Michele Rota

WORK EXPERIENCE

01/01/2021 – CURRENT

ASSEGNO DI RICERCA (TEMPORARY RESEARCH FELLOW) – PHYSICS DEPARTMENT OF SAPIENZA UNIVERSITY OF ROME

Scientific head: Prof. R. Trotta

01/04/2019 – CURRENT

VISITING STUDENT – INSTITUTE OF PHOTONICS AND NANOSTRUCTURES, NATIONAL RESEARCH COUNCIL (CNR)

- Topic: Processing of photonic structures for the enhancement of light extraction from quantum dots
- Supervisor: Dr. Giorgio Pettinari

Rome, Italy

01/11/2018 – 31/03/2019

VISITING STUDENT – INSTITUTE OF SEMICONDUCTOR AND SOLID STATE PHYSICS OF JOHANNES KEPLER UNIVERSITY

- Topic: Development of photonic structures for the enhancement of light extraction from quantum dots
- Supervisor: Prof. Armando Rastelli

Linz, Austria

01/06/2017 – 31/07/2017

RESEARCH STAGE – INSTITUTE OF SEMICONDUCTOR AND SOLID STATE PHYSICS OF JOHANNES KEPLER UNIVERSITY

- Topic: Quantum optic investigation of entangled photons from semiconductor quantum dots
- Scientific head: Prof. R. Trotta

Linz, Austria

01/05/2016 – 30/04/2017

ASSEGNO DI RICERCA (TEMPORARY RESEARCH FELLOW) – PHYSICS DEPARTMENT OF SAPIENZA UNIVERSITY OF ROME

- Topic: Improving the emission efficiency of semiconductor nanowires
- Scientific head: Prof. A. Polimeni

Rome, Italy

10/2016 – 02/2017

ASSISTANT LECTURER – PHYSICS DEPARTMENT OF SAPIENZA UNIVERSITY OF ROME

- For the Bachelor's degree lectures of "Scientific computing lab"

Rome, Italy

05/2014 – 07/2016

FREELANCE COLLABORATION – BRITISH COUNCIL

- Invigilator at ESOL, IELTS, YLE Cambridge English exams
- Clerical marker for IELTS exams
- Supervisor for IELTS exams

Rome, Italy

EDUCATION AND TRAINING

01/11/2017 – 31/12/2020 – Rome, Italy

PH.D. IN PHYSICS – Sapienza University of Rome

- Subject: Quantum optics, physics of matter
- Project title: Quantum dots for quantum networks
- Advisor: Prof. R. Trotta

Cum laude | EQF level 8

01/10/2012 – 17/03/2016 – Rome, Italy

MASTER'S DEGREE IN PHYSICS – Sapienza University of Rome

- Thesis title: Investigation of wurtzite InAs nanowires by photoluminescence spectroscopy
- Subject: Physiscs of matter
- Advisors: Prof. A. Polimeni, Prof. M. Capizzi
- Characterizing courses:
  - Condensed matter
  - Physics of Solids
  - Spectroscopic methods for condensed matter
  - Many-body systems physics
  - Statistical mechanics and critical phenomena
  - Superconductivity and superfluidity
  - Computational physics of matter

EQF level 7

09/2008 – 09/2012 – Rome, Italy

BACHELOR'S DEGREE IN PHYSICS – Sapienza University of Rome

- Thesis title: Micro-Raman spectroscopy applied to ionic liquids
- Subject: Physics of matters
- Advisor: Prof. P. Dore

EQF level 6

LANGUAGE SKILLS

Mother tongue(s): **ITALIAN**

Other language(s):

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken production	Spoken interaction	
ENGLISH	C1	C1	C1	C1	C1

