

Lista de lucrări

Nume și prenume: **Alexandru-Gabriel Tudorache**

A. Teza de doctorat.

Aplicații ale procesării cuantice a informației în steganografie și criptografie (Quantum Information Processing Applications in Steganography and Cryptography), susținută public pe 26 iulie 2022, coordonator prof.dr.ing. Vasile Manta.

B. Cărți (manuale, monografii, tratate, îndrumare etc.) publicate în străinătate.

1. Alexandru Tudorache, Rodica Luca, Existence of solutions to a system of fractional q -difference boundary value problems, in *Advances in Differential and Difference Equations and Their Applications*, Editors: Lingju Kong and Min Wang, MDPI, Basel, Switzerland, 2025, pag. 179-202, ISBN 978-3-7258-2973-6.
2. Alexandru Tudorache, Rodica Luca, Positive solutions for a system of fractional boundary value problems with r -Laplacian operators, uncoupled nonlocal conditions and positive parameters, in *10th Anniversary of Axioms: Mathematical Physics*, Editor Hans J. Haubold, MDPI, Basel, Switzerland, 2023, pag. 27-37, ISBN 978-3-0365-6867-6.
3. Alexandru Tudorache, Rodica Luca, Positive solutions of a singular fractional boundary value problem with r -Laplacian operators, in *Advances in Boundary Value Problems for Fractional Differential Equations*, Editor Rodica Luca, MDPI, Basel, Switzerland, 2023, pag. 83-102, ISBN 978-3-0365-7799-9.
4. Alexandru Tudorache, Rodica Luca, Systems of Riemann–Liouville fractional differential equations with ρ -Laplacian operators and nonlocal coupled boundary conditions, in *Advances in Boundary Value Problems for Fractional Differential Equations*, Editor Rodica Luca, MDPI, Basel, Switzerland, 2023, pag. 103-122, ISBN 978-3-0365-7799-9.
5. Johnny Henderson, Rodica Luca, Alexandru Tudorache, On a system of Riemann–Liouville fractional boundary value problems with ρ -Laplacian operators and positive parameters, in *Advances in Boundary Value Problems for Fractional Differential Equations*, Editor Rodica Luca, MDPI, Basel, Switzerland, 2023, pag. 123-137, ISBN 978-3-0365-7799-9.
6. Johnny Henderson, Rodica Luca, Alexandru Tudorache, Existence of positive solutions for a system of fractional boundary value problems, in „*Differential and Difference Equations with Applications*”, ICDDEA, Amadora, Portugal, May 2015, Selected Contributions, Editors: Sandra Pinelas, Zuzana Dosla, Ondrej Dosly, Peter E. Kloeden, (451 pag.), Springer, 2016, pag. 349-357, ISBN: 978-3-319-32855-3.

C. Cărți (manuale, monografii, tratate, îndrumare etc.) publicate în țară, la edituri recunoscute CNCSIS (sau CNCS).

Alexandru-Gabriel Tudorache, Vasile-Ion Manta, *Quantum Information Processing Applications in Steganography and Cryptography*, Matrix Rom, București, 2023, ISBN:978-606-25-0852-4, 160 pag. (format academic).

D. Cărți (manuale, monografii, tratate, îndrumare etc.) publicate pe plan local.

E. Cărți (manuale, monografii, tratate, îndrumare etc.) publicate pe web.

F. Lucrări științifice publicate în reviste cotate ISI sau indexate în baze de date internaționale.

F1. Lucrări în reviste cotate ISI.

