## Alessandro Silva

### Curriculum Vitae

Physics Area - Condensed Matter Physics Group International School of Advanced Studies (SISSA) Via Bonomea 265, 34100 Trieste ITALIA.

phone: +39-040-3787-420 fax: +39-040-3787-528 asilva@sissa.it

## GENERAL INFORMATION

- · Born:
- · Citizenship:
- · Marital status:

## PRESENT POSITIONS

♦ Associate Professor, SISSA

12/2015 -

## Positions Held

♦ Assistant Professor (Ricercatore), SISSA

07/2012-12/2015

♦ Scientific Consultant, ICTP

07/2012-06/2015

♦ Senior Postdoctoral Fellow, ICTP

10/2007-06/2012

Five year research position in the condensed matter and statistical physics sector. My activities within the sector included

- · Research on nonequilibrium strongly correlated quantum systems.
- · Teaching and mentoring of Diploma students.

- · Teaching advanced graduate courses at SISSA.
- · Supervision of postdoctoral fellows, Ph.D. students and Diploma students.
- · Organization of conferences.

## ⋄ Postdoctoral Fellow, ICTP

9/2005-9/2007

Research position in the condensed matter and statistical physics sector.

Research subjects: strongly correlated and disordered systems out of equilibrium, such as

- · Quench dynamics in quantum critical systems.
- $\cdot$  Measurement strategies of entanglement entropies in quantum critical systems.
- · Transport and pumping in strongly correlated quantum dots.
- ♦ Postdoctoral associate, Rutgers University, USA

9/2003 - 8/2005

Research position in the condensed matter department. Research subject:

- $\cdot$  Subgap localized states in disordered superconductors and SNS junctions.
- · Hysteresis in the Random Field Ising Model.

## ACADEMIC EDUCATION

♦ Ph.D., The Weizmann Institute of Science

2003

Condensed Matter Physics Department.

Thesis: "Controlled dephasing and interference experiments in quantum dots." Supervisors: S. Levit and Y. Imry.

M.Sc.(Laurea), University of Milano

1998

Theoretical Physics Department.

Thesis: "Dynamics of the currents in the quantum hall effect."

Supervisors: R. Ferrari. grade: 110/110 cum laude.

# PRIZES AND FELLOWSHIPS

Feinberg Dean's prize
 The Weizmann Institute of Science.

2003

Rosenblum fellowship,
 The Weizmann Institute of Science.

2000-2003

 State Fellowship for outstanding students, University of Milano.

1998-1999.

#### Papers

- · A Lerose, B Zunkovic, A Silva, A Gambassi "Quasilocalized excitations induced by long-range interactions in translationally invariant quantum spin chains" Physical Review B 99 (12), 121112 (2018).
- · FM Surace, A Russomanno, M Dalmonte, A Silva, R Fazio, F Iemini "
  Floquet time crystals in clock models"
  Physical Review B 99 (10), 104303 (2018).
- A Lerose, B Zunkovic, J Marino, A Gambassi, A Silva "Impact of nonequilibrium fluctuations on prethermal dynamical phase transitions in long-range interacting spin chains"

