LUCA LEUZZI

Curriculum Vitae et Studiorum ai fini della pubblicazione

Rome, August 29th 2023

F. To Luca Leuzzi

Spoken Languages: English (C2), Dutch (B1), German (A2)

PART II
EDUCATION

PHD	October 17th 2002	Instituut voor Theoretische Fysica, Universiteit van Amsterdam, Valckenierstraat 65-67, 1018 XE Amsterdam, The Netherlands	PhD in Theoretical Physics, cum laude. Certificate n. 12416, 17/10/2002, from the Doctoral List of the Universiteit van Amsterdam (UvA). Thesis title: "Thermodynamics of glassy systems: glasses, spin glasses and optimization". Supervisor: Theo M. Nieuwenhuizen
UNIVERSITY GRADUATION	May 26th 1997	Università degli Studi di Roma La Sapienza, Piazzale Aldo Moro, 5 – 00185 Rome, Italy	Degree in Physics, 110/110 cum laude. Thesis title: "Studio di vetri di spin con forze a lunga portata". Supervisor: Giorgio Parisi.

PART III
APPOINTMENTS

III A. INSTITUTIONAL ACADEMIC APPOINTMENTS

PRESENT POSITION, SINCE 02/03/2020	Institute of Nanotechnology (NANOTEC) of the National Research Council of Italy (CNR), Rome Secondary Unit, Università Sapienza, Piazzale Aldo Moro 5, 00185 Rome, Italy	CNR First Researcher (II Level)

PREVIOUS APPOINTMENTS

FROM	TO	INSTITUTION	POSITION

23/04/2015	01/03/2020	Institute of Nanotechnology (NANOTEC) of the CNR, Rome Secondary Unit, Università Sapienza, Piazzale Aldo Moro 5, 00185 Rome, Italy.	Level III CNR Researcher
01/03/2016	31/12/2019	Institute of Nanotechnology (NANOTEC) of the CNR, Rome Secondary Unit, Università Sapienza, Piazzale Aldo Moro 5, 00185 Rome, Italy.	Director of the secondary unit of the CNR-NANOTEC in Rome. Acts of appointment: 08/01/2018, prot. n. 8; 13/01/2017, prot. n. 6; 01/03/2016, prot. n. 520.
15/05/2015	29/02/2016	Institute of Nanotechnology (NANOTEC) of the CNR, Rome Support Operative Unit, Università Sapienza, Piazzale Aldo Moro 5, 00185 Rome, Italy.	Director of the Support Operative Unit (RUOS) of the CNR-NANOTEC in Rome. Act of appointment: 15/05/2015, prot. n. 414.
29/01/2015	22/04/2015	Institute of Inorganic Methodologies and Plasmas (IMIP) of the CNR, Rome Support Operative Unit.	Level III CNR Researcher
25/03/2010	14/04/2013	Institute of Chemical-Physical Processes (IPCF) of the CNR, Rome Support Operative Unit, Università La Sapienza, Piazzale Aldo Moro 5, 00185 Rome, Italy	Director of the Support Operative Unit (RUOS) of the CNR-IPCF in Rome. Acts of appointment: 25/03/2010, prot. n. 1404; 20/07/2010, prot. n. 3278
01/02/2010	28/01/2015	Institute of Chemical-Physical Processes (IPCF) of the CNR, Rome Support Operative Unit.	Level III CNR Researcher
16/02/2009	31/01/2010	Statistical Mechanics and Complexity (SMC) Center, National Insitute of Condensed Matter Physics (INFM), Università La Sapienza, Piazzale Aldo Moro 5, 00185 Rome, Italy.	Level III CNR Researcher Tenure on 16/02/2009. Contract AMMCNT-CNR prot. n. 13685, 11/02/2009 and prot. n. 37969, 08/05/2009.
01/01/2005	15/12/2009	Statistical Mechanics and Complexity (SMC) Center, National Insitute of Condensed Matter Physics (INFM), Rome.	Ricercatore III Liv. a tempo determinato del CNR. Atto INFM prot. n. 1405/2004 del 23/12/2004.
October, 2004	Fellowship declined for intercurring other assignement	Hosting institution: LPTMS, University Paris XI, Orsay, France.	Marie Curie Intra-European Fellowship (IEF), FP7, project code: STAT-OPT, 18/02/2004 of the Human Resources and Mobility activities Call: FP6-2002-Mobility-5.

01/01/2003	31/12/2004	Statistical Mechanics and Complexity (SMC) Center, National Insitute of Condensed Matter Physics (INFM), Università La Sapienza, Piazzale Aldo Moro 5, 00185 Rome, Italy.	Postdoc Position (Assegno di Ricerca)
December 2002		Statistical Mechanics and Complexity (SMC) Center, National Insitute of Condensed Matter Physics (INFM), Università La Sapienza, Piazzale Aldo Moro 5, 00185 Rome, Italy.	Postdoc research short contract FOIT002029, INFM prot. n. 0A02009388, 12/12/02.
01/11/1998	31/10/2002	Instituut voor Theoretische Fysica (ITFA), Universiteit van Amsterdam (Uva), Valckenierstraat 65-67, 1018 XE Amsterdam, Paesi Bassi.	PhD position as Researcher in training (Onderzoeker in Opleiding - OIO) by the Fundamenteel Onderzoek der Materie (FOM). Contract protocol FOM, prot. n. P/35183, 29/10/1998.

