

## PERSONAL INFORMATION

Alessio Sattineri



Date of birth

## POSITION

Physics PhD Student at Messina's University (Supervisor: Prof. S. Savasta)

## EDUCATION AND TRAINING

2007–2012

**High Schoc Diploma 100/100**  
Archimede Scientific High School, Messina (Italy)

2012–2015

**Three-year Degree in Physics 107/110**  
Messina's University, Messina (Italy)  
Thesis: Inclusion Complex for the Drug Delivery: Stability and thermic behaviour.  
Relator: Prof. Valentina Venuti

2015–2017

**Master Degree in Physics 110L/110**  
Messina's University, Messina (Italy)  
Thesis: Characterization of the plasmonic behaviour of nano-structured gold films  
Relator: Prof. Salvatore Patané

2018–Present

**PhD in Physics**  
Università di Messina  
PhD in Quantum Physics: Quantum Optics and Open quantum systems in the Ultra-Strong coupling regime  
Tutor: Prof. Salvatore Savasta

## WORK EXPERIENCE

03/11/2014–18/12/2014

**University Internship**

- IR-Raman Spectroscopy and SERS
- Scanning Probe Microscopy and Nanotechnologies.
- Deposition and nanomachining techniques.

02/11/2016–Present

**University Tutor**

- From 2 to 24 November 2016 Didactic Tutoring at Messina's University: Preparation of the students for the tests.
- From 11 May to 30 November 2017 Specialistic Tutoring at Messina's University: Laboratory Assistant

20/01/2018–20/02/2018

**Research Student at RIKEN (Wako)**  
Study of new approaches to describe the dynamics of Open Hybrid Quantum systems in the ultra

Curriculum vitae

strong coupling regime.

- Development of a **Dressed Master equation** Approach for the description of Open Hybrid Quantum Systems

29/08/2018–29/09/2018

**Research Student at RIKEN (Wako)**

Study of new approaches to describe the dynamics of Open Hybrid Quantum systems in the ultra strong coupling regime.

- Development of a **Quantum Trajectory Method** in the ultra strong coupling regime

15/01/2019–15/03/2019

**Research Student at RIKEN (Wako)**

■ Study of Quantum Homodyne/Heterodyne Detection.

- Quantum interference setups.

PERSONAL SKILLS

Mother tongue(s) Italian

Foreign language(s)

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	B2	B2	B1	B1	B1
German	A1	A1	A1	A1	A1

Levels: A1 and A2: Basic user - B1 and B2: Independent user - C1 and C2: Proficient user  
 Common Europe in Framework of Reference for Languages

Communication skills

- Ability to relate to work and study colleagues and teamwork skills, quality gained during years of study, university labs, and internship periods.
- Ability to expose concepts and personal knowledge learned during lectures, presentations in Italian and English and conferences.

Organisational / managerial skills

- Organizational, planning and co-ordination skills.
- Good level of flexibility and adaptation to different situations, aptitude to make timely decisions and consistent with the goals set and to tackle and resolve stress situations.

Job-related skills

- Experimental and theoretical knowledge on the study of material properties through **Spectroscopic Techniques** related to the experience gained during laboratory activities and university studies
- Experimental and theoretical knowledge **optical microscopy** and **scanning probe microscopy** (SNOM, AFM) related to the experience gained during the master thesis internship.
- Theoretical knowledge in **Solid State Physics** and semiconductor physics
- Theoretical knowledge in **Materials Physics** (alloys, plastics and ceramics)
- Private lessons for high school students in subjects of a predominantly scientific nature such as Mathematics, Physics, Chemistry.
- Experience as: **Laboratory assistant** and University Tutor. A) provision of basic individual and/or group coaching, guidance, and assistance to students in the review of course material, solving of problems, and preparation for tests and examinations; B) development and preparation of tutoring plans; C) administration of tests; D) research and selection of learning materials and applications.