  Physical Review B 99 (4), 045128(2018).
- S Pappalardi, A Russomanno, B Zunkovic, F Iemini, A Silva, R Fazio "Scrambling and entanglement spreading in long-range spin chains" Physical Review B 98 (13), 134303 (2018).
- · S Lorenzo, T Apollaro, GM Palma, R Nandkishore, A Silva, J Marino "Remnants of Anderson localization in prethermalization induced by white noise" Physical Review B 98 (5), 054302 (2018).
- J Goold, F Plastina, A Gambassi, A Silva "The role of quantum work statistics in many-body physics" arXiv preprint arXiv:1804.02805 (2018).
- · A Lerose, J Marino, B Zunkovic, A Gambassi, A Silva "Chaotic dynamical ferromagnetic phase induced by nonequilibrium quantum fluctuations" Physical review letters 120 (13), 130603 (2018).
- · A Lerose, J Marino, A Gambassi, A Silva "Quantum many-body Kapitza phases of periodically driven spin systems" arXiv preprint arXiv:1803.04490 (2018).
- · S Notarnicola, F Iemini, D Rossini, R Fazio, A Silva, A Russomanno "From localization to anomalous diffusion in the dynamics of coupled kicked rotors" Physical Review E 97 (2), 022202 (2018).
- · A Usui, T Busch, A Silva, J Goold "Dynamical phase transitions and temporal orthogonality in one-dimensional hard-core bosons: from the continuum to the lattice"
- New Journal of Physics 19 (11), 113018 (2017).
- · SA Weidinger, M Heyl, A Silva, M Knap "Dynamical quantum phase transitions in systems with continuous symmetry breaking"
  Physical Review B 96 (13), 134313 (2017).
- B Zunkovic, M Heyl, M Knap, A Silva "Dynamical Quantum Phase Transitions in Spin Chains with Long-Range Interactions: Merging different concepts of non-equilibrium criticality"
   Phys. Rev. Lett. 120, 130601 (2018).
- S Pappalardi, A Russomanno, A Silva, R Fazio "Multipartite entanglement after a quantum quench"
   Journal of Statistical Mechanics: Theory and Experiment 2017 (5), 053104 (2019).
- M Marcuzzi, J Marino, A Gambassi, A Silva "Prethermalization from a low-density Holstein-Primakoff expansion"
   Physical Review B 94 (21), 214304 (2016).

- · B.Zunkovic, A Silva, M Fabrizio "Dynamical phase transitions and Loschmidt echo in the infinite-range XY model"
  Phil. Trans. R. Soc. A 374 (2069), 20150160.
- · A. Maraga, P. Smacchia, A. Silva "Linear ramps of the mass in the O(N) model: Dynamical transition and quantum noise of excitations" Phys. Rev. B 94, 245122 (2016).
- J. Goold, S. R. Clark, C. Gogolin, J. Eisert, A. Scardicchio, A. Silva "Total correlations of the diagonal ensemble herald the many-body localization transition"

Physical Review B 92, 180202 (2015).

- · M.Schiulaz, A.Silva and M. Müller
- "Dynamics in many-body localized quantum systems without disorder" Phys. Rev. B 91, 184202 (2015).
- P Smacchia, M Knap, E Demler, A Silva
   "Exploring dynamical phase transitions and prethermalization with quantum noise of excitations"
   Phys. Rev. B 91, 205136 (2015).
- · A Maraga, A Silva, M Fabrizio "Absence of thermalisation in a Fermi liquid" Phys. Rev. B 90, 155131 (2014).
- T Caneva, A Silva, R Fazio, S Lloyd, T Calarco, S Montangero "Complexity of controlling quantum many-body dynamics"
  Physical Review A 89 (4), 042322 (2014).
- · J Marino, A Silva

"Nonequilibrium dynamics of a noisy quantum Ising chain: Statistics of work and prethermalization after a sudden quench of the transverse field"

Physical Review B 89 (2), 024303 (2014).

- · A Maraga, P Smacchia, M Fabrizio, A Silva "Nonadiabatic stationary behaviour in a driven low-dimensional gapped system" Physical Review B 90, 041111(R) (2014).
- D Rossini, R Fazio, V Giovannetti, A Silva "Quantum quenches, linear response and superfluidity out of equilibrium" Europhysics Letters 107, 30002 (2014).
- · M Marcuzzi, J Marino, A Gambassi, A Silva "Prethermalization in a Nonintegrable Quantum Spin Chain after a Quench" Physical Review Letters 111 (19), 197203 (2013).
- · P Smacchia, A Silva

"Work distribution and edge singularities for generic time-dependent protocols in extended systems"

Physical Review E 88 (4), 042109 (2013).