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

PUBLICATIONS

Publications

- 10. Carvacho, G., Roccia, E., Valeri, M., Basso Basset, F., Poderini, D., Pardo, C., Polino, E., Carosini, L., Rota, M. B., Neuwirth, J., Covre da Silva, S.F., Rastelli, A., Spagnolo, N., Chaves, R., Trotta, R., and Sciarrino, F., Quantum violation of local causality in urban network with hybrid photonic technologies. *arXiv preprint* arXiv:2109.06823 (2021).
- 9. Neuwirth, J., Basso Basset, F, Rota, M.B., Roccia, E., Schimpf, C., Jöns, K.D., Rastelli, A., and Trotta, R., Quantum dot technology for quantum repeaters: from entangled photon generation towards the integration with quantum memories. *Mater. Quantum. Technol.* 1 043001 (2021).
- 8. Basso Basset, F., Valeri, M., Roccia, E., Muredda, V., Poderini, D., Neuwirth, J., Spagnolo, N., Rota, M.B., Carvacho, G., Sciarrino, F. and Trotta, R., Quantum key distribution with entangled photons generated on-demand by a quantum dot. *Science Advances* 7(12) (2021).
- 7. Basso Basset, F., Salusti, F., Schweickert, L., Rota, M.B., Tedeschi, D., Covre da Silva, S.F., Roccia, E., Zwiller, V., Jöns, K.D., Rastelli, A. and Trotta, R., Quantum Teleportation with Imperfect Quantum Dots. *npj Quantum Information* 7 (1), 1-9 (2021).
- 6. Santanu, M. Huang, H. Covre da Silva, S.F. Schimpf, C. Rota, M.B. Lehner, B. Reindl, M. Trotta, R. and Rastelli, A.Surface passivation and oxide encapsulation to improve optical properties of a single GaAs quantum dot close to the surface, *Applied Surface Science 532, 147360* (2020).
- 5. Rota, M. B.; Basso Basset, F.; Tedeschi, D.; and Trotta R. Entanglement teleportation with photons from quantum dots: towards a solid-state based quantum network, *IEEE Journal of Selected Topics in Quantum Electronics, 26(3), 6400416* (2020).
- 4. Basso Basset, F.; Rota, M. B.; Schimpf, C.; Tedeschi, D.; Zeuner, K.D.; Covre da Silva, S.F.; Reindl, M.; Zwiller, V.; Jöns, K.D.; Rastelli, A.; Trotta, R. Entanglement Swapping with Photons Generated On-Demand by a Quantum Dot. *Physics Review Letters 123 (16), 160501* (2019).
- 3. Reindl, M.; Huber, D.; Schimpf, C.; Covre da Silva, S.F.; Rota, M.B.; Huang, H.; Zwiller, V.; Jöns, K.D.; Rastelli, A.; Trotta, R. All-Photonic Quantum Teleportation Using on-Demand Solid-State Quantum Emitters. *Science Advances, 4(12)* (2018).
- 2. Rota, M.B.; Ameruddin, A. S.; Wong-Leung, J.; Belabbes, A.; Gao, Q.; Miriametro, A.; Mura, F.; Tan, H.H.; Polimeni, A.; Bechstedt, F.; et al. Critical Temperature for the Conversion from Wurtzite to Zincblende of the Optical Emission of InAs Nanowires. *The Journal of Physical Chemistry C, 121(30), 16650* (2017).
- 1. Rota, M.B.; Ameruddin, A. S.; Fonseka, H. A.; Gao, Q.; Mura, F.; Polimeni, A.; Miriametro, A.; Tan, H.H.; Jagadish, C.; Capizzi, M. Bandgap Energy of Wurtzite InAs Nanowires. *Nano Letters, 16(8), 5197* (2016).

SOCIAL AND POLITICAL ACTIVITIES

06/04/2018 – 30/03/2021

Students' representative in the Council and Board of the Physics Department

Sapienza University of Rome - Physics Department

CONFERENCES AND SEMINARS

07/12/2020 – 11/12/2020 – Munich, Germany (Online conference)
11th International Conference on Quantum Dots (QD2020)

Accepted contributed talk

23/02/2020 – 28/02/2020 – Mauterndorf, Austria
21th International Winterschool on New Developments in Solid State Physics

Poster contribution

30/09/2019 – 05/10/2019 – Ettore Majorana foundation and centre for scientific culture, Erice, Italy
Summerschool on Quantum devices for non-classical light generation and manipulation

Poster contribution

18/06/2019 – 21/06/2019 – University of "Tor Vergata", Rome, Italy
10th Young Researcher Meeting

Contributed talk

04/04/2019 – 06/04/2019 – Sapienza University of Rome, Rome, Italy
Quantum Information and Measurement (QIM) V: Quantum Technologies

05/12/2018 – 07/12/2018 – Sapienza University of Rome, Rome, Italy
6th workshop on “Engineering of Quantum Emitter Properties"

23/09/2018 – 27/09/2018 – Berlin, Germany,
14th International Conference on Nonlinear Optics and Excitation Kinetics in Semiconductors

Poster contribution

26/02/2018 – 02/03/2018 – Mauterndorf, Austria
20th International Winterschool on New Developments in Solid State Physics

TECHNICAL SKILLS

Scanning Electron Microscope

Training by A. Halilovic (JKU Linz)

Electron Beam Lithography

Training by A. Halilovic (JKU Linz)

Clean Room General Training

Training by Ing. S. Bräuer

Hydrofluoric acid safety training

training by Ing. A. Schwarz (JKU Linz)

Reactive Ion Etching

Training by Dr. G. Pettinari (CNR-IFN Rome)

Laser Safety

Training by Prof. R. Trotta (Sapienza University of Rome)

Micro-photoluminescence spectroscpy and micro-reflectivity spectroscopy

Training by Prof. R. Trotta (Sapienza University of Rome)

Single-photon coincidence correlation and quantum state tomography

Training by Prof. R. Trotta (Sapienza University of Rome)

Atomic Layer Deposition

Training by Ing. A. Schwarz (JKU Linz)

Metal and oxide deposition

Training by Ing. S. Bräuer