

## Curriculum vitae of Salvatore Savasta

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### Personal data



### Contacts

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### Education

- October 1986 - March 1992: Graduation in Physics at Università di Pisa (Italy) (It was a joint education of the Bachelor plus Master degree). Thesis Advisors Prof. F. Bassani and Prof. F. Bogani.
- July 11<sup>th</sup>, 1997 (final exam): PhD at the University of Messina (Italy) (PhD from January November 1993 to December 1996). Advisor Prof. R. Girlanda.

### Employment

- April 1997 – March 1999 Post-doc position at Istituto Nazionale di Fisica della Materia (INFM) Genova.
- May 1999 – December 2001 Researcher at INFM.
- December 2001 – September 2012 researcher at the University of Messina.
- From September 2011 – Associate Professor at University of Messina.
- From 2015 – visiting researcher at Riken (Japan) for several months.
- 10/04/2017 Italian national habilitation to full professor in theory of condensed matter physics.

### Recognitions

- Winner (first place) of the competition for a three year Ph.D scholarship at the University of Catania.
- Better communication award of the Cond. Mat. Section at the 2008 SIF (Italian physics society) Meeting.
- The paper "Emergence of entanglement out of a noisy environment: The case of microcavity polaritons", EPL, **88** 20003 (2009) that I co-authored has been selected as "Editor's

choice” and as highlight: “Emergent entanglement in a noisy system” on Europhysics News.

- The paper “One Photon Can Simultaneously Excite Two or More Atoms” **117**, 043601 (2016) was selected as Editor’s choice and has been chosen for a Focus story: <https://physics.aps.org/articles/v9/83>.

## Research Activity

The research activity has been and is mainly focused on the optical properties of quantum condensed matter systems. Specifically:

- Cavity QED in the strong and ultrastrong coupling regimes.
- Circuit QED
- Nano- optics and quantum plasmonics
- Quantum optics in semiconductors and semiconductor quantum structures.
- Many-body correlations in semiconductor quantum structures.
- Quantum theory of light scattering and emission in complex media.

## Bibliometry

Savasta is coauthors of more of than 120 papers on international journals. In particular 12 papers appeared on Phys. Rev. Lett., 3 papers on ACS Nano, 3 paper on ACS Photonics, 1 paper on Nature Physics, 1 on Nature Reviews Physics, and 1 paper on Phys. Rev. X.

He is referee of several international scientific journals as Nature, Nature Physics, New J. Phys., Phys. Rev. A, Phys. Rev. B, Nature Commun. and Phys. Rev. Lett.

List of publications available at

<https://scholar.google.it/citations?user=vnWyp5sAAAAJ&hl=it>

and at <https://orcid.org/0000-0002-9253-3597>

Web of Science ResearcherID E-6321-2011

## Organization activities

- Member of the programme committee and of the local committee of OECS 10 - International Conference on Optics of Excitons in Confined Systems, Messina, Italy, from 10-09-2007 to 13-09-2007
- Member of the programme committee of OECS 11 - International Conference on Optics of Excitons in Confined Systems, Madrid, from 07-09-2009 to 11-09-2009
- Member of the program committee of the annual workshops "Appunti di Fisica Teorica" , Messina - from 01-02-2007
- Member of the evaluation committee for the project funding at the Messina University, 2005.
- PI of the project “Quantum Optics in Mesoscopic Systems” funded by the University of Messina, 2005.

- PI of the research project of the University of Messina 2006-2007 -: Linear and nonlinear optical spectroscopy in semiconductor quantum structures.

### **Invited Talks, Colloquia, Seminars:**

More than 30 invited talks and seminars

### **Selection of advanced lectures given at International Schools**

- Conference of the NATO Advanced Study Institute on Magnetic Nanostructures for Micro-Electromechanical systems and Spintronic Applications, Catona, ITALY, JUL 02-15, 2006.
- Singapore School of Physics 'Strong light-matter coupling : from atoms to solid-state systems' (May/June, 2012). Among other invited lecturers (S. Haroche, S. Girvin, H. Carmichael, J.M. Gérard).

### **Selection of Invited talks**

- *Nonlinear multiple scattering of polaritons in semiconductor microcavities*, Third Italian-Russian Symposium on Problems of Laser Physics and Technologies, Palermo 16-20 September 2000.
- *Quantum optics with interacting polaritons*, 8th International Workshop on Nonlinear Optics and Excitation Kinetics In Semiconductors (NOEKS 8) Munster, GERMANY, FEB 20-24, 2006. *Quantum optics in semiconductor microcavities*, S. Savasta, O. Di Stefano, S. Portolan, 15th International Conference on Nonequilibrium Carrier Dynamics in Semiconductors Tokyo, JAPAN, JUL 23-27, 2007.
- *Quantum optics with polaritons*, Latsis Symposium: Bose Einstein Condensation in diluted atomic gases and in condensed matter, January 28-30 2008, EPFL Lausanne
- *Quantum plasmonics: ottica quantistica di molecole artificiali composte da un quantum dot e una nanoparticella metallica*, S. Savasta, Società Italiana di Fisica XCVI Congresso Nazionale Bologna, 20 - 24 Settembre, 2010
- Workshop, TaCoNa-Photonics 2011, International Workshop on Theoretical and Computational Nano-Photonics, October 26 - 28, 2011, to be held at the Physikzentrum Bad Honnef.
- Invited talk at the Spring Meeting of the German Physical Society, 15.-20. March 2015 in Berlin.
- Invited talk at "Present and future trends in ultrastrong light-matter coupling", on the 2nd and 3rd March 2016 at Chicheley Hall of the Kavli Royal Society International Centre.

### **Teaching**

He has taught several physics courses at the University of Messina.

Since 2014 Quantum Physics

Since 2015 Solid State Physics

He is member of the Doctorate School in Physics at the University of Messina, where he teaches:

- Complex quantum systems
- Photonics.

He was thesis advisor or supervisor of 11 PhD students: O. Di Stefano, G. Pistone, S. Portolan, A. Ridolfo, R. Vilardi, N. Fina, F. Cucinotta, R. Stassi, L. Garziano, G. Cassone, V. Macrì, A. Settineri.

Thesis advisor of 16 undergraduate or graduate students