- · A Russomanno, A Silva, G.E. Santoro
- "Linear response as a singular limit for a periodically driven closed quantum system"

Journal of Stat. Mech.: Theory and Experiment 2013 (09), P09012 (2013).

S Sotiriadis, A Gambassi, A Silva
"Statistics of the work done by splitting a one-dimensional quasicondensate"
Phys. Rev. E 87, 052129 (2013).

- · A. Gambassi and A. Silva
  - "Large deviations and universality in quantum quenches" Phys. Rev. Lett. 109, 250602 (2012).
- · A. Russomanno, A. Silva and G. Santoro
- "Periodic steady state and interference in periodically driven quantum systems" Phys. Rev. Lett. 109, 257201 (2012).
- · S. Ziraldo, A. Silva and G. Santoro
- "Relaxation dynamics of disordered spin-chains: localization and the existence of a stationary state"
- Phys. Rev. Lett. 109, 247205 (2012)
- · E. Canovi, D. Rossini, R. FAzio, G.E. Santoro and A. Silva
- ${\it "Many-Body localization and thermalization in the full probability distribution function of observables"}$
- New J. Phys. 14, 095020 (2012)
- J. Marino and A. Silva,
- "Relaxation, pre-thermalization and diffusion in a noisy Quantum Ising Chain" Phys. Rev. B 86, 060408(R) (2012).
- · P. Smacchia and A. Silva
  - " Universal energy distribution of quasi-particles emitted in a local time-dependent quench"
- Phys. Rev. Lett. 109, 037202 (2012).
- A. Gambassi and A. Silva
- " Statistics of the Work in Quantum Quenches, Universality and the Critical Casimir Effect."
- arXiv:1106.2671, under revision.
- T. Caneva, E. Canovi, D. Rossini, G. E. Santoro, and A. Silva
- " Applicability of the generalized Gibbs ensemble after a quench in the quantum Ising chain."
- J. Stat. Mech. (2011) P07015.
- · A. Polkovnikov, K. Sengupta, A. Silva, M. Vengalattore "Nonequilibrium dynamics of closed interacting quantum systems."
- Rev. Mod. Phys. 83, 863883 (2011).
- E. Canovi, D. Rossini, R. Fazio, G. Santoro and A. Silva "Quantum quenches, Thermalization and Many Body Localization" Phys. Rev. B 83, 094431 (2011).
- D. Rossini, S. Suzuki, G. Mussardo, G. Santoro, and A. Silva "Long Time dynamics following a quench in an integrable quantum spin chain: Local versus nonlocal operators and effective thermal behavior" Phys. Rev. B 832, 144302 (2010).
- F. N. C. Paraan and A. Silva
- "Quantum Quenches in the Dicke Model: statistics of the work done and of other observables."
- Phys. Rev. E 80, 061130 (2009).

- D. Patane', A. Silva, L. Amico, R. Fazio and G. Santoro
   "Adiabatic dynamics of a quantum critical system coupled to an environment: Scaling and kinetic equation approaches,"
   Phys. Rev. B 80, 024302 (2009)
- · D. Patane', A. Silva, F. Sols and L. Amico. "Thermalization dynamics close to a quantum phase transition," Phys. Rev. Lett. 102, 245701 (2009).
- D. Rossini, A. Silva, G. Mussardo and G. Santoro "Effective thermal dynamics following a quantum quench in a spin chain," Phys. Rev. Lett. 102, 127204 (2009).
- · D. Patane', A. Silva, L. Amico, R. Fazio, G. E. Santoro "Adiabatic dynamics in open quantum critical many-body systems," Phys. Rev. Lett. 101, 175701 (2008).

#### · A. Silva

"The Statistics of the Work Done on a Quantum Critical System by Quenching a Control Parameter,"
Phys. Rev. Lett. 101, 120603 (2008).

## · D. Fioretto and A. Silva

"Pumping through interacting quantum dots: inelastic scattering and corrections to Brouwer's formula,"
Phys. Rev. Lett. 100, 236803 (2008).