1. Adrian Prodan, Alexandru-Gabriel Tudorache, Vasile Manta. A New Quantum Video Processing Algorithm Based on the NEQR Technique, *Entropy*, 28(2):168, (2026), 1-17, (ISSN: 1099-4300).
2. Alexandru Tudorache, Rodica Luca, Positive Solutions for a Semipositone Singular ψ -Riemann–Liouville Fractional Boundary Value Problem, *Mathematics*, 13(20), (2025), 1-24, (ISSN: 2227-7390).
3. Alexandru-Gabriel Tudorache, A Detailed Set of Ideas for Designing a Quantum Computing Framework Based on Smart Contracts, Configured Using Foundry and Qiskit, *EMITTER International Journal of Engineering Technology*, 13(1), (2025), 139-155, (ISSN: 2355-391X).
4. Alexandru Tudorache, Rodica Luca, A Hadamard fractional boundary value problem on an infinite interval at resonance, *Fractal and Fractional*, 9 (378), (2025), 1-34, (ISSN: 2504-3110).
5. Rodica Luca, Alexandru Tudorache, Existence of solutions for a Hadamard fractional boundary value problem at resonance, *Fractal and Fractional*, 9 (119), (2025), 1-25, ISSN: 2504-3110.
6. Alexandru Tudorache, Rodica Luca, Positive solutions to a system of coupled Hadamard fractional boundary value problems, *Fractal and Fractional*, 8 (543), (2024), 1-27, ISSN: 2504-3110.
7. Alexandru Tudorache, Rodica Luca, Existence of solutions to a system of fractional q-difference boundary value problems, *Mathematics*, 12 (1335), (2024), 1-24, ISSN: 2227-7390.
8. Alexandru Tudorache, Rodica Luca, Systems of Hilfer–Hadamard Fractional Differential Equations with Nonlocal Coupled Boundary Conditions, *Fractal and Fractional*, 7 (816), (2023), 1-23, ISSN: 2504-3110.
9. Alexandru Tudorache, Rodica Luca, Positive solutions for a system of Hadamard fractional boundary value problems on an infinite interval, *Axioms*, 12 (793), (2023), 1-18, ISSN: 2075-1680.
10. Rodica Luca, Alexandru Tudorache, On a system of Hadamard fractional differential equations with nonlocal boundary conditions on an infinite interval, *Fractal and Fractional*, 7 (458), (2023), 1-24, ISSN: 2504-3110.
11. Alexandru-Gabriel Tudorache, Graph Generation for Quantum States Using Qiskit and Its Application for Quantum Neural Networks, *Mathematics*, Special Issue *Advances in Quantum Computing and Applications*, 11(6):1484, (2023), 1-15, ISSN: 2227-7390.
12. Alexandru Tudorache, Rodica Luca, On a system of sequential Caputo fractional differential equations with nonlocal boundary conditions, *Fractal and Fractional*, 7 (181), (2023), 1-23, ISSN: 2504-3110.
13. Alexandru-Gabriel Tudorache, Design of an Exchange Protocol for the Quantum Blockchain, *Mathematics*, Special Issue *Advances in Quantum Optics and Quantum Information*, 10(21):3986, (2022), 1-14, ISSN: 2227-7390.
14. Alexandru Tudorache, Rodica Luca, Systems of Riemann–Liouville fractional differential equations with ρ -Laplacian operators and nonlocal coupled boundary conditions, *Fractal and Fractional*, 6 (610), (2022), 1-20, ISSN: 2504-3110.