III B. OTHER APPOINTMENTS

Referee	for the following international journals: European Physical Journal B, Journal of Physics A, Journal of Statistical Mechanics, Philosophical Magazine, Physical Review A, Physical Review B, Physical Review E, Physical Review Letters, Physics Letters A, Scientific Reports.
Editor	Scientific Reports

PART IV
TEACHING EXPERIENCE

IV A. COURSES

YEAR	INSTITUTION	LECTURE/COURSE
Academic years from 2018-19 to 2022-23	Physics Dept., Università Sapienza di Roma, Piazzale Aldo Moro 5, 00185 Roma.	Lecturer for the B.Sc. course Probability Theory (CALCOLO DELLE PROBABILITÀ). Course code 1041490, FIS/02, 6 CFU, Study Programme 28204-FISICA [L-270 - ORDIN. 2016] - L-30. Appointed as lecturer under the exchange programme with public research institutions (CNR).

Academic years from 2019-20 to 2022-23	Physics Dept., Università Sapienza di Roma, Piazzale Aldo Moro 5, 00185 Roma.	Lecturer for M. Sc. course Theory of Stochastic Processes (previously INTRODUZIONE ALLA TEORIA DEI PROCESSI STOCASTICI), Settore FIS/02, 6 CFU, Study Programme Laurea Magistrale in FISICA [LM-17]. Appointed as lecturer under the exchange programme with with public research institutions (CNR).
Academic year 2018-19	Physics Dept., Università Sapienza di Roma, Piazzale Aldo Moro 5, 00185 Roma.	Lecturer for the B.Sc. course Laboratory of Computational Physics I (LABORATORIO DI FISICA COMPUTAZIONALE I). Course code 1012086, INF/01, 6 CFU, Study Programme 28204-FISICA [L-270 - ORDIN. 2016] - L-30. Appointed as lecturer under the exchange programme with with public research institutions (CNR).
Academic years from 2014-15 to 2017-18	Università Sapienza di Roma, Piazzale Aldo Moro 5, 00185 Roma.	Lecturer for the PhD course “Theories and phenomenology of glassy systems” by the PhD School in Physics
Academic years from 2005-06 to 2013-14	Università Sapienza di Roma, Piazzale Aldo Moro 5, 00185 Roma.	Lecturer for the PhD course “Theories and phenomenology of structural glasses” by the PhD School in Physics
Academic year 2010-11	Università Sapienza di Roma, Piazzale Aldo Moro 5, 00185 Roma.	Lecturer for the PhD course “Disordered systems photonics” by the PhD School in Physics
January 2014	King' College London - KCL, Strand, London WC2R 2LS, United Kingdom	Lecturer for the course “Replicas and spin-glasses”, in the programme Advanced Topics in Complex Systems Modelling, Regno Unito.
September 2013	NETADIS Summer School Hillerod, Danemark.	Lecturer for the course “Disordered Systems” at the 1st Summer School in Statistical Physics Approaches to Networks across Disciplines, Available at http://videolectures.net/luca_leuzzi/.
Academic year 2006-07	Dip. Scienze Cardiovascolari, Univ. Sapienza, Piazzale Aldo Moro 5, 00185 Roma.	Lecturer for the course “Principles of Physics in Diagnostics” in the II Liv. Master programme in “Communication and Information in Cardiology”,
Academic years 2003-04 and 2004-05	Dip. Matematica, Università “La Sapienza”. P. le Aldo Moro 5, 00185 Roma.	Tutor for the B.Sc. course “Analisi Numerica”. Lecturer Prof. M. Marfurt.
Academic years from 2002-03 to 2004-05	Dip. Fisica, Università “La Sapienza, P. le Aldo Moro 5, 00185 Roma.	Tutor for the B.Sc. course Computation Laboratory (Laboratorio di Calcolo). Lecturer: Prof. A. Crisanti.

Academic years from 1999-2000 to 2001-02	Instituut voor Theoretische Fysica (ITFA), Universiteit van Amsterdam (Uva), Valckenierstraat 65-67, 1018 XE Amsterdam, The Netherlands	Tutor for the B.Sc. course Classical Physics III: Electrodynamics (Klassieke Fysica III: Elektrodynamica) del terzo anno presso l'Istituto di Fisica Teorica dell'Università di Amsterdam (ITFA-UvA). Lecturer Dr. L. Suttorp.
Academic year 1998-99	ITFA - UvA, Valckenierstraat 65-67, 1018 XE Amsterdam, The Netherlands	Tutor for the B.Sc. course Statistical Physics III: Scale Invariance and Renormalization Group (Statistische Fysica III: Schaalinvariantie en Renormalisatiegroep) Lecturer Prof. Dr. Bernard Nienhuis.

