

Robert Andrei Sorodoc

Professional Qualifications

Master's Degree in Materials and Nanotechnology (LM-53), University of Pisa
November 2023

Thesis Title: “Growth and Characterization of GaAsP Quantum Dot Nanowires”

Thesis Supervisor: Professor Lucia Sorba

Final Grade: 110/110

Bachelor's Degree in Physics (L-30),

University of Pisa

July 2021

Supervisor: Professor Alessandro Tredicucci

Final Grade: 94/110

Career History

February 2024 – Present

Fellow Researcher, CNR-NANO at NEST, Pisa

Call: NANO AR 025/2023 PI(Prot. CNR-NANO n.364322 del 24/11/2023), title:

"Synthesis of semiconductor nanowires through chemical beam epitaxy" under the scientific responsibility of Dr Valentina Zannier.

Main tasks:

- VLS growth of III-V semiconductor nanowires and nanowire heterostructures
- 2D growth of III-V materials
- Morphological characterization of nanostructures
- Maintenance of UHV CBE growth chamber and backing systems

October 2022 – November 2023

Intern, NEST Laboratory, University of Pisa & Scuola Normale Superiore

Main tasks:

- Growth and characterization of III-V semiconductor nanowires

Experimental Skills and Experience

- Extensive knowledge of various growth techniques for III-V nanowire heterostructures, primarily catalyzed VLS
- Proficient in nanostructure morphological characterization via SEM imaging
- Experience with nanostructure compositional characterization using SEM-EDX
- In-situ crystallographic analysis via RHEED
- High-vacuum evaporation of metallic films
- Colloidal solution drop-casting techniques
- Chemical laboratory training, particularly with highly corrosive acids for etching procedures
- Extensive cleanroom environment experience
- Reflection optical microscopy for nanostructure and defect analysis, bright and dark field

Publications

1. Ferretti, A.; Canal, L.; Sorodoc, R.A.; Sinha, S.; Brancato, G. "Fine Tuning the Intermolecular Interactions of Water Clusters Using Dispersion-Corrected Density Functional Theory." *Molecules* 2023, 28, 3834. <https://doi.org/10.3390/molecules28093834>
2. Sorodoc, R.A., et al. "Tunable GaAs_xP_{1-x} Quantum-Dot Emission in Wurtzite GaP Nanowires." *ACS Applied Materials & Interfaces* 16.47 (2024): 65222-65232. <https://doi.org/10.1021/acsami.4c15343>

Additional Skills and Experience

- Cambridge First Certificate (FCE): C1 English Level - 2011
- British Council IELTS: 8.0, C1 English Level – 2024
- Native Romanian speaker
- Proficient in C and Python programming languages
- Experienced in creating data analysis scripts using Python and Jupyter
- Familiar with parallel computations on High-Performance Computing nodes in a Linux environment