



# Giuseppe Ronco

## WORK EXPERIENCE

 SAPIENZA UNIVERSITY OF ROME – ROME, ITALY

**POSTDOCTORAL FELLOWSHIP** – 01/11/2024 – CURRENT

I am investigating the optical properties of nanostructured semiconductors, mainly focusing on GaAs quantum dots and 2D materials. I was involved in advanced quantum optics experiments, such as quantum state teleportation and entanglement swapping with solid-state single-photon sources. My tasks are diverse and cover all the requirements needed for research, such as setup and experiment design, orders and purchases, sample fabrication, data analysis, programming, writing and editing of research papers, and I supervise two PhD students.

 SAPIENZA - UNIVERSITY OF ROMA – ROME, ITALY

**RESEARCH FELLOW** – 01/11/2023 – 01/11/2024

I conducted research activity in quantum optics, semiconductor physics, and two-dimensional materials. I investigated the optical properties of nanostructures as a function of strain and magnetic fields. I took care of experiment design, setup assembly, data acquisition, data analysis, scientific manuscript writing and editing.

## EDUCATION AND TRAINING

01/11/2020 – 23/09/2024 Rome, Italy

**PHD IN MATERIAL SCIENCE** Sapienza University of Rome

I carried out my research activity on low-dimensional excitons, such as GaAs quantum dots and monolayer Transition Metal Dichalcogenides. I investigated the effects of strain fields on their optical and electronic properties, both in the context of quantum optics and novel electronic areas, such as valleytronics.

**Website** <https://www.uniroma1.it/it/pagina-strutturale/home> | **Field of study** Physics | **Final grade** Cum Laude |

**Level in EQF** EQF level 8 | **National classification** 10 |

**Thesis** Strain-engineering low-dimensional excitons: a building block for nanotechnology

10/01/2018 – 20/07/2020 Rome, Italy

**MASTER DEGREE IN PHYSICS** Sapienza University of Rome

**Final grade** 110/110 cum laude | **Level in EQF** EQF level 7 |

**Thesis** Polarization resolved optical spectroscopy of strained monolayer WS<sub>2</sub>

01/10/2014 – 10/01/2018 Rome, Italy

**BACHELOR DEGREE IN PHYSICS** Sapienza University of Rome

**Final grade** 107/110 | **Level in EQF** EQF level 6 | **Thesis** Distribuzione spaziale di probabilità per microrganismi fotocinetici

## LANGUAGE SKILLS

Mother tongue(s): **ITALIAN**

Other language(s):

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken production	Spoken interaction	
<b>ENGLISH</b>	B1	B1	B1	B1	B2

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

## SKILLS

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### Programming

Matlab | Python Fundamentals Course | Mathematica Wolfram | C

### Data Analysis

Origin | Microsoft Office | Microsoft Excel

### Graphics

Blender | Inkscape | Microsoft Powerpoint

### Writing

Latex | Microsoft Word

## PUBLICATIONS

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2023

### [Daylight entanglement-based quantum key distribution with a quantum dot source](#)

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Francesco Basso Basset, Mauro Valeri, Julia Neuwirth, Emanuele Polino, Michele B Rota, Davide Poderini, Claudio Pardo, Giovanni Rodari, Emanuele Roccia, SF Covre da Silva, Giuseppe Ronco, Nicolò Spagnolo, Armando Rastelli, Gonzalo Carvacho, Fabio Sciarrino, Rinaldo Trotta

Quantum Science and Technology, 8 025002

2025

### [Strain-induced dynamic control over the population of quantum emitters in two-dimensional materials](#)

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Giuseppe Ronco, Abel Martínez-Suárez, Davide Tedeschi, Matteo Savaresi, Aurelio Hierro-Rodríguez, Stephen McVitie, Sandra Stroj, Johannes Aberl, Moritz Brehm, Víctor M García-Suárez, Michele B Rota, Pablo Alonso-González, Javier Martín-Sánchez, Rinaldo Trotta

npj 2D Materials and Applications 9, 65

2024

### [Quantum teleportation with dissimilar quantum dots over a hybrid quantum network](#)

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Alessandro Laneve, Giuseppe Ronco, Mattia Beccaceci, Paolo Barigelli, Francesco Salusti, Nicolas Claro-Rodriguez, Giorgio De Pascalis, Alessia Suprano, Leone Chiaudano, Eva Schöll, Lukas Hanschke, Tobias M. Krieger, Quirin Buchinger, Saimon F. Covre da Silva, Julia Neuwirth, Sandra Stroj, Sven Höfling, Tobias Huber-Loyola, Mario A. Usuga Castaneda, Gonzalo Carvacho, Nicolò Spagnolo, Michele B. Rota, Francesco Basso Basset, Armando Rastelli, Fabio Sciarrino, Klaus Jöns, Rinaldo Trotta

arXiv:2411.12387

2024

### [A source of entangled photons based on a cavity-enhanced and strain-tuned GaAs quantum dot](#)

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Michele B Rota, Tobias M Krieger, Quirin Buchinger, Mattia Beccaceci, Julia Neuwirth, Hêlio Huet, Nikola Horová, Gabriele Lovicu, Giuseppe Ronco, Saimon F Covre da Silva, Giorgio Pettinari, Magdalena Moczala-Dusanowska, Christoph Kohlberger, Santanu Manna, Sandra Stroj, Julia Freund, Xueyong Yuan, Christian Schneider, Miroslav Ježek, Sven Höfling, Francesco Basso Basset, Tobias Huber-Loyola, Armando Rastelli, Rinaldo Trotta

eLight 4, 13

2023

### [Signatures of the Optical Stark Effect on Entangled Photon Pairs from Resonantly-Pumped Quantum Dots](#)

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Francesco Basso Basset, Michele B Rota, Mattia Beccaceci, Tobias M Krieger, Quirin Buchinger, Julia Neuwirth, Hêlio Huet, Sandra Stroj, Saimon F Covre da Silva, Giuseppe Ronco, Christian Schimpf, Sven Höfling, Tobias Huber-Loyola, Armando Rastelli, Rinaldo Trotta