IV B. STUDENTS SUPERVISION

Ph.D. students	Università Sapienza di Roma, Piazzale Aldo Moro 5, 00185 Roma.	PhD thesis advisor for Jacopo Niedda (XXXV ciclo), Alberto Patti (XXXV ciclo), Alessia Marruzzo (XXVIII ciclo), Payal Tyagi (XXVIII ciclo), Fabrizio Antenucci (XXVII ciclo), Ulisse Ferrari (XXV ciclo).
	Università Roma 3 Via Ostiense, 133B, 00154 Roma RM	Matteo Paoluzzi (XXIV ciclo).
M.Sc. students	Università Sapienza di Roma, Piazzale Aldo Moro 5, 00185 Roma.	M.Sc. in Physics, Thesis advisor for Alessandra Passalacqua (2023), Marcello Benedetti)2023), Giacomo Trinca Cintioli (2022), Daniele Veraldi (2022), Lorenzo Pinto (2019), Riccardo Verratti (2018), Clara Taras (2015), Corrado Rainone (2012), Fabrizio Antenucci (2010), Matteo Paoluzzi (2007)
	Università degli Studi di Milano, Via Festa del Perdono 7 - 20122 Milano	M.Sc. in Physics, Thesis advisor for Pietro Rotondo (2011), Ulisse Ferrari (2009).
B.Sc. students	Università Sapienza di Roma, Piazzale Aldo Moro 5, 00185 Roma.	B.Sc. in Physics, Dissertation advisor for 37 students from 2018 to 2023.

IV C. TEACHING QUALIFICATIONS

FROM	TO	QUALIFICATION
04/09/2019	04/09/2029	Abilitazione scientifica nazionale alle funzioni di professore di seconda fascia nel settore concorsuale 02/A2 - Fisica Teorica delle Interazioni Fondamentali. Bando su decreto direttoriale n. 2175/2018.

06/09/2019	06/09/2029	Abilitazione scientifica nazionale alle funzioni di professore di seconda fascia nel settore concorsuale 02/B2 - Fisica Teorica della Materia. Bando su decreto direttoriale 2175/2018.
28/03/2017	28/03/2027	Abilitazione scientifica nazionale alle funzioni di professore di prima fascia nel settore concorsuale 02/A2. Bando su decreto direttoriale n. 1532/2016.
10/04/2017	10/04/2027	Abilitazione scientifica nazionale alle funzioni di professore di prima fascia nel settore concorsuale 02/B2. Bando su decreto direttoriale n. 1532/2016.

PART V
Society memberships, Awards and Honors

YEAR	TITLE
2022-2025	Executive Board member (Treasurer) of the Italian Statistical Physics Society. https://www.fisicastatistica.org/en
	Member of the Italian Statistical Physics Society. https://www.fisicastatistica.org/en
2021	PNAS Cozzarelli prize winners, Class III: Engineering and Applied Sciences for Optical computation of a spin glass dynamics with tunable complexity, M. Leonetti, E. Hormann, L. Leuzzi, G. Parisi, and G. Ruocco.

PART VI
FUNDING INFORMATION [grants as PI-principal investigator or I-investigator]

PERIOD	ROLE	TITLE	PROGRAM	GRANT VALUE
FROM 18/08/2023 ONGOING	LOCAL PI (CNR)	“Complexity, disorder and fluctuations: spin glass physics and beyond“ 2022LMHTET	PRIN 2022 MUR - Italian MInistry of Research	TOTAL: 237.120,00€ CNR: 90.000€
FROM 10/2022 ONGOING	i	CN HPC SPOKE 6	PNRR 2022	

FROM 22/09/2020 ONGOING	I	NANOPROBE “Innovative endoscopic nano-imaging with machine learning”. n. PROT. A0375-2020- 36761	Bando LAZIO INNOVA “Gruppi di ricerca 2020” - POR FESR Lazio 2014-2020	147.598,50 € BURL n. 116 del 22/09/2020
18.06.2019 – termine lavori 18.08.2022	I	Developing nAtional and Regional Infrastructural nodes of dAriaH in ITaly (DARIAH-IT) PON-DARIAH-IT - Allestimento DataCenter - (CCI: 2014IT16M2OP005 – Codice Progetto: PIR01_00022) https://www.cnr.it/it/pon-dariah	PON Ricerca e Innovazione 2014-2020	13.469.000 €
FROM 25/05/2018 ONGOING	LOCAL PI (CNR)	ATOM “Advanced Tomography and Microscopy”, n. PROT. 173-2017-17395. Association (ATS-Associazione Temporanea di Scopo) of CNR (NANOTEC) and Sapienza, Università di Roma (Dip. SBAE - PI, Dip. Chimica, CNIS). https://www.atomcenter.org/HOME/index.php/en/	Bando LAZIO INNOVA “Infrastrutture Aperte di Ricerca” della Regiona Lazio.	2.495.466,22€. Determinazione Regione Lazio n. G06705, 25/05/2018. Concessione Sovvenzione Lazio Innova, Prot. 0023698, 25/07/2018.
FROM 05/02/2017 TO 05/02/2020	LOCAL PI (CNR)	“Meccanica Statistica e Complessità”. Codice CINECA 2015K7KK8L_005.	PRIN 2015 MIUR - Italian Ministry of Education and Research	Total: 383.000,00€. CNR: 41.252,00€. Decreto Direttoriale MIUR prot. n. 2634 del 07/11/2016.
FROM 01/06/2016 TO 31/10/2022	I	LoTGlasSy - “Low Temperature Glassy Systems”, Grant agreement ID: 694925.	European Research Council (ERC) Advanced Grant.	1.760.000,00 ,€ Coordinated by UNIVERSITÀ DEGLI STUDI DI ROMA LA SAPIENZA.
FROM 01/02/2013 TO 01/02/2016	LOCAL PI (CNR)	“Statistical Mechanics of disordered and complex systems”. Codice CINECA 2010HXAW77-008.	PRIN 2010-2011 MIUR - Italian Ministry of Education and Research	Total: 835.100,00€. CNR: 84.000,00€. Decreto Direttoriale MIUR, prot. n. 719 del 23 ottobre 2012.

