researcher at Univ. Pavia, Italy)
Models of turbulence. Applications to particulate mixing induced by traffic flow in urban areas,
PhD School in Physics, Astrophysics and Applied Physics, Univ. of Milan., Italy.

2021 Francesco Mattiotti (Post-doc, Univ. Strasburg, FRANCE) *Cooperative effects in quantum systems: superradiance and long-range interactions* International Doctoral Programme in Science, Catholic Univ. and Univ. of Notre Dame (USA).

10 SEMINARS, INVITED TALKS

1988 *Quantum effects in the Frenkel-Kontorova model*,
Institute of Nuclear Physics, Novosibirsk, (URSS).

1989 *The Dissipative Quantum Kicked Rotator*,
Institute of Nuclear Physics, Novosibirsk, (URSS).

1989 *Quantori in the Frenkel-Kontorova model*,
Les Houches Summer School, Les Houches, (FRANCE).

1990 *Destruction of classical cantori in the Frenkel-Kontorova model*,
Meeting of Statistical Mechanics and Nonperturbative Field Theory, Univ. of Bari, (ITALY).

1992 *Irregular scattering and transport fluctuations*,
Universite Paul Sabatier, Toulose, (FRANCE).

1992 *Translational Invariance in the quantum kicked harmonic oscillator*
Meeting of Dynamical Systems, Univ. of Aquila, (ITALY).

1993 *Universal conductance fluctuations in a class of deterministic quantum systems*,
Workshop on "Classical and Quantum Mechanics", Como, (ITALY).

1994 *Quantum chaotic diffusion and Universal conductance fluctuations*,
Universite Paul Sabatier, Toulose, (FRANCE).

1995 *Chaotic and fractal diffusion in one dimensional quantum systems*,
Meeting on Theoretical Physics and Condensed Matter, Fai della Paganella, Trento, (ITALY).

1995 *Enhancement of localization length for two interacting particles*,
Meeting : "Chaos toward the next Century", Como, (ITALY).

1995 *The two-interacting problem in a random potential*,
Italian meeting on Statistical Mechanics, Parma, (ITALY).

1995 *Anderson transition in $d > 2$ dimensions*,
Universite Paul Sabatier, Toulose, (FRANCE).

1996 *Diffusion and Localization in conservative systems*,
Italian meeting in Theoretical Physics, Cortona, (ITALY).

1998 *Classical Cantori and dynamical localization in the Bunimovich stadium*,
Institute for Nonlinear Studies, University of Gottingen, (GERMANY).

1998 *The Bunimovich stadium in the diffusive regime : classical and quantum properties*,
Department of Physics, University of Maryland, College Park, (USA).

1998 *Chaos and thermalization in the dynamical model of two interacting spins*,
Workshop su " Symmetries", International Center for Sciences, Cuernavaca, (MEXICO).

1998 *Chaos and thermalization in the dynamical model of two interacting spins*,
Instituto de Fisica, Universidad Autonoma de Puebla, (MEXICO).

1999 *Chaos and thermalization in a two spin model*,
Department of Applied Physics, Yale University, New Haven, (USA).

1999 *Chaos and thermalization in a two spin model*,
Dynamics Days, Como, (ITALY).

2000 *Chaos and thermalization in a two spin model*,
Dept. of Physics, Hong Kong Baptist University, (HONG KONG).

2000 *Chaos and thermalization in spin models*,
Meeting on Theoretical Physics and Condensed Matter, Fai della Paganella, Trento, (ITALY).

2001 *Quantum Chaos and quantum computers*,
International Conference on Quantum Chaos : Theory and Applications, Satellite of STATPHYS-21, Cocoyoc, (MEXICO).

2003 *Understanding the Tonk limit from the point of view of Quantum Chaos*,
Workshop "Stability of Quantum Computation", Cuernavaca, (MEXICO).

2003 *The transition from Mean-field to Tonks Gas limit : Is there room for Quantum Chaos?*,
DC2003, Novosibirsk, (RUSSIA).

2005 *The topological non-connectivity threshold*,
X Meeting in Statistical Mechanics and Complex systems, Parma, (ITALY).

2005 *Quantum signatures of the topological non-connectivity threshold*,
3rd NEXT-SigmaPhi International Conference, Kolimbari, Crete, (GREECE).

2005 *Broken ergodicity in classical and quantum spin systems*,
New Trends in Quantum Mechanics: Fundamental Aspects and Applications, Palermo. (ITALY).

2006 *Topological nonconnectivity threshold in spin systems*,
, International Conference on the Frontiers of Nonlinear and Complex Systems, Hong Kong (CHINA).

2006 *Survival of quantum effects for observables after decoherence*,
XI Congresso di Fisica Statistica, Parma (ITALY).

2006 *Broken Ergodicity in Spin systems*,
Dipartimento di Fisica, Università di Padova, Padova (ITALY).

