Vasile - Laurențiu DOSAN

+40 (736) 364 800 | laurentiu.dosan@protonmail.com |

Education

University POLITEHNICA of Bucharest — Bucharest, Romania
Bachelor of Applied Physics — *Sep, 2018 – Present*

"Mihai Eminescu" National College — Petrosani, Romania
Mathematics and Computer Science (Baccalaureate 9.86/10) — *Sep, 2014 – Jun, 2018*

Experience

Student Researcher — Sep, 2018 – Present
Applied Quantum Optics Lab, QUTECH-RO, ROQNET — *University POLITEHNICA of Bucharest (UPB)*

- Manipulation of a SPDC photon source.
- Experiments: Bell-CHSH inequality, entanglement visibility, single photon interference, quantum eraser, wave-particle duality.
- Developed a Sagnac Loop based quantum source.

Affiliated Student — Apr, 2021 – Present
CiTi "Traian Lalescu", UPB — *University POLITEHNICA of Bucharest (UPB)*

- Ignorance in Quantum Cryptography.
- Applied Quantum Fourier Transform in Quantum Cryptography.

Summer Intern — Jun – Sep, 2021
Photonics and Quantum Communication Lab, UNIQORN — *AIT Austrian Institute of Technology GmbH*

- Fully alignment procedure for a Sagnac based Quantum source.
- Characterization of InGaAs single photon detectors.
- Testing entanglement: visibility, Bell test, Quantum state tomography.

Projects

Simulation of quantum key distribution on the IBM-Q quantum computer — Feb – Jun, 2021
∗ Simulated a prepare-and-measure QKD protocol on the IBM-Q quantum computer.

QRNG with down converted photon pairs — Jan – Aug, 2020
∗ Developed a physical random number generator based on coincidence rates of entangled/correlated photon pairs.
∗ Presented at ATOM-N conference (Constanta, 2020) and published in proc. of SPIE.

An interactive experiment for testing Bell-CHSH inequality — Jan – Aug, 2019
∗ Presented an interactive experiment and a dedicated, in house developed code, designed to test the violation of Bell-CHSH inequality for different quantum states.
∗ Presented at International Balcanic Workshop on Applied Physics (Constanta, 2019)

Awards and Scholarships

Scholarship for Exceptional Merit: University POLITEHNICA of Bucharest, 2018-2021
ERASMUS+ scholarship: traineeship mobility, Vienna 2021
1st Place: Applied Mathematics Communications Session, Bucharest 2021
Excellent Paper Award: for the paper "QRNG with down converted phton pairs", Constanta 2020
2nd Place: Physics Communications Session, Bucharest 2020
2nd Place: Applied Mathematics Communications Session, Bucharest 2020
Bronze Medal: Physics National Olympics, Breaza 2018
Honorable Mention: Physics National Olympics, Vaslui 2015

Extracurricular activities

Volunteering. Member of League of Faculty of Applied Sciences (LSFSA), UPB.

Technical Skills

Programming languages: Python, C/C++, R, Matlab, Maple, SQL
Graphical engineering & document preparation : Autocad, Inventor, Catia, Microsoft Office, LaTeX

Research Interest

Quantum Communication, Quantum Optics, Quantum Information, Quantum Technologies

Conferences and Summer Schools

Annual Students Communication Session (Bucharest, 2018-2021). Topics: Physics, Applied Mathematics.
Quantum Future Academy (Berlin, 2020-2021). Topic: Quantum Technologies.
ATOM-N (Constanta, 2020). Topics: Optoelectronics, Microelectronics and Nanotechnologies.
WITDC (Bucharest, 2020). Topic: Applied Mathematics.
QUAPITAL Summer School (Bratislava, 2019). Topics: Quantum Internet, Quantum Information.
IBWAP (Constanta, 2019). Topic: Applied Physics.
Cutting Edge Research in Romania (Busteni, 2016). Topic: General Physics.

References

Dr. Hannes Hübel: Senior Researcher, AIT Austrian Institute of Technology GmbH.
Dr. Radu Ionicioiu: Senior Researcher, Department of Theoretical Physics, IFIN-HH.
Dr. Mona Mihăilescu: Associate Prof., Head of Holographic Imaging and Processing Lab., UPB.
Dr. Corina Cipu: Lecturer, Head of Evolutionary Algorithms Research Direction in CiTi, UPB.

Publications

1. M. Mihăilescu, A. Lupașcu, V.L. Dosan, E. Scarlat, C. Neguțu, V.C. Palea, M.A. Ungureanu, N. Tarbă, R. Tudor, A.M. Sandu, R. Ionicioiu, [Optică Cuantică: Experimente], Ed. Politehnica Press, ISBN: 978-606-515-971-6, Bucharest (2021).

2. V.L. Dosan, M. Mihăilescu, N. Tarbă, M.A. Ungureanu, R. Ionicioiu, "Quantum random number generation with down converted photon pairs", Proc. SPIE 11718, Advanced Topics in Optoelectronics, Microelectronics and Nanotechnologies X, 117180S (2020).

3. V.L. Dosan, E.C. Cipu, "Quantum Algorithms for Quantum Fourier Transform Used in Quantum Information Theory", Proceedings of the 36th International Business Information Management Association (IBIMA), ISBN: 978-0-9998551-5-7 (2020).