FROM 01/01/2010 TO 31/12/2014	I	CriPheRaSy - “Critical Phenomena in RandomSystems”. Grant agreement No. 247328.	European Research Council (ERC) Advanced Grant	2.098.800,00 € Coordinated by UNIVERSITÀ DEGLI STUDI DI ROMA LA SAPIENZA.
FROM 01/03/2012 TO 29/02/2016	Benef. LOCAL PI (CNR)	NETADIS “Statistical Physics Approaches to Networks Across Disciplines”, REA grant agreement n. 290038. https://cordis.europa.eu/project/id/290038	FP7-PEOPLE-2011-ITN	Total: 3.377.761€. CNR: 532.004,00€. Grant agreement n. 290038 beneficiary (ANNEX IV-FORM A): IPCF-CNR, prot. n. 7520, 01/12/2011.
FROM 01/12/2010 TO 30/11/2015	PI	“Statistical mechanics of disordered granular laser systems: theory and experiments “. Codice CINECA RBFR08M3P4.	FIRB “Futuro in Ricerca” 2008 MIUR - Italian Ministry of Education and Research	TOTAL: 570.000 €, MIUR contribution: 471.000 €. Decreto Ministeriale MIUR prot. n. 85/Ric. 09/04/2010.
FROM 01/06/2008 TO 31/05/2009	PI	“Order in disorder: investigating fundamental mechanisms of inverse transitions”.	Seed Grant 2008 INFM-CNR	34.000€. Act prot. n. 0009317 INFM-CNR, 26/05/2008.

PART VII - Research Activities

Keywords	Statistical mechanics, statistical physics, complex disordered systems, spin-glasses, photonics in random media, stochastic processes, optimization problems, statistical inference and machine learning.
Brief Description	My research lines are mainly in theoretical and statistical physics. I have been working on fundamental aspects of the theory of disordered systems (replica symmetry and cavity theories and renormalization in presence of unperturbative randomness), on inference problems and machine learning, on Monte Carlo enhanced algorithms and its parallelization on GPU's, on phase retrieval algorithms and on experimental applications. Combining analytical, numerical simulations and statistcial tecnhiques the work has found applications, e.g., to spin-glass theory (spin-glass phase in finite dimensional systems under external magnetic field, ultrametric properties, analytical estimates of dynamic critical slowing down exponents in replica field theory, renormalization group in hierarchical and Migdal-Kadanoff lattices), to satisfaction hard problems (K-SAT problem), to first order transitions in presence of non-perturbative randomness (the Blume-Capel and Blume-Emery-Griffiths models, models for "melting-upon-cooling" kind of transitions), to the theory for excited off-equilibrium states in glassy systems and slow/arrested dynamics (theory of the complexity functional, dynamic mean-field theory, theory of secondary processes in glasses and glass formers, glass-to-glass transitions), to spin-glass theory of multiequilibria for random lasers (characterization of the random lasing threshold, power condensation and pseudo-condensation phenomena, introduction of the intensity-fluctuation overlap as order parameter for the glassy phase) and to experiments on organic and inorganic random lasers (direct measure of the Parisi function, self-starting mode-locking), to the study of artificial and physical neural networks (generalized Hopfield model), to the analogic computation of spin-glass Monte Carlo dynamics in photonic systems in random media, to statistical inference and phase retrieval in transmission through random media (enhanced Gerchberg-Saxton algorithm, transmission through optical fibers, imaging, focusing and reservoir computing problems), to cavity theory applications to biomolecular condensates.