Digital skills

SELF-ASSESSMENT

Information processing	Communication	Content creation	Safety	Problem-solving
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Proficient user    Proficient user    Independent user    Independent user    Proficient user

Digital skills - Self-assessment grid

- Excellent mastery of Windows and Linux operating systems and their applications
- Excellent knowledge in using data analysis software (Origin, PeakFit)
- Good usage of Graphic Software and 3D modelling (Adobe Photoshop, Rhinoceros, Keyshot and Designer) several 3D models published on international journals (Nature Review Physics (also featured in the index), APS Journals)
- PROGRAMMING LANGUAGES: Python, Mathematica, C ++, Fortran
- Excellent familiarity with Android mobile devices (smartphones and tablets)
- Excellent knowledge of the Microsoft Office package, especially Word, Excel and PowerPoint
- Experience navigating the internet using Different browsers (Internet Explorer, Firefox, Chrome)
- Excellent knowledge of e-mail clients (Windows Live Mail, Outlook Express)

Driving licence B

ADDITIONAL INFORMATION

Publications and Conferences

- **Publication (Currently submitted in PRA):** "Conversion of Mechanical Thermal Noise into photon pairs" **Alessio Settineri**, Vincenzo Macri, Salvatore Savasta
- **Publication (Published in PRA):** "Quantum Coherence in Hybrid quantum Systems: the influence of Temperature" **Alessio Settineri**, Vincenzo Macri, Alessandro Ridolfo, Omar Di Stefano, Anton Frisk Kockum, Franco Nori, Salvatore Savasta
- **Publication (Published in PRL):** "Interaction of Mechanical Oscillators mediated by the exchange of Virtual photon Pairs" Omar Di Stefano, **Alessio Settineri**, Vincenzo Macri, Alessandro Ridolfo, Roberto Stassi, Anton Frisk Kockum, Salvatore Savasta, Franco Nori
- **Publication (Recently accepted on Nature Physics):** "Resolution of gauge ambiguities in ultrastrong-coupling cavity QED" Omar Di Stefano, **Alessio Settineri**, Vincenzo Macri, Luigi Garziano, Roberto Stassi, Salvatore Savasta, Franco Nori
- **Publication (Published on Scientific Reports):** "Near-field imaging of surface-plasmon vortex-modes around a single elliptical nanohole in a gold film" Claudia Triolo, Salvatore Savasta, **Alessio Settineri**, Sebastiano Trusso, Rosalba Saija, Nisha Rani Agarwal, Salvatore Patané.
- **Presentation Poster:** "Plasmon vortices around isolated nanoholes cratered on a gold film: polarization dependent coupling of SPPs and excitation beam" Plasmonica 2017
- **Presentation Poster:** "Interaction of Mechanical Oscillators Mediated by the Exchange of Virtual Photons ", VQED 2018

Specialization School

- From 19 to 23 September 2016 **National Specialization School "Scienza e Beni Culturali: Dall'Analisi non invasiva alla ricostruzione 3D (Cultural Heritage Science: Non invasive analysis for the 3D reconstruction)"**
- From 24 to 29 July 2017 **School of Excellence**, "Modelli di calcolo ispirati ai meccanismi di funzionamento del cervello (Brain inspired computing)", Project Manager prof. Giovanni Finocchio
- From 4 June to 8 June 2018 Workshop on Waveguide QED

Seminars

- 30 May 2013 Appunti di Fisica & Young Minds, 7th Day with the Theoretical Physics
- 26 March 2013 Percorso di eccellenza in Fisica PES (Physics excellence program): passing course "Disg 81/08 e problematiche sulla sicurezza" (Disg 81/08 and security issues)
- From 13 to 15 October 2015 International Symposium: Lepton and Hadron Physics at Meson-Factories
- From 6 to 8 November 2013 International Symposium: Entrance Channel Effect on the reaction Mechanisms in heavy ion collisions
- 22 June 2016 Winner of a scholarship for a Language course at the linguistic center (CLAM) of

Messina

- 13 May 2016 Symposium on Nanofabrication
- 26 May 2016 9th Day with the Theoretical Physics.
- 16 July 2018 Nanoparticles Engineering by Pulsed Laser Ablation: concepts and applications.

**Attachments** copies of all attestations are available upon request

**Autorization** I authorize the processing of my personal data contained in my curriculum vitae in art. 13 of Legislative Decree 196/2003

16/10/2018  
Settineri Alessio