#### · A. Schiller and A. Silva

"Adiabatic pumping through a quantum dot in the Kondo regime: Exact results at the Toulouse limit,"
Phys. Rev. B 77, 045330 (2008).

#### · A. Silva and V. Kravtsov,

"Multiphoton processes in driven mesoscopic systems," Phys. Rev. B 76, 165303 (2007).

### · I. Klich, G. Refael, and A. Silva,

"Measuring entanglement entropies in many bodys systems," Phys. Rev. A 74, 032306 (2006).

#### · M. Müller and A. Silva

"Instanton Analysis of Hysteresis in the Three-Dimensional Random-Field Ising Model," Phys. Rev. Lett. 96, 117202 (2006).

#### · A. Silva,

"Tail states below the Thouless gap in superconductornormal-metalsuperconductor junctions: Classical fluctuations," Phys. Rev. B 72, 224505 (2005).

## · M. Sindel, A. Silva, Y. Oreg, and J. von Delft,

" Charge oscillations in quantum dots: Renormalization group and Hartree method

calculations," Phys. Rev. B 72, 125316 (2005).

- J. König, Y. Gefen, and A. Silva,
   Comment on Do Intradot Electron-Electron Interactions Induce Dephasing?
   Phys. Rev. Lett. 94, 179701 (2005).
- · A. Silva and L. B. Ioffe, "Subgap states in dirty superconductors and their effect on dephasing in Josephson qubits," Phys. Rev. B 71, 104502 (2005).
- · M. Avinun-Kalish, M. Heiblum, A. Silva, D. Mahalu, and V. Umansky, "Controlled Dephasing of a quantum dot in the Kondo regime," Phys. Rev. Lett. 92, 156801 (2004).
- · A. Silva and S. Levit, "Peculiarities of the controlled dephasing of a Quantum Dot in the Kondo regime," Europhys. Lett. 62, 103 (2003).
- · A. Silva, Y. Oreg, and Y. Gefen

  "Signs of quantum dotlead matrix elements: The effect on transport versus spectral properties,"

  Phys. Rev. B 66, 195316 (2002).
- · A. Silva and S. Levit

  "Effects of entanglement in controlled dephasing,"
  Phys. Rev. B 63, 201309 (2001).

Invited Reviews

A. Silva and M. Heiblum,
"Phase Measurements in Quantum Dots,"
in NATO-ASI 125 (Edt. R. Fazio, V. F. Gantmakher, Y. Imry, Kluwer, 2003).

Theses and Reports

· A. Silva
"Controlled Dephasing and Interference Effects
in Transport through Quantum Dots"
Ph.D. Thesis,
The Weizmann Institute, 2003.

## BIBLIOMETRIC DATA.

- · h-index: 28 (on 14/05/2019, data from Google Scholar)
- · total number of citations: 4267 (on 14/05/2019, data from Google Scholar)

# CONFERENCES

Invited Talks

Workshop " Modern Aspects of Quantum Phy Zagreb	sics" 10/2018
Workshop " Non-equilibrium Physics Meeting Salerno	·
Workshop " New Trends in Nonequilibrium - Statistical Mechanics: Classical and Quantum System Erice	·
. Workshop " Non-thermal Quantum Systems " Boston	03/2018
Workshop "SISSA-Weizmann Meeting" Rehovot	06/2017
Workshop " Emergent phenomena and univers in correlated systems out of equilibrium"	ality
Bad Honnef Workshop " 4th Quantum thermodynamics con	06/2017 nference"
Erice Public Lecture on "Order and Chaos	05/2016
in the quantum world "Bar Ilan University Workshop "Quantum integrable models	04/2016
in and out of equilibrium" Cambridge Workshop "New Orizons in Nonequilibrium	1/2016
Thermodynamics" Erice Workshop "Localization, Interaction, and	10/2015
Superconductivity" Moscow	7/2015
Workshop "Beyond integrability: The mathema and physics of integrability and its breaking in low-dimensional strongly correlated quantum phenomena" Montreal	7/2015
Workshop "Quantum Many-Body Systems far f Equilibrium Quench dynamics, thermalisation, cold-atom experiments" Stellenbosch	and
Workshop "Echoes in complex systems " Dresden	3/2015
Workshop "Non-equilibrium phenomena in Con Matter and String Theory, Trieste	
Workshop "The New Generation in Strongly Co Electron Systems 2014, Nice	
Workshop "Non-equilibrium Quantum Systems Nottingham	6/2014 5/2014
Workshop "Quantum Many-Body Dynamics Perimeter Institute	5/2014
	- 7