PART VIII LIST OF ALL PUBLICATIONS		
BOOKS (2)		
1	2023	LEUZZI L, MARINARI E, PARISI G (2023). Calcolo delle probabilità. Un trattatello per principianti volenterosi. Bologna:Zanichelii, ISBN: 9788808499660
2	2008	LEUZZI L, NIEUWENHUIZEN T.M (2008). Thermodynamics of the glassy state. CRC PRESS-TAYLOR & FRANCIS GROUP, 6000 BROKEN SOUND PARKWAY NW, STE 300BOCA RATON, FL 33487-2742, ISBN: 9780750309974
BOOKS CHAPTERS (3)		
1	2023	Claudio Conti, Neda Ghofraniha, Luca Leuzzi, Giancarlo Ruocco, Replica symmetry breaking in random lasers: experimental measurement of the overlap distribution, arXiv:2209.03781. Contribution to the edited volume "Spin Glass Theory and Far Beyond - Replica Symmetry Breaking after 40 years", World Scientific.
2	2018	Viola I, Leuzzi L, Conti C, Ghofraniha N (2018). Basic Physics and Recent Developments of Organic Random Lasers. In:: Anni M; Lattante S (eds), ORGANIC LASERS: FUNDAMENTALS, DEVELOPMENTS, AND APPLICATIONS. p. 151-192
3	2014	Crisanti, A., Leuzzi, L. (2014). Large Deviations in Disordered Spin Systems. In Vulpiani, A., Cecconi, F., Cencini, M., Puglisi, A., Vergni, D. (eds), Large Deviations in Physics, Lecture Notes in Physics, vol. 885, p. 135-160, Springer-Verlag (BERLIN HEIDELBERG)
PRE-PRINTS (1)		
1	2022	Daniele Ancora, Matteo Negri, Antonio Gianfrate, Dimitris Trypogeorgos, Lorenzo Dominici, Daniele Sanvitto, Federico Ricci-Tersenghi, Luca Leuzzi, Multi-mode fiber reservoir computing overcomes shallow neural networks classifiers, arXiv:2210.04745
ARTICLES ON PEER-REVIEWED INTERNATIONAL JOURNALS (84)		
1	2023	Marco Leonetti, Luca Leuzzi, and Giancarlo Ruocco, "Reference-less wavefront shaping in a Hopfield-like rough intensity landscape," Opt. Express 31, 28987-28998 (2023), doi:10.1364/OE.492055
2		Jacopo Niedda, Giacomo Gradenigo, Luca Leuzzi, Giorgio Parisi (2023), Universality class of the mode-locked glassy random laser, SciPost Phys. 14, 144, ISSN: 2542-4653, doi: 10.21468/SciPostPhys.14.6.144
3		Jacopo Niedda, Luca Leuzzi, Giacomo Gradenigo (2023), Intensity pseudo-localized phase in the glassy random laser, JOURNAL OF STATISTICAL MECHANICS: THEORY AND EXPERIMENT 053302, ISSN: 1742-5468, doi: 10.1088/1742-5468/acd2c4

4		Nino Lauber, Ondrej Tichacek, Rudrarup Bose, Christoph Flamm, LEUZZI L, T-Y Dora Tang, Kepa Ruiz-Mirazo, and Daniele De Martino (2023). Statistical mechanics of biomolecular condensates via cavity methods. ISCIENCE, vol. 26, 106300, ISSN: 2589-0042, doi: 10.1016/j.isci.2023.106300
5	2022	Leuzzi L, Patti A, Ricci-Tersenghi F (2022). A quantitative analysis of a generalized Hopfield model that stores and retrieves mismatched memory patterns. JOURNAL OF STATISTICAL MECHANICS: THEORY AND EXPERIMENT, vol. 2022, ISSN: 1742-5468, doi: 10.1088/1742-5468/ac7e40
6		Ancora D, Dominici L, Gianfrate A, Cazzato P, De Giorgi M, Ballarini D, Sanvitto D, Leuzzi L (2022). Speckle spatial correlations aiding optical transmission matrix retrieval: the smoothed Gerchberg-Saxton single-iteration algorithm. PHOTONICS RESEARCH, vol. 10, p. 2349-2358, ISSN: 2327-9125, doi: 10.1364/PRJ.462578
7		Ancora D, Leuzzi L (2022). Transmission matrix inference via pseudolikelihood decimation. JOURNAL OF PHYSICS. A, MATHEMATICAL AND THEORETICAL, vol. 55, ISSN: 1751-8113, doi: 10.1088/1751-8121/ac8c06
8		Izzo MG, Daraio C, Leuzzi L, Quaglia G, Ruocco G (2022). Worldwide bilateral geopolitical interactions network inferred from national disciplinary profiles. PHYSICAL REVIEW RESEARCH, vol. 4, ISSN: 2643-1564, doi: 10.1103/PhysRevResearch.4.023224
9	2021	Antenucci F, Lerario G, Fernandez BS, De Marco L, De Giorgi M, Ballarini D, Sanvitto D, Leuzzi L (2021). Demonstration of Self-Starting Nonlinear Mode Locking in Random Lasers. PHYSICAL REVIEW LETTERS, vol. 126, ISSN: 0031-9007, doi: 10.1103/PhysRevLett.126.173901
10		Leonetti M, Hormann E, Leuzzi L, Parisi G, Ruocco G (2021). Optical computation of a spin glass dynamics with tunable complexity. PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA, vol. 118, ISSN: 0027-8424, doi: 10.1073/pnas.2015207118
11	2020	Gradenigo G, Antenucci F, Leuzzi L (2020). Glassiness and lack of equipartition in random lasers: The common roots of ergodicity breaking in disordered and nonlinear systems. PHYSICAL REVIEW RESEARCH, vol. 2, ISSN: 2643-1564, doi: 10.1103/PhysRevResearch.2.023399
12		Bostian MB, Daraio C, Fare R, Grosskopf S, Izzo MG, Leuzzi L, Ruocco G, Weber WL (2020). Reconstructing Nonparametric Productivity Networks. ENTROPY, vol. 22, ISSN: 1099-4300, doi: 10.3390/e22121401
13		Gradenigo G, Angelini MC, Leuzzi L, Ricci-Tersenghi F (2020). Solving the spherical p-spin model with the cavity method: equivalence with the replica results. JOURNAL OF STATISTICAL MECHANICS: THEORY AND EXPERIMENT, vol. 2020, ISSN: 1742-5468, doi: 10.1088/1742-5468/abc4e3
14		Dilucca M, Leuzzi L, Parisi G, Ricci-Tersenghi F, Ruiz-Lorenzo JJ (2020). Spin Glasses in a Field Show a Phase Transition Varying the Distance among Real Replicas (And How to Exploit It to Find the Critical Line in a Field). ENTROPY, vol. 22, ISSN: 1099-4300, doi: 10.3390/e22020250
15	2018	Daraio C, Fabbri F, Gavazzi G, Izzo MG, Leuzzi L, Quaglia G, Ruocco G (2018). Assessing the interdependencies between scientific disciplinary profiles. SCIENTOMETRICS, vol. 116, p. 1785-1803, ISSN: 0138-9130, doi: 10.1007/s11192-018-2816-5