15. Johnny Henderson, Rodica Luca, Alexandru Tudorache, On a fractional differential equation with r -Laplacian operator and nonlocal boundary conditions, *Mathematics*, 10 (3139), (2022), 1-15, ISSN: 2227-7390.
16. Alexandru Tudorache, Rodica Luca, Positive solutions for a fractional differential equation with sequential derivatives and nonlocal boundary conditions, *Symmetry*, 14 (1779), (2022), 1-12, ISSN: 2073-8994.
17. Alexandru-Gabriel Tudorache, Vasile Manta and Simona Caraiman, Quantum Steganography Based on the B92 Quantum Protocol, *Mathematics*, Special Issue *Quantum, Molecular and Unconventional Computing*, 10(16):2870, (2022), 1-13, ISSN: 2227-7390.
18. Johnny Henderson, Rodica Luca, Alexandru Tudorache, On a system of Riemann-Liouville fractional boundary value problems with ρ -Laplacian operators and positive parameters, *Fractal and Fractional*, 6 (299), (2022), 1-15, ISSN: 2504-3110.
19. Alexandru-Gabriel Tudorache, Vasile Manta and Simona Caraiman, Integration of a Quantum Voting Scheme into Grayscale Images Using the Novel Enhanced Quantum Representation and Qiskit Framework, *Modelling and Simulation in Engineering*, 2022, Article ID 8128754, (2022), 1-11, ISSN: 1687-5591.
20. Alexandru Tudorache, Rodica Luca, Positive solutions for a system of fractional boundary value problems with r -Laplacian operators, uncoupled nonlocal conditions and positive parameters, *Axioms*, 11 (164), (2022), 1-11, ISSN: 2075-1680.
21. Alexandru Tudorache, Rodica Luca, Positive solutions of a singular fractional boundary value problem with r -Laplacian operators, *Fractal and Fractional*, 6 (18), (2022), 1-20, ISSN: 2504-3110.
22. Alexandru-Gabriel Tudorache, Vasile Manta, Simona Caraiman, Quantum Steganography Using Two Hidden Thresholds, *Advances in Electrical and Computer Engineering*, 21 (4), (2021), 79-88, ISSN: 1582-7445.
23. Alexandru Tudorache, Rodica Luca, Existence of positive solutions for a semipositone boundary value problem with sequential fractional derivatives, *Mathematical Methods in the Applied Sciences*, 44 (18), (2021), 14451-14469, ISSN: 0170-4214.
24. Alexandru Tudorache, Rodica Luca, Positive solutions of a fractional boundary value problem with sequential derivatives, *Symmetry*, 13 (1489), (2021), 1-10, ISSN: 2073-8994.
25. Johnny Henderson, Rodica Luca, Alexandru Tudorache, Positive solutions for a system of coupled semipositone fractional boundary value problems with sequential fractional derivatives, *Mathematics*, 9 (753), (2021), 1-22, ISSN: 2227-7390.
26. Alexandru Tudorache, Rodica Luca, On a singular Riemann–Liouville fractional boundary value problem with parameters, *Nonlinear Analysis: Modelling and Control*, 26 (1), (2021), 151–168, ISSN: 1392-5113.
27. Alexandru Tudorache, Rodica Luca, Positive solutions for a singular fractional boundary value problem, *Mathematical Methods in the Applied Sciences*, 43 (17), (2020), 10190-10203, ISSN: 0170-4214.
28. Alexandru Tudorache, Rodica Luca, Positive solutions for a system of Riemann–Liouville fractional boundary value problems with p -Laplacian operators, *Advances in Difference Equations*, 2020:292 (2020), pp.1-30, ISSN: 1687-1839.
29. Johnny Henderson, Rodica Luca, Alexandru Tudorache, Existence and nonexistence of positive solutions to a discrete boundary value problem, *Carpathian Journal of Mathematics*, 33 (2), (2017), 181-190, ISSN: 1584 – 2851.
30. Johnny Henderson, Rodica Luca, Alexandru Tudorache, Existence and nonexistence of positive solutions for coupled Riemann-Liouville fractional boundary value problems, *Discrete Dynamics in Nature and Society*, Volume 2016, Article ID 2823971, (2016), pp. 1-12, ISSN: 1026-0226.

31. Johnny Henderson, Rodica Luca, Alexandru Tudorache, On a system of fractional differential equations with coupled integral boundary conditions, *Fractional Calculus and Applied Analysis*, 18 (2), (2015), 361-386, ISSN: 1311-0454.
32. Rodica Luca, Alexandru Tudorache, Positive solutions to a system of semipositone fractional boundary value problems, *Advances in Difference Equations*, 2014:179, (2014), pp.1-11, ISSN: 1687-1847.
33. Johnny Henderson, Rodica Luca, Alexandru Tudorache, Multiple positive solutions for a multi-point discrete boundary value problem, *Communications, Faculty of Sciences, University of Ankara, Series A1: Mathematics and Statistics*, 63 (2), (2014), 59-70, ISSN: 1303-6991.