	XX 1 X 40	
	Workshop "Quantum Many Body Systems out of Equilibrium", Dresden	8/2013
	Summer School "Thermalization: from glasses	0,2010
	to black holes", Bangalore	6/2013
	Workshop "Equilibration and Thermalization in Quantum Systems", Stellenbosch	4/2013
	· Workshop "Meso-2012", Chernogolovka	6/2012
	· Conference "Cortona-2012", Cortona	6/2012
	Conference on "New quantum states of matter in and out of equilibrium", GGI Florence	5/2012
	"Advanced Working Group on Nonequilibrium Phenomena in low-dimensional Cold Gases", London	10/2011
	Workshop on "Quantum Matter in Low Dimensions: Opportunities and Challenges", Nordita	9/2010
	Workshop on "Time-dependent dynamics and non-equilibrium quantum systems", Budapest	·
	· APS March Meeting, Pittsburgh	5/2010 3/2009
	Workshop on "Quantum Phase Transitions and Dynamics",	•
	Saha Inst., Kolkata	2/2009
	Workshop on " Quantum Phenomena and Information: From Atomic to Mesoscopic Systems", ICTP, Trieste	5/2008
	· Conference "Fluctuations in Superconductors", Nazareth	6/2007
	· Conference "MESO-06", Landau Institute, Chernogolovka	6/2006
	· Workshop "Electrons in 0-d conductors", MPI Dresden	11/2002
	· NATO School "New Trends in Mesoscopic Physics", Erice	8/2002
CONTRIBUTED		
Talks	· COQUSY Program, MPI Dresden	8/2007
	- Talk: "Multiphoton Processes in Driven Mesoscopic Systems."	-,
	· APS March Meeting, Los Angeles	3/2005
	<ul> <li>Talk: "Subgap states in dirty superconductors" and Dephasing qubits."</li> </ul>	in Josephson
	· 92 Stat. Phys. Conference, Rutgers University	12/2004
	<ul> <li>Talk: "Subgap states in dirty superconductors and dimensional reduction."</li> </ul>	·
	· DIP Workshop, LMU Munich	9/2003
	<ul> <li>Talk: "Controlled dephasing in quantum dots."</li> </ul>	,
	Program "From Nuclei to Quantum Dots", U. of Washington	7/2002
	<ul> <li>Talk: "Interference effects in transport through quantum dots."</li> </ul>	*
Posters		
	· Cortona BEC Conference, Cortona, Italy	11/2005
	· Nanoscience Conference, KITP Santa Barbara	8/2001
	•	