16		Marruzzo A, Tyagi P, Antenucci F, Pagnani A, Leuzzi L (2018). Improved pseudolikelihood regularization and decimation methods on non-linearly interacting systems with continuous variables. SCIPOST PHYSICS, vol. 5, ISSN: 2542-4653, doi: 10.21468/SciPostPhys.5.1.002
17	2017	Marruzzo A, Tyagi P, Antenucci F, Pagnani A, Leuzzi L (2017). Inverse problem for multi-body interaction of nonlinear waves. SCIENTIFIC REPORTS, vol. 7, ISSN: 2045-2322, doi: 10.1038/s41598-017-03163-4
18		Colabrese S, De Martino D, Leuzzi L, Marinari E (2017). Phase transitions in integer linear problems. JOURNAL OF STATISTICAL MECHANICS: THEORY AND EXPERIMENT, ISSN: 1742-5468, doi: 10.1088/1742-5468/aa85c3
19	2016	Marruzzo A, Leuzzi L (2016). Multi-body quenched disordered XY and p-clock models on random graphs. PHYSICAL REVIEW. B, vol. 93, ISSN: 2469-9950, doi: 10.1103/PhysRevB.93.094206
20		Tyagi P, Marruzzo A, Pagnani A, Antenucci F, Leuzzi L (2016). Regularization and decimation pseudolikelihood approaches to statistical inference in XY spin models. PHYSICAL REVIEW. B, vol. 94, ISSN: 2469-9950, doi: 10.1103/PhysRevB.94.024203
21		Antenucci F, Crisanti A, Ibanez-Berganza M, Marruzzo A, Leuzzi L (2016). Statistical mechanics models for multimode lasers and random lasers. PHILOSOPHICAL MAGAZINE, vol. 96, p. 704-731, ISSN: 1478-6435, doi: 10.1080/14786435.2016.1145359
22	2015	Crisanti A, Leuzzi L (2015). A simple spin model for three step relaxation and secondary processes in glass formers. JOURNAL OF NON-CRYSTALLINE SOLIDS, vol. 407, p. 110-117, ISSN: 0022-3093, doi: 10.1016/j.jnonclysol.2014.07.048
23		Antenucci F, Crisanti A, Leuzzi L (2015). Complex spherical 2+4 spin glass: A model for nonlinear optics in random media. PHYSICAL REVIEW A, vol. 91, ISSN: 1050-2947, doi: 10.1103/PhysRevA.91.053816
24		Rainone C, Ferrari U, Paoluzzi M, Leuzzi L (2015). Dynamical arrest with zero complexity: The unusual behavior of the spherical Blume-Emery-Griffiths disordered model. PHYSICAL REVIEW E, STATISTICAL, NONLINEAR, AND SOFT MATTER PHYSICS, vol. 92, ISSN: 1539-3755, doi: 10.1103/PhysRevE.92.062150
25		Ghofraniha N, Viola I, Di Maria F, Barbarella G, Gigli G, Leuzzi L, Conti C (2015). Experimental evidence of replica symmetry breaking in random lasers. NATURE COMMUNICATIONS, vol. 6, ISSN: 2041-1723, doi: 10.1038/ncomms7058
26		Ghofraniha N, Viola I, Di Maria F, Barbarella G, Gigli G, Leuzzi L, Conti C (2015). Experimental evidence of replica symmetry breaking in random lasers (vol 6, 7058, 2015). NATURE COMMUNICATIONS, vol. 6, ISSN: 2041-1723, doi: 10.1038/ncomms7300
27		Antenucci F, Conti C, Crisanti A, Leuzzi L (2015). General Phase Diagram of Multimodal Ordered and Disordered Lasers in Closed and Open Cavities. PHYSICAL REVIEW LETTERS, vol. 114, ISSN: 0031-9007, doi: 10.1103/PhysRevLett.114.043901