F2. Lucrări indexate în BDI.

1. Alexandru-Gabriel Tudorache, Vasile Manta, Simona Caraiman, Implementation of the Bernstein-Vazirani quantum algorithm using the qiskit framework, *Bulletin of the Polytechnic Institute of Iasi*, 67 (71), nr. 2, (2021), pp. 31-40, ISSN: 1223-8139.
2. Rodica Luca, Alexandru Tudorache, Nonnegative solutions for a Riemann-Liouville fractional boundary value problem, *Open Journal of Applied Sciences*, 9, (2019), 749-760, ISSN: 2165-3917.
3. Johnny Henderson, Rodica Luca, Alexandru Tudorache, Positive Solutions for a System of Fractional Differential Equations with Parameters and Coupled Multi-point Boundary Conditions, *International Journal of Applied Physics and Mathematics*, 8 (4), (2018), 53-65, ISSN: 2010-362X.
4. Johnny Henderson, Rodica Luca, Alexandru Tudorache, Positive solutions for a system of fractional differential equations with multi-point boundary conditions, *Romai Journal*, 13 (2), (2017), 85-100, ISSN 1841-5512.
5. Rodica Luca, Alexandru Tudorache, Existence and nonexistence of positive solutions for a system of higher-order differential equations with integral boundary conditions, *Journal of Advances in Mathematics and Computer Science (British Journal of Mathematics & Computer Science)*, 19 (3), (2016), 1-10, ISSN: 2231-0851.
6. Johnny Henderson, Rodica Luca, Alexandru Tudorache, Positive solutions for a system of second-order differential equations with integral boundary conditions, *International Journal of Applied Physics and Mathematics*, 6 (3), (2016), 138-149, ISSN: 2010-362X.
7. Johnny Henderson, Rodica Luca, Alexandru Tudorache, Positive solutions for systems of coupled fractional boundary value problems, *Open Journal of Applied Sciences*, 5, (2015), 600-608, ISSN: 2165-3917.
8. Rodica Luca, Alexandru Tudorache, Existence of positive solutions to a system of higher-order semipositone integral boundary value problems, *Communications in Applied Analysis*, 19, (2015), 589-604, ISSN: 1083-2564 (Scopus).
9. Johnny Henderson, Rodica Luca, Alexandru Tudorache, Positive solutions for a fractional boundary value problem, *Nonlinear Studies*, 22 (1), (2015), 1-13, ISSN: 1359-8678 (Scopus).
10. Johnny Henderson, Rodica Luca, Alexandru Tudorache, Multiple positive solutions for a second-order multi-point boundary value problem, *Romai Journal*, 10 (1), (2014), 71-80, ISSN 1841-5512.

G. Lucrări științifice publicate în reviste din străinătate.

H. Lucrări științifice publicate în reviste din țară, recunoscute CNCSIS.

1. Alexandru-Gabriel Tudorache, Florina Ungureanu, Leap Motion Controlled Car, *Bulletin of the Polytechnic Institute of Iasi, Automation and Computers Section*, Vol. 62 (66), Nr. 1-2 (2016), pp. 45-56.

I. Lucrări științifice publicate în volumele conferințelor.

I1. Proceedings ISI.

1. Alexandru-Gabriel Tudorache, Vasile Manta, Simona Caraiman, Novel Image Steganography Algorithm Using Two Hidden Thresholds, in proceedings of 24th International Conference on System Theory, Control and Computing (ICSTCC 2020), October 8-10, 2020, Sinaia, Romania (2020), accepted for publication.