## ORGANIZATION OF ACTIVITIES.

### Organizer of the 2016 Italy-Israel meeting on "Nonequilibrium Physics", April 2014, together with E. Della Torre, A. Russomanno. Conferences Organizer of the 2014 ICTP Summer College on "Non-linear Dynamics, Dynamical Transitions and Instabilities in Classical and Quantum Systems in far from equilibrium thermally isolated systems. ", July 2014, together with P. Calabrese, M. Müller, P LeDoussal. Coordinator of the 2012 KITP Santa Barbara Workshop on " Quantum dynamics ♦ in far from equilibrium thermally isolated systems. ", August-October 2012, together with V. Gritsev, A. Polkovnikov V. Gurarie. Organizer of the 2012 KITP Santa Barbara Conference on " Dynamics o and thermodynamics of closed quantum systems", August 2012, together with D. Huse, A. Polkovnikov, and J. Schmiedmayer. Organizer of the 2011 ICTP Workshop on "Integrability and its breaking in low dimensional and disordered systems ", 23-27 May 2011, together with V.Gritsev, T. Giamarchi G. Mussardo, and M. Mueller. Organizer of the 2010 ICTP Workshop on " Dynamics of strongly correlated quantum systems", 21-25 June 2010, together with E. Altman, R.Fazio, A. Polkovnikov, and G. Santoro. Director of the 2009 ICTPCollege on "Nonequilibrium Physics from Classical ♦ to Quantum Low Dymensional Systems", 4-26 July 2009, together with L. Cugliandolo, L. Glazman, G. Mussardo and M. Kiselev. Scientific Secretary of the 2013 Conference of the SIF Conference at SISSA. ♦ Organizer of the "SISSA Colloquia" 2016-SEMINARS ♦ Organizer of the "SISSA Cond. Mat. Seminar" 2013-• Organizer of the "Joint SISSA/ICTP Stat. Phys. Seminar" 2006-2008 Organizer of the "Informal Thursday Seminar/ Journal Club" 2004-2005 Rutgers University Organizer of the "Condensed Matter Physics Journal Club" 2002-2003 Weizmann Institute of Science

## INVITED TALKS AT VARIOUS INSTITUTIONS

	TRAITED TALKS AT VARIOUS INSTITUTIONS	
2016		
	· TUM	April 2016
	· Skoltech	March 2016
	· Landau Institute	April 2016
2012		
	· Harvard U.	September, 2012

2011		
2011	· Oxford U.	
	· Amsterdam U.	October, 2011
	· Ulm U.	September, 2011
	Offi O.	September, 2011
2010		
	· ICTP Colloquium	October, 2010
2009		
	Lancaster University (interview for a lectureship:	
	offered the position and declined), UK	October, 2009
	· ICTP, Trieste	October, 2009
	· Scuola Normale Superiore, Pisa	April, 2009
	· Boston University	March, 2009
	· Rutgers University	March, 2009
	· Weizmann Institute of Science	January, 2009
2008		
	· Abdus Salam ICTP	September, 2008
	· LPTHE Jussieu, Paris	January, 2008
2007		
	· LMU Munich	December, 2007
	· Landau Institute, Chernogolovka	October 2007
	· Abdus Salam ICTP	October 2007
	· University of Milano, Milano	March 2007
2006		
	· SISSA	N 2004
	· Scuola Normale Superiore Pisa	November, 2006
	· EPFL Lausanne	November, 2006
	· Hebrew University, Jerusalem	June, 2006 January, 2006
	· Weizmann Institute of Science	January, 2006
2005		January, 2000
2000	· Abdus Salam ICTP	
	· Cornell University	November, 2005
	· Yale University	May, 2005
	· University of Minnesota	February, 2005
2224	onvoibily of miniesoea	January, 2005
2004		
	· Columbia University	December, 2004
	· Princeton University	December, 2004
	· Rutgers University	October, 2004

	· LMU Munich	September, 2003
	· University of Milano	March, 2003
2002		
	· Yale University	December, 2002
	· Rutgers University	December, 2002
	· Harvard University	December, 2002
	· MIT	December, 2002
	· Ben Gurion University	March , 2002
	· Weizmann Institute	February, 2002

## SUPERVISED STUDENTS.

# $\diamond$ Davide Fioretto

University of Milano

MASTER THESIS

- · Graduated in 2007 with grade 110/110 cum laude.
- · Thesis on: Adiabatic quantum pumping in interacting quantum dots.

#### ⋄ Giulia Piccitto

University of Catania

- · Graduated in 2014 with grade 110/110 cum laude.
- · Thesis on: Adiabatic quantum pumping in interacting quantum dots.