Physical Review Letters, 131, 166901

2023

### **Polarized and Un-Polarized Emission from a Single Emitter in a Bullseye Resonator**

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Giora Peniakov, Quirin Buchinger, Mohamed Helal, Simon Betzold, Yorick Reum, Michele B Rota, Giuseppe Ronco, Mattia Beccaceci, Tobias M Krieger, Saimon F Covre Da Silva, Armando Rastelli, Rinaldo Trotta, Andreas Pfenning, Sven Hoefling, Tobias Huber-Loyola

Laser Photonics Review 18, 2300835

## ● **CONFERENCES AND SEMINARS**

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17/09/2023 – 20/09/2023 Freueninsel, Germany

### **International Conference on Nonlinear Optics and Excitation Kinetics in Semiconductors (NOEKS16)**

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Presented talk on exciton redistribution in strained monolayer WSe<sub>2</sub>

04/09/2023 – 08/09/2023 Milan, Italy

### **General conference of the condensed matter division of the EPS (CMD30)**

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Presented talk on exciton redistribution in strained monolayer WSe<sub>2</sub>

09/09/2024 – 13/09/2024 Rome

### **NanoInnovation 2024**

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Presented talk on strain effects on exciton redistribution among quantum emitters in monolayer TMDs

Link <https://www.nanoinnovation2024.eu/home/>

11/07/2022 – 15/07/2022 Donostia-San Sebastian, Spain

### **Novel Electronic Properties of Two-Dimensional Materials (NEP2DM)**

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Presented poster on strain-tuning the optical properties of quantum emitters in monolayer WSe<sub>2</sub>

15/12/2022 – 16/12/2022 Stuttgart, Germany

### **Engineering of Quantum Emitter Properties (EQEP)**

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Presented poster on strain-tuning the optical properties of quantum emitters in monolayer WSe<sub>2</sub>

14/07/2025 – 18/07/2025 Warsaw

### **Optics of Excitons in Confined Systems (OECS19)**

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Presented talk on strain effects on exciton redistribution among quantum emitters in monolayer TMDs

Link <https://www.oecs19.pl/>

## ● **PROJECTS**

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01/12/2022 – 30/11/2023

### **A novel device for valleytronics in strained monolayer Transition Metal Dichalcogenides**

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Progetti per Avvio alla Ricerca - Tipo 1

Fundings approved

## ● **DISSEMINATION**

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13/07/2023

### **Sapienza Porte Aperte - 2023**

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Guide for the nanophotonics lab tour during Porte Aperte Sapienza 2023

13/05/2023

## **Notte bianca dei ricercatori - 2023**

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Guide for the Nanophotonics lab tour during the "Notte bianca dei ricercatori", edition 2023

12/04/2023 - 21/04/2023

## **Dire l'indicibile - Italian Quantum Weeks**

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Guide for the exhibition: "Dire l'indicibile", edition 2023 of the Italian Quantum Weeks

01/04/2022 - 12/04/2022

## **Dire l'indicibile - Italian Quantum Weeks**

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Guide for the exhibition : "Dire l'indicibile", edition 2022 of the Italian Quantum Weeks

## ● **TECNICAL SKILLS**

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### **Micro-photoluminescence techniques**

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Training under the supervision of Prof. Ernesto Placidi (Sapienza - University of Rome) in 2022

### **Fabrication of two-dimensional materials via Dry-Transfer techniques**

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### **Mechanical deformation of two-dimensional materials**

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### **Polarization-resolved optical spectroscopy**

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### **Auto-correlation measurements**

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### **Entanglement Tomography**

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### **Quantum key distribution**

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### **Raman spectroscopy**

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### **Atomic Force Microscopy (AFM)**

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## ● **MANAGEMENT AND LEADERSHIP SKILLS**

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### **Co-supervisor of Bachelor theses**

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Candidate : Pierpaolo Bassetti

Title : Proprietà ottiche di materiali bidimensionali a gap diretta

Thesis defended : 15/12/2021

Candidate : Fabrizio Cienzo

Title : Eccitoni in campo magnetico

Thesis defended : 29/09/2022

### **Co-supervisor of Master theses**

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Candidate: Federico Trezzini

Title: Temperature-resolved optical spectroscopy on strained WS<sub>2</sub> and WSe<sub>2</sub> monolayers

Thesis defended: 18/01/2023

Candidate: Pierpaolo Bassetti

Title: Strain-induced emission of polarized light from monolayer Transition Metal Dichalcogenides

Thesis defended: 27/05/2024

Candidate: Fabrizio Cienzo

Title: Quantum emitters in hexagonal boron nitride

Thesis defended: 23/10/2024

### **PhD Seminars Organization Committee**

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