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CONFERENCE ABSTRACTS (2)		
1	2021	Leonetti M, Honnann E, Leuzzi L, Parisi G, Ruocco G (2021). Optical computation of the spin glass dynamics. In: CONFERENCE ON LASERS AND ELECTRO-OPTICS POSTCONFERENCE DIGEST] E227185 - issn: 2160-9020 (attiva dal 2003) Collana. Long Beach (CA) USA
2	2017	Daraio C, Fabbri F, Gavazzi G, Izzo MG, Leuzzi L, Quaglia G, Ruocco G (2017). Assessing the Interdependencies between Scientific Disciplinary Profiles at the Country Level: a Pseudo-Likelihood Approach. In: Proceedings of the International Conference on Scientometrics and Informetrics. p. 1448-1459
EDITORIAL MATERIAL (2 prefaces)		
1	2020	Cavagna A, Franz S, Giardina I, Leuzzi L, Maiorano A, Marinari E, Ricci-Tersenghi F, Rizzo T, Zamponi F (2020). Preface to the special issue on 'Disordered serendipity: a glassy path to discovery'. In: Disordered serendipity: a glassy path to discovery. vol. 53, doi: 10.1088/1751-8121/abbd55
2	2016	Leuzzi L (2016). Statistical Physics of Wave Interactions A Unified Approach to Mode-Locking and Random Lasers Foreword. In: Fabrizio Antenucci. Statistical Physics of Wave Interactions A Unified Approach to Mode-Locking and Random Lasers . p. V-VII, Springer, ISBN: 9783319412245

ARTICLES IN NATIONAL JOURNALS (2)		
1	2020	Enrico Bucci, Luca Leuzzi, Enzo Marinari, Giorgio Parisi, Federico Ricci Tersenghi, Verso una stima di morti dirette e indirette per Covid, Scienza in Rete, 24/04/2020. https://www.scienzainrete.it/articolo/verso-stima-di-morti-dirette-e-indirette-covid/enrico-bucci-luca-leuzzi-enzo-marinari
2	2020	Luca Leuzzi, Enzo Marinari, Giorgio Parisi e Federico Ricci-Tersenghi, La letalità apparente e quella reale di COVID-19, Le Scienze (italian edition of the Scientific American), May 13th 2020. https://www.lescienze.it/news/2020/05/13/news/covid-19_differenza_andamento_curve_letalita_apparente_reale-4726700/

PART IX
Conferences, workshops, schools.

IX A. Contributions to conferences, schools and workshops, national and international

Various contributions to national and international scientifi meetings, including 15 posters, 24 contributed talks and the following invited talks and lectures

YEAR	INVITED TALK/LECTURE
2023	Invited talk "Statistical physics theory of random lasers". 11-12 September 2023, King's College London, London, UK.
2023	Invited "Power condensation versus equipartition in a spin-glass model for glassy random lasers". The 9th International Discussion Meeting on Relaxations in Complex Systems (9 IDMRCS) August 12 to 18, 2023, Makuhari Messe, Chiba, Japan.
2023	Invited talk "Spin-glass models for random lasers: how to expose the inner structure of the replica symmetry breaking distribution to experimental measurements". Sigma Phi 2023, International Conference on Statistical Physics, 10-14 July 2023 in Chania, Crete, Greece.
2021	Invited talk "Nobel Physics Colloquium: Replica Symmetry Breaking theory for complex disordered systems: from spin-glasses to random lasers." Northeastern University, Boston, USA.
2021	Invited talk "Replica Symmetry Breaking theory for complex disordered systems: from spin-glasses to random lasers", NTNU, Trondheim, Norway.
2018	Invited talk on "Nonlinear mode-Locking in random lasers". Alberobello (Bari) NANOTEC III Annual meeting, 29-31/10 2018.
2018	Invited talk on "Open infrastructure ATOM - Advanced Tomography and Microscopies". Rome, Nanoinnovation, 11-14/09/2018.
2018	Invited lecture on "Statistical physics tools and concepts in machine learning". Lipari, Italy, II School on New Trends in Statistical Physics, 16-19/07/2018.