2006 *Long Range interacting Spin systems*,
Dipartimento di Fisica, Università di Pavia, Pavia (ITALY).

2007 *Broken Ergodicity* ,
International Workshop on " Lattice Dynamics and Localization problems" Cientro International de Ciencias , Cuernavaca, MEXICO.

2009 *Survival of quantum effects after decoherence*,
International Congress on "Nonlinear dynamics in quantum systems", , Siberian Federal University, Krasnoyarsk, RUSSIA.

2010 *Random dipoles : Chaos vs Ferromagnetism*
QCHAOS2010, 4th Workshop on Quantum Chaos, Theory and Applications, Castro Urdiales, Cantabria, SPAIN, 13-17 September 2010.

2010 *Random dipoles : Chaos vs Ferromagnetism*
IWDS7, 7th International Workshop on Disordered Systems, Puebla, MEXICO, 20-24 September 2010.

2011 *Random dipoles : Chaos vs Ferromagnetism* International Workshop "Dynamics of Complex Systems", Univ. of Cergy-Pontoise, France (2011).

2012 *Superradiance Transition in Photosynthetic Light-Harvesting Complexes*, 8th International Workshop on Disordered Systems, Benasque, Spain.

2012 *Superradiance Transition in Photosynthetic Light-Harvesting Complexes*, International Workshop on Quantum Transport in Biological Systems, Brescia, Italy.

2013 *A Quantum Biological Switch*,
Institute of Theoretical Physics, Heidelberg Univ. Heidelberg, Germany.

2013 *A Quantum Biological Switch*,
XVIII Congresso di Fisica Statistica, Parma (ITALY).

2014 *A Quantum Biological Switch Based on Superradiance Transitions* ,
Nuclei and Mesoscopic Physics, IV Conference, May 5-9th, National Superconducting Cyclotron Laboratory, Michigan State University, East Lansing, USA.

2015 *Quantum transport in light-harvesting systems* ,
Nonlinear Dynamics of Electronic Systems - NDES2015, Como (Italy).

2015 *Quantum transport in light-harvesting systems* ,
FISMAT2015, National Meeting of Condensed Matter, Palermo (Italy)

2016 *Cooperative shielding in many-body systems with long-range interaction* ,
International Workshop "Quantum Non-Equilibrium Phenomena" 6-18, June 2016, International Institute of Physics, Natal (Brazil)

2017 *Cooperative shielding in many-body spin systems with long-range interaction* ,
NUCLEI and MESOSCOPIC PHYSICS - V NMP17 East Lansing, Michigan, (USA) March 6-10, 2017

2017 *Thermalization and quantum chaos in many-body systems.*
XXI Meeting of Statistical mechanics and Complex systems. Parma, June 2017.

2017 *Temperature of a single chaotic eigenstate.*
FISMAT 2017 , October 2017.

2018 *Quantum Chaos and Thermalization in Quantum many-body systems*, 11-th International Workshop on Disordered Systems, Daejeon, South Korea.

Quantum Chaos and Thermalization in isolated many-body systems Invited lecture at IRTG seminar, Univ. of Freiburg (Germany)

2019 XXIV Convegno nazionale di fisica statistica e dei sistemi complessi, June 26-29, Parma Italy. *Quantum and Classical Systems with Long-Range Interactions*, July 15-19, 2019, International Institute of Physics, Natal (Brazil).

2021 Invited Lecture at Ben-Gurion Univ. (Israel-online) *Quantum Chaos and thermalization in many-body systems.* March 8, 2021

2021 Invited Lecture at Universidade Federal de São Carlos, (Brasil-online) *Thermalization and quantum chaos in many-body interacting systems.* May 6, 2021

2021 PRIN Meeting *Disorder-independent transport in long-range systems : applications to molecular chain in optical cavities* Arcetri, Firenze (Italy) October 2021

2022 QTUA22, *Disorder-independent transport in long-range hopping systems with application to optical cavities* Max Planck Institute for the Physics of Complex Systems, Dresden, Germany (September 2022).

2023 Out-of-equilibrium Dynamics and Quantum Information of Many-body Systems with Long-range Interactions, *Disorder-Enhanced and Disorder-Independent Transport with Long-Range Hopping* KITP, UCSB, Santa Barbara, CA, USA (December 2023).