## Silvia Pappalardi

University of Rome Sapienza

· Graduated in 2014 with grade 110/110 cum laude.

#### ♦ Pietro Torta

University of Milano

· Graduated in 2019 with grade 110/110 cum laude.

#### ♦ Elena Canovi

SISSA

Ph.D. STUDENTS

- · graduated in 2010
- · Thesis on: Quench Dynamics in Many Body Systems.
- · now at Aquila University.

#### Jamir Marino

SISSA

- · graduated in 2013
- · Thesis on: Pre-Thermalization in Quantum Spin Chains.
- · now Marie Curie Fellow at Harvard University

#### ♦ Pietro Smacchia

SISSA

- graduated cum laude in 2014
- · Thesis on: Out of equilibrium many-body systems: adiabaticity, statistics of observables and dynamical phase transitions
- · now Head of Data Science at Blockchain (London).

#### ⋄ Giuseppe Menegoz

SISSA

- graduated on 30/10/2014
- · Thesis on: Dynamics and Correlations in Bose gases after a quantum quench..

### Anna Maraga

SISSA

- $\cdot$  graduated cum laude on 30/10/2015
- $\cdot$  Nonequilibrium dynamics in isolated quantum systems: absence of thermalization and dynamical phase transitions.
- · now Chief Scientific Officer at Metaliquid (Milan).

#### ♦ Simone Notarnicola

SISSA

- graduated on 25/10/2018
- Coupled quantum kicked rotors: a study about dynamical localization, slow heating and thermalization

· now at University of Padova.

### ♦ Francis Paraan

ICTP

DIPLOMA THESIS

- $\cdot$  Thesis approved on 8/2008.
- · Thesis on: Statistics of the work of quantum quenches in the Dicke Model.

### ♦ David Nozadze

ICTP

- · Thesis approved on 8/2010.
- $\cdot$  Thesis on: Quantum quenches in the Infinite Range Ising model.

## ♦ Trahn Than Thuy

ICTP

- · Thesis to be approved on 8/2010.
- $\cdot$  Thesis on: The Anderson Transition on the Bethe Lattice.

## TEACHING EXPERIENCE.

## Basic Ph.D. Course at SISSA, Scuola Superiore Catania

2014-

· Topic: "Advanced Statistical Mechanics". A graduate course on advanced topics in statistical mechanics, including the Renormalization Group, Field Theoretical Methods, etc ...

### ♦ Diploma Course at ICTP

2014-

· Topic: "Statistical Mechanics". An undergraduate course on statistical mechanics.

## Advanced Ph.D. Course at SISSA and SNS, Pisa

2007-

· Topic: "Many Body Physics out of Equilibrium". A graduate course on quantum physics out of equilibrium both in open systems (Keldysh technique) and closed systems (Quantum Quenches, Fluctuation Theorems).

## ♦ Diploma Course at ICTP

2008-2012

· Topic: "Advanced Statistical Mechanics". An undergraduate course on critical phenomena and the renormalization group.

#### Advanced Ph.D. Course at University of Milano

3/2007

Topic: "Many Body Physics out of Equilibrium". A course on quantum physics out of equilibrium and the Keldysh technique.

## ♦ Teaching Assistant, Weizmann Institute

2000-2002

· Tutoring and exercise checking for "Solid State 1", taught by Prof. A. Stern.

## GRANTS.

- ♦ Scored A in the 2013 ERC Consolidator Grant Call.
- ♦ INSTANS-ESF Grant
  - $\cdot$  15.000 Euro for the organization of the 2009 ICTP Summer College.

## OTHER PROFESSIONAL ACTIVITIES.

### Refereeing

- · Referee for Phys. Rev. Lett., J. Stat., Phys. Rev A, Phys. Rev. B, NSF and ISF.
- · Member of the Board of Directors of SISSA (2018-).