2017	Invited lectures on “Modern Spin Glass Theory”. Corfù, Greece, “SigmaPhi School on New Trends in Stat Phys”, 06-08/07/2017.
2017	Invited talk "Deterministic and Glassy Randomness in Lasers, a Replica Symmetry Breaking Characterization”. Bangkok, Thailand, World Congress of Smart Materials, 16-18/03/2017.
2016	Invited talk “Deterministic and glassy randomness in lasers, a replica symmetry breaking characterization”. Universität Konstanz, Germany, 09-10/11/2016, NANOTEC-CNR prot. n. 3078 del 25/10/2016.
2015	Invited talk “Statistical mechanics of random lasers”. Paris, Francia, 09-10/11/2015, GDR Mesoimage Workshop ”Waves and imaging in random media”.
2015	invited talk ”The glassy random laser: replica symmetry breaking in the intensity fluctuations of laser emission spectra”. Parma, XVIII Italian National Conference on Statistical Physics and Complex Systems 29/06-01/07/2015.
2015	invited talk “Spin-glass photonics: a statistical mechanical theory for lasing in random (and non random) media”. Firenze, 14/04/2015, Conference “Sguardi sulla complessità”, IMIP-CNR prot. n. 438 del 19/05/2015.
2014	Invited talk ”Spin-glass photonics: a statistical mechanical theory for lasing in random media”. Capri, 09-12/03/2014, Workshop Critical Phenomena in Random and Complex Systems.
2014	Invited lectures on “Replicas and spin-glasses” for the Advanced Topics in Complex Systems Modelling programme, King’ s College London - KCL, London, UK, 27-31/01/2014.
2013	Invited lectures on “Disordered Systems”. Hillerod, Danimarca, 08-22/06/2013, 1st Summer School in Statistical Physics Approaches to Networks across Disciplines.
2012	Invited talk ”On the computation of critical slowing down exponents in glassy dynamics”. Wildbad Kreuth, Germania, 24-27/06/2012, International Workshop on Glasses and Entropy. IPCF-CNR, prot. n. 4098 del 12/06/2912.
2011	Invited talk: ”The Levy lattice: a new kind of small world lattice and its implementation to the study of complex and disordered systems. The instance of spin-glasses”. Cyprus, 11-17/07/2011, International Conference on Statistical Physics. IPCF-CNR prot. n. 3507 del 25/05/2011.
2009	Invited talk ”Spin-glass theory and a definition of complexity”. Erice, 03-07/10/2009, International school on complexity - XII course - on ”Complex Phenomena in Nonlinear Physics”.
2008	Invited talk ”Limits of reliability of out-of-equilibrium thermodynamic theories: a check based on exactly solvable model glasses”. Grenoble, France, 19-23/10/2008, Workshop CTGP ”Fluctuations in out-of-equilibrium systems”.
2008	Invited talk ”Spin-glass phase in magnetic field: diluted Ising spin glass model with power law decaying interactions”. Grenoble, France, 24/10/2008, DSM/INAC/SPrAM/GT.

2008	Invited talk “A stroll among effective temperatures in aging systems: limits and perspectives”. Trencin, Slovakia, 22-27/05/2008 , 9th ESG conference, International Workshop on Glasses and Entropy, ”
2001	Invited talk “Effective temperatures in an exactly solvable model for a fragile glass”. Amsterdam, The Netherlands, 14-09-2001, Landeljik Seminarium Statistische Mechanica.

IX B. Organization of scientifc meetings

2023	Scientific Board of the *XVI International Workshop on Complex Systems*, March 13-17 2023, Andalo (TN), Italy https://event.unitn.it/complexsystems2023/#committees
2019	Scientific Board of the IV CNR-NANOTEC meeting, 23-25/03/2019, Sabaudia (LT), Italy.
2019	Scientific Board of the *XV International Workshop on Complex Systems*, March 17-20 2019, Andalo (TN), Italy https://event.unitn.it/complexsystems2019/#committees
2018	Scientific Board of the Workshop Disordered serendipity: a glassy path to discovery, Sapienza Università di Roma, Italy, September 19-22, 2018, https://sites.google.com/site/disorderedserendipity/
2017	Scientific Board Chair of the workshop on *Modelling, Theory and Computation*, of the CNR Institute of Nanotechnology, February 17th 2017, Università Sapienza, Rome, Italy.
2015	Scientific Board of the Netadis Conference – Statistical Physics Approaches to Networks Across Disciplines, October 20-23, 2015, Devonport House, Greenwich, London UK.
2015	Scientific Board of the III *Netadis Summer School* 2015, July 5-19, Bovec, Slovenia.
2015	Scientific Board of the *XIV International Workshop on Complex Systems*, March 22-25 2015, Trento, Italy http://events.unitn.it/en/complexsystems2015.
2014	Organizing Committee Chair of the II Summer School in Statistical Physics Approaches to Networks across Disciplines, 14-22/07/2014, Cortona.
2013	Education board of project NETADIS and Organizing Committee of the I Summer School in Statistical Physics Approaches to Networks across Disciplines, 13-22/09/2013, Hillerod, Danemark.
2012	Scientific Board of the first general conference of the CNR Institute of Chemical-Physical Processes, 21-23-03-2012, Cetraro (CS), Italy.
2009	Organizing Committee of the 6th International Discussion Meeting on Relaxations in Complex Systems (IDMRCS), dal 30-08-2009 al 05-09-2009, Roma.
2007	Organizing Committee of the IUPAP Conference STATPHYS23, Genova, Italy 9-13/07/2007.

Dati personali	Autorizzo il trattamento dei miei dati personali ai sensi del Decreto Legislativo 30 giugno 2003, n. 196 "Codice in materia di protezione dei dati personali.

Roma, August 29th 2023

F. To Luca Leuzzi