2. Johnny Henderson, Rodica Luca, Alexandru Tudorache, Existence of positive solutions for a system of fractional boundary value problems, in „Differential and Difference Equations with Applications”, ICDDEA, Amadora, Portugal, May 2015, Selected Contributions, Editors: Sandra Pinelas, Zuzana Dosla, Ondrej Dosly, Peter E. Kloeden, (451 pag.), Springer, 2016, pag. 349-357, ISBN: 978-3-319-32855-3.

I2. Volume BDI.

J. Invenții.

K. Contracte de cercetare/granturi.

1. Responsabil de activitate în cadrul proiectului „SENTHICOM – TUIASI”, contract de finanțare nr. IPCEI-NXP-nr. 13.PI/14/C9 din 29.12.2025, pentru activitatea ”NeuroSafe: Adaptive Intelligent Systems for Secure Automotive Systems - Siguranța folosind Inteligența Artificială în Aplicații din domeniul Automotive”, 2026-2028.
2. Membru în proiectul ”REXQTCS: Centrul Românesc de Excelență în Tehnologii Cuantice cu impact în Securitatea Cibernetică (PN-IV-P6-6.1-CoEx-2024-0214), contract 7CoEx din 2026”, 2026-2030.
3. Directorul grantului cu titlul “Tehnici cuantice de prelucrare a imaginilor”, în cadrul proiectului “Dezvoltarea instituțională a TUIASI pentru creșterea relevanței internaționale a activității de cercetare”, cod CNFIS-FDI-2021-0354, 1 august 2021 - 30 noiembrie 2021.
4. Membru în cadrul proiectului nr. 101112274, din programul HORIZON-KDT-JU (KEY Digital Technologies Joint Undertaking, apel: HORIZON-KDT-JU-1-IA-Focus Topic 3: Design of Customisable and Domain Specific Open-source RISC-V Processors (IA), nume: High Performance, Safe, Secure, Open-Source Leveraged RISC-V Domain-Specific Ecosystems (acronim ISOLDE), 2023 – 2026, (<https://www.isolde-project.eu/>).
5. Membru în cadrul proiectului RoNaQCI (Romanian National Quantum Communication Infrastructure), parte a proiectului Europa Digitală, 2022, contract tip DIGITAL-2021-QCI-01, nr. 101091562, 2023 – 2025 (<https://www.ronaqci.eu/>).
6. Membru în cadrul contractului de cercetare tip agent economic nr. 27/03.03.2022, cu titlul „Virtualizarea sistemului de direcție Bosch 2025”, director contract conf. univ. dr. ing. Andrei Stan, cu compania Bosch, în perioada martie-aprilie 2022.
7. Membru în echipa grantului PN-II-ID-PCE-2011-3-0557 “Probleme la limită pentru sisteme de ecuații diferențiale neliniare cu aplicații în electronică și mecanică”, 1 iulie 2014 - 5 octombrie 2016, director grant prof. dr. Rodica Luca Tudorache.

L. Premii, distincții.

L1. 9 premii din partea ANCS-CNCS, UEFISCDI, în cadrul „Planului Național de Cercetare, Dezvoltare și Inovare, Programul Resurse Umane, Premiarea rezultatelor cercetării” pentru lucrările:

1. Alexandru Tudorache, Rodica Luca, Existence of positive solutions for a semipositone boundary value problem with sequential fractional derivatives, *Mathematical Methods in the Applied Sciences*, 44 (18), (2021), 14451-14469, ISSN: 0170-4214, (Project Registration Code: PN-III-P1-1.1-PRECISI-2021-59644) - noiembrie 2021, (Q1).
2. Alexandru Tudorache, Rodica Luca, Positive solutions of a fractional boundary value problem with sequential derivatives, *Symmetry*, 13 (1489), (2021), 1-10, ISSN: 2073-8994, (Project Registration Code: PN-III-P1-1.1-PRECISI-2021-59625) - noiembrie 2021, (Q2).
3. Johnny Henderson, Rodica Luca, Alexandru Tudorache, Positive solutions for a system of coupled semipositone fractional boundary value problems with sequential fractional derivatives, *Mathematics*, 9 (753), (2021), 1-22, ISSN: 2227-7390, (Project Registration Code: PN-III-P1-1.1-PRECISI-2021-59340) - noiembrie 2021, (Q1).
4. Alexandru Tudorache, Rodica Luca, On a singular Riemann–Liouville fractional boundary value problem with parameters, *Nonlinear Analysis: Modelling and Control*, 26 (1), (2021), 151–168, ISSN: 1392-5113, (Project Registration Code: PN-III-P1-1.1-PRECISI-2021-59593) - noiembrie 2021, (Q1).
5. Alexandru Tudorache, Rodica Luca, Positive solutions for a singular fractional boundary value problem, *Mathematical Methods in the Applied Sciences*, 43 (17), (2020), 10190-10203, ISSN: 0170-4214, (Project Registration Code: PN-III-P1-1.1-PRECISI-2020-50650) - decembrie 2020, (Q2).
6. Alexandru Tudorache, Rodica Luca, Positive solutions for a system of Riemann–Liouville fractional boundary value problems with p-Laplacian operators, *Advances in Difference Equations*, 2020:292, (2020), 1-30, ISSN: 1687-1847, (Project Registration Code: PN-III-P1-1.1-PRECISI-2020-50643) - decembrie 2020, (Q1).
7. Johnny Henderson, Rodica Luca, Alexandru Tudorache, Existence and nonexistence of positive solutions to a discrete boundary value problem, *Carpathian Journal of Mathematics*, 33 (2), (2017), 181-190, ISSN: 1584 – 2851, (Project Registration Code: PN-III-P1-1.1-PRECISI-2017-19707) – decembrie 2017, (Q2).
8. Johnny Henderson, Rodica Luca, Alexandru Tudorache, On a system of fractional differential equations with coupled integral boundary conditions, *Fractional Calculus and Applied Analysis*, 18 (2), (2015), 361-386, (Project Registration Code: PN-II-RU-PRECISI-2015-9-9154) - decembrie 2015, (Q1).
9. Rodica Luca, Alexandru Tudorache, Positive solutions to a system of semipositone fractional boundary value problems, *Advances in Difference Equations*, 2014:179, (2014), pp.1-11, ISSN: 1687-1847, (Project Registration Code: PN-II-RU-PRECISI-2014-8-6247) - decembrie 2014, (Q2).

L2. Premiul de excelență 2023 și Medalia „Gheorghe Asachi”, la categoria „Tânărul cercetător cu cele mai bune performanțe în cercetarea științifică”, în cadrul competiției *Premiile pentru excelență în cercetarea științifică*, Universitatea Tehnică „Gheorghe Asachi” din Iași.

L3. Premiu acordat de Asociația patronală a industriei de software și servicii - ANIS, în cadrul programului Bursele ANIS 2022, la categoria *Cybersecurity*, oferit de Atos IT Solutions and Services, pentru contribuția adusă în cadrul dezvoltării disciplinei *Criptografie și Securitatea Datelor*.

L4. Premiu special acordat de Continental Automotive Romania, Noiembrie 2017.

L5. Premiul I la Sesiunea de Comunicări Științifice 2016 – Secția Sisteme Încorporate, organizat de Facultatea de Automatică și Calculatoare, cu lucrarea “Leap Motion Controller”.

M. Alte realizări semnificative.

Referent la revistele Applied Sciences (ISI), Entropy (ISI), Trends in Computer Science and Information Technology (ISI), Bulletin of the Polytechnic Institute of Iasi, Proceedings of International Conference on Systems and Control (ICSC).

Data: 23.02.2026

Ș.I.dr.ing. Alexandru-Gabriel Tudorache