

Contact information

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Education:

- Mar 2021 habilitation certificate to direct Ph.D. theses in Mathematics, issued by the Minister of Education in Romania.
- Nov 2009 Ph.D. in Mathematics, University of Bucharest, Romania.
Thesis: Computational Algebra and Combinatorics in Commutative Algebra,
Advisor: prof. dr. Dorin Popescu.
- Sep 2004 M.Sc. in Mathematics, Școala Normală Superioară București, Romania.
- Jun 2004 M.Sc. in Mathematics, University "Al. I. Cuza" of Iași, Romania.
- Jun 2002 B.Sc. in Mathematics, University "Al. I. Cuza" of Iași, Romania. I ranked the first in my class.

Employment:

- Oct 2023 – present : conferențiar universitar (associate professor) at the Faculty of Mathematics and Computer Science, University of Bucharest, Romania.
- Feb 2018 – Sep 2023 : lector universitar (assistant professor) at the Faculty of Mathematics and Computer Science, University of Bucharest, Romania.
- Apr 2011 – Feb 2018 : asistent universitar at the Faculty of Mathematics and Computer Science, University of Bucharest, Romania.
- May 2013 – Oct 2015 : project director, researcher at the Institute of Mathematics "S. Stoilow" of the Romanian Academy (IMAR), Bucharest, Romania.
- Oct 2009 – Mar 2011 : preparator at the Faculty of Mathematics and Computer Science, University of Bucharest, Romania.
- Aug 2004 – Sep 2009 : research assistant at the Institute of Mathematics "S. Stoilow" of the Romanian Academy (IMAR), Bucharest, Romania.
- Aug 2007 – May 2008 : teaching specialist at the School of Mathematics, University of Minnesota, Minneapolis, USA.
- Nov 2003 – May 2009 : Ph.D. student with scholarship at the University of Bucharest, Romania.

Awards and fellowships:

- May 2022- May 2024 Young Researchers Grant, project PN-III-P1-1.1-TE-2021-1633, New results for combinatorially defined algebras, awarded by UEFISCDI-Romania, national competition.
- May 2023 Erasmus mobility for teaching at University of Pisa, Italy (1 week).
- May 2022 Erasmus mobility for teaching at University of Pisa, Italy (1 week).
- May 2021 Ph.D. advisor, member of the Doctoral School of Mathematics of the University of Bucharest.
- Mar 2019 Erasmus mobility for teaching at the University of La Laguna, Spain (1 week).
- Jul 2016-Jun 2017 Young Researchers Grant (12 months) offered by ICUB–The Research Institute of the University of Bucharest.
- Feb 2016 INdAM Fellowship for visiting the University of Genova (1 month), host Prof. Aldo Conca.
- May 2013- Oct 2015 Postdoctoral grant, project PNI-II-RU-PD-2012-3-0656, Combinatorial and homological methods in the study of algebras, awarded by UEFISCDI-Romania, national competition. Mentor C.S.I dr. Mihai Cipu, IMAR.
- Aug 2006- May 2008 Junior Fulbright Fellowship, research at the University of Minnesota, Minneapolis, USA, mentor Prof. Victor Reiner.

Areas of interest:

I am interested in using combinatorial and topological methods in commutative and homological algebra in order to study free resolutions and their invariants. Other interests: Algebraic Geometry, Representation Theory, Coding and Cryptography, Computability and Complexity.

Editorial:

In the editorial board for *Analele științifice ale Universității "Al. I. Cuza" din Iași. Matematică (Serie nouă)*/ *Annals of the "Alexandru Ioan Cuza" University of Iași (New Series)*. Mathematics, since 2021.

Papers and preprints:

- (in progress) 1. *On Sally semigroup rings*, with Alexandra Seceleanu.
- (preprints) 2. *The toric ring of one dimensional simplicial complexes*, with Antonino Ficarra and Jürgen Herzog, 16 pp. arXiv:2306.05020 [math.AC].
3. *The canonical trace of determinantal rings*, with Antonino Ficarra, Jürgen Herzog and Vijaylaxmi Trivedi, 10 pp. arXiv:2212.00393 [math.AC].
- 2023 4. *The tiny trace ideals of the canonical modules in Cohen-Macaulay rings of dimension one*, with Jürgen Herzog and Shinya Kumashiro, *Journal of Algebra* 619 (2023), 626–642. doi: 10.1016/j.jalgebra.2022.12.026. Preprint arXiv:2106.09404 [math.AC].
5. *Stable set rings which are Gorenstein on the punctured spectrum*, with Takayuki Hibi, *Collectanea Mathematica* 74 (2023), 219–224. doi: 10.1007/s13348-021-00343-4. Preprint arXiv:2108.09912 [math.AC].
- 2022 6. *On the occurrence of complete intersections in shifted families of numerical semigroups*, *Research in the Mathematical Sciences*, 9 (2022), Article number 32. (5 pp). doi: 10.1007/s40687-022-00328-0.

- 2021 7. *Graded Bourbaki ideals of graded modules*, with Jürgen Herzog and Shinya Kumashiro, *Mathematische Zeitschrift*, 299 (2021), 1303–1330. doi: 10.1007/s00209-021-02724-8. Preprint arXiv:2002.09596 [math.AC].
8. *Nearly Gorenstein rings arising from finite graphs*, with Takayuki Hibi, *The Electronic Journal of Combinatorics*, 28 (3) (2021), Paper P3.28. 11 pages. doi: 10.37236/10356. Preprint arXiv:2103.17042 [math.AC].
9. *Canonical trace ideal and residue for numerical semigroup rings*, with Jürgen Herzog and Takayuki Hibi, *Semigroup Forum*, 103 (2021), 550–566. doi: 10.1007/s00233-021-10205-x. Preprint arXiv:2008.01428 [math.AC].
- 2020 10. *Ulrich elements in normal simplicial affine semigroups*, with Jürgen Herzog and Raheleh Jafari, *Pacific Journal of Mathematics*, Vol. 309 (2020), No. 2, 353–380. doi: 10.2140/pjm.2020.309.353. Preprint arXiv:1909.06846 [math.AC].
11. *Gröbner–nice pairs of ideals*, with Mircea Cimpoeaş, In: *Combinatorial Structures in Algebra and Geometry* (D.I. Stamate, T. Szemberg Eds.), Springer Proceedings in Mathematics & Statistics, vol. 331 (2020), pp. 15–29, Springer, Cham. doi: 10.1007/978-3-030-52111-0_2. Preprint arXiv:2101.08710 [math.AC].
- 2019 12. *The trace of the canonical module*, with Jürgen Herzog and Takayuki Hibi, *Israel Journal of Mathematics*, Volume 233, Issue 1 (2019), 133–165. doi: 10.1007/s11856-019-1898-y. Preprint arXiv:1612.02723 [math.AC].
13. *Cohen-Macaulay criteria for projective monomial curves via Gröbner bases*, with Jürgen Herzog, *Acta Mathematica Vietnamica*, Volume 44, Issue 1 (2019), 51–64. doi: 10.1007/s40306-018-00302-5. Preprint arXiv:1803.08961 [math.AC].
- 2018 14. *Betti numbers for numerical semigroup rings*, In: *Multigraded Algebra and Applications* (V. Ene, E. Miller, Eds.), Springer Proceedings in Mathematics & Statistics, vol. 238, 133–157, Springer, Cham. doi:10.1007/978-3-319-90493-1_8. Preprint arXiv:1801.00153 [math.AC].
- 2017 15. *Anticanonical modules for Segre products*, with Viviana Ene and Jürgen Herzog, *Bull. Math. Soc. Sci. Math. Roumanie*, special issue honoring Professor Dorin Popescu, Tome 60 (108) No. 4, 2017, 373–386. arXiv:1707.00305 [math.AC].
16. *Quadratic numerical semigroups and the Koszul property*, with Jürgen Herzog, *Kyoto Journal of Mathematics*, Volume 57, Number 3 (2017), 585–612. doi:10.1215/21562261-2017-0007. Preprint arXiv:1510.00935 [math.AC].
- 2016 17. *On intersections of complete intersection ideals*, with Mircea Cimpoeaş, *Journal of Pure and Applied Algebra* vol 220, no. 11 (2016), 3702–3712. doi: 10.1016/j.jpaa.2016.05.008.
18. *Asymptotic properties in the shifted family of a numerical semigroup with few generators*, *Semigroup Forum*, Volume 93, Issue 2 (2016), 225–246. doi: 10.1007/s00233-015-9724-2.
19. *On the Cohen-Macaulay property for quadratic tangent cones*, *The Electronic Journal of Combinatorics*, Volume 23, Issue 3 (2016), Paper P3.20. 22 pp. doi: 10.37236/5793. Preprint arXiv:1512.04893 [math.AC].
- 2014 20. *On the defining equations of the tangent cone of a numerical semigroup ring*, with Jürgen Herzog, *Journal of Algebra* vol 418 (2014), 8–28. doi: 10.1016/j.jalgebra.2014.07.008. Preprint arXiv:1308.4644 [math.AC].

201021. *Koszul incidence algebras, affine semigroups, and Stanley-Reisner ideals*, with Victor Reiner, *Advances in Mathematics* 224 (2010) 2312–2345. doi:10.1016/j.aim.2010.02.005. Preprint arXiv:0904.1683v2 [math.AC].

Edited volume:

- 2020 1. (book edited with Tomasz Szemberg) *Combinatorial Structures in Algebra and Geometry*, NSA 26, Constanța, Romania, August 26–September 1, 2018, Springer Proceedings in Mathematics & Statistics, vol. 331, 2020, Springer, Cham. viii+182 pp. ISBN 978-3-030-52110-3 (hardcover), 978-3-030-52111-0 (e-book). doi: 10.1007/978-3-030-52111-0.

Theses:

- 2020 1. *Homological and combinatorial tools in the study of algebras*, habilitation thesis, University of Bucharest, Romania.
- 2009 2. *Computational algebra and combinatorics in commutative algebra*, Ph.D. thesis, University of Bucharest, Romania.
- 2004 3. *Chordal graphs, Alexander duality and Cohen-Macaulayness*, M.Sc. dissertation, Școala Normală Superioară București, Romania.
4. *Cohen–Macaulay rings and modules* (in Romanian), M.Sc. dissertation, University ”Al. I. Cuza” of Iași, Romania.
- 2002 5. *Operations with modules* (in Romanian), B.Sc. dissertation, University ”Al. I. Cuza” of Iași, Romania.

Software, Reports etc.:

- 2012 1. Djordje Baralic, Marianne Merz, Paolo Sentinelli and Dumitru Stamate, *A Γ -equivariant setting for matroids*, report at Discrete Morse Theory and Commutative Algebra, Institut Mittag Leffler, Sweden, July 2012, 5 pp, available at <http://gta.math.unibuc.ro/~dumi/report-Matroid-IML-2012.pdf>.
- 2011 2. David Eisenbud, Daniel Erman, Gregory G. Smith, and Dumitru Stamate, *TensorComplexes*, a *Macaulay2* package for constructing free complexes via multilinear algebra, available at <https://faculty.math.illinois.edu/Macaulay2/doc/Macaulay2-1.12/share/doc/Macaulay2/TensorComplexes/html/>.
- 2010 3. B. Barwick, J. Biermann, D. Cook II, W. F. Moore, C. Raicu and D. Stamate, *Boij–Söderberg Theory in the nonstandard graded case*, report at MRC Snowbird, June 2010, available at <http://gta.math.unibuc.ro/~dumi/nonStdBetti-reportSnowbird-June2010.pdf>.
- 2007 4. Review in *Rev. Roum. Math. Pures Appl.*, 52 (2007), pp. 605–606, for the book T. Andreescu, D. Andrica, *Complex Numbers from A to..Z*, Birkhäuser, 2006, ISBN 0-8176-4326-5.
- 2006 5. *Strongly generic monomial ideals*, 16 pp, notes of a lecture held at the National Algebra School – Algorithmic and Combinatorial Methods in Commutative Algebra, Constanța, 19–25 September 2005. Accepted, this was supposed to appear at *Analele Științifice ale Univ Ovidius, Seminar Series in Mathematics*.

6. *The planar resolution algorithm*, 5 pp, notes of a lecture held at the National Algebra School – Algorithmic and Combinatorial Methods in Commutative Algebra, Constanța, 19–25 September 2005. Accepted, this was supposed to appear at *Analele Științifice ale Univ Ovidius, Seminar Series in Mathematics*.

Events organized:

- 2023 Jul. Special session: Homological Methods in Commutative Algebra, at the 10th Congress of Romanian Mathematicians, Pitești, Romania, 4 July 2023. Co-organized with Dorin Popescu.
- Jun. 28th Interactions between Algebra and Geometry in Bucharest, June 24–28, University of Bucharest, Romania.
- 2022 Aug. Member of the Scientific Committee of the EMS Summer School on Combinatorial Commutative Algebra, Gebze Technical University, Turkey, 8-12 August 2022, together with Fatemeh Mohammadi and Mufit Sezer. Organized by Nursel Erey.
- 2020 Sep. One Day Workshop on Commutative Algebra and Related Fields, online event hosted by the Ovidius University of Constanța, co-organized with Viviana Ene.
- 2019 Jun. Workshop for Young Researchers in Mathematics, 9th Edition, 3-4 June 2019, University of Bucharest, co-organized the Algebra and Geometry Section with Cristina Anghel, Anca Măcinic and Denis Ibadula.
- May 27th National Algebra School–Graded modules over polynomial rings with applications to free divisors, 20-24 May 2019, IMAR, Bucharest, co-organized with Claudia Andrei-Ciobanu, Viviana Ene, Mihai Epure, and Cristodor Ionescu.
- 2018 May Workshop for Young Researchers in Mathematics, 8th Edition, 17-18 May 2017, IMAR, Bucharest, co-organized the Algebra and Geometry Section with Anca Măcinic, Denis Ibadula and Laurențiu Maxim.
- 2017 May Workshop for Young Researchers in Mathematics, 7th Edition, 17-20 May 2017, IMAR, Bucharest, co-organized the Algebra and Geometry Section with Anca Măcinic, Denis Ibadula and Laurențiu Maxim.
- 2016 Aug. EMS Summer School on Multigraded Algebra and Applications – The 24th National Algebra School-Algebraic, Moieciu, Romania, 17-24 August 2016, co-organized with Viviana Ene and Marius Vlădoiu.
- 2015 Sep. 23rd National Algebra School – Interactions of Computer Algebra with Commutative Algebra, Combinatorics and Algebraic Statistics, 31 Aug - 4 Sep 2015, IMAR, Bucharest, co-organized with Viviana Ene, Mihai Epure, and Marius Vlădoiu.
- June Special session: Local rings and homological algebra, dedicated to Prof. Nicolae Radu, at the 8th Congress of Romanian Mathematicians, Iași, Romania, 27 June 2015. Co-organized with Dorin Popescu.
- 2014 Sep. 22nd National Algebra School – Algebraic and Combinatorial Applications of Toric Ideals, Bucharest, IMAR, 1-5 sept 2014, co-organized with Florin Ambro, Viviana Ene, Mihai Epure, Miruna Roșca