2024 Disorder-independent transport in disordered long-range hopping systems, IWDS2024, Univ. de Salamanca, Spain, (June 2024)

11 CONFERENCES ORGANIZATION

- 1993 Scientific Secretary at the International meeting *"Gran Finale" Chaos, Order and Patterns* Villa Olmo, Como, Italy.
- 2004 Chairman of the Condensed Matter Section at the Meeting of the Italian Physical Society (SIF), in Brescia, Italy.
- 2007 Local Organizing Commitee of the International Meeting, *Dynamics and Thermodynamics of systems with long range interactions: theory and experiments*, Domus Paci, Assisi, ITALY
- 2012 Local Organizing Commitee of the Workshop on Quantum Transport in Biological Systems, Brescia, Italy.
- 2016 Chairman of the Organizing Commitee of IWDS10, (International Workshop on Disordered Systems), Brescia, Italy.
- 2017 Co-Chairman of Quantum Material Trends, Brescia, September 2017
- 2019 Co-Chairman of Big data Trends , Brescia, September 2019
- 2020 Scientific Commitee IWDS12, Mexico

12 PUBBLICATIONS

12.1 Papers

1. M. Zendra, F. Borgonovi, G.L. Celardo and S. Gurvitz
Nonstandard Hubbard model and electron pairing
Phys. Rev. B **109**, 195137 (2024).

2. F.S.Lozano-Negro, E.Alvarez Navarro, N.C.Chavez, F.Mattiotti, F. Borgonovi, H.M.Pastawski and G.L.Celardo
Universal stability of coherently diffusive one-dimensional systems with respect to decoherence
Phy. Rev. A **109**, 042213 (2024).

3. Luis Benet, Fausto Borgonovi, Felix M. Izrailev, and Lea F. Santos
Quantum-classical correspondence of strongly chaotic many-body spin models
Phys. Rev. B **107**, 155143 (2023).

4. Francesco Mattiotti, Mohan Sarovar, Giulio G. Giusteri, Fausto Borgonovi and G. Luca Celardo
Efficient light harvesting and photon sensing via engineered cooperative effects
New J. Phys. **24** 013027 (2022).

5. Samy Mailoud, Fausto Borgonovi and Felix M. Izrailev
Spectrum statistics in the integrable Lieb-Liniger model
Phys. Rev. E **104**, 034212 (2021).

6. Nahum C. Chávez, Francesco Mattiotti, J.A.Méndez-Bermúdez, Fausto Borgonovi, and G.Luca Celardo
Disorder-Enhanced and Disorder-Independent Transport with Long-Range Hopping: Application to Molecular Chains in Optical Cavities Phys. Rev. Lett. **126**, 153201 (2021).

7. Francesco Mattiotti, Masaru Kuno, Fausto Borgonovi, Boldizsár Jankó and G. Luca Celardo
Thermal Decoherence of Superradiance in Lead Halide Perovskite Nanocrystal Superlattices
Nano Lett. **20**, 7382-7388 (2020).

8. Samy Mailoud, Fausto Borgonovi and Felix M Izrailev
Process of equilibration in many-body isolated systems: diagonal versus thermodynamic entropy
New Journal of Physics, Volume **22** , August 2020.

9. Chahan M. Kropf, Giuseppe Luca Celardo, Claudio Giannetti and Fausto Borgonovi
Electric-field assisted optimal quantum transport of photo-excitations in polar heterostructures
Physica E **120** (2020) 114023.

10. Chahan M. Kropf, Angelo Valli, Paolo Franceschini, Giuseppe Luca Celardo, Massimo Capone, Claudio Giannetti and Fausto Borgonovi
Towards high-temperature coherence-enhanced transport in heterostructures of a few atomic layers
Phys. Rev. B **100** , 035126 (2019).

11. Nahum C. Chavez, Francesco Mattiotti, J.A. Mendez Bermudez, Fausto Borgonovi and Giuseppe Luca Celardo
Real and imaginary energy gaps: a comparison between single excitation Superradiance and Superconductivity and robustness to disorder
Eur. Phys. J. B (2019) **92**, 144

12. Fausto Borgonovi, Felix M. Izrailev and Lea F. Santos
Timescales in the quench dynamics of many-body quantum systems: Participation ratio versus out-of-time ordered correlator
Phys. Rev. E **99**, 052143 (2019)

13. Marco Gulli', Alessia Valzelli, Francesco Mattiotti, Mattia Angeli, Fausto Borgonovi and Giuseppe Luca Celardo
Macroscopic coherence as an emergent property in molecular nanotubes
New J. Phys. **21** 013019 (2019).

14. Fausto Borgonovi and Felix M. Izrailev
Emergence of correlations in the process of thermalization of interacting bosons
Phys. Rev. E **99**, 012115 (2019).

15. Fausto Borgonovi, Felix M. Izrailev and Lea F. Santos
Exponentially fast dynamics of chaotic many-body systems
Phys. Rev. E **99**, 010101(R) (2019).

16. Yang Zhang, G. Luca Celardo, Fausto Borgonovi and Lev Kaplan
Optimal dephasing for ballistic energy transfer in disordered linear chains
Phys. Rev. E **96**, 0521035 (2017).

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14 RESEARCH ACTIVITY

- Classical and Quantum Chaos.
- Long-Range interacting systems.
- Quantum Transport in disordered and light-harvesting systems
- Open Quantum Systems
- Thermalization in isolated many-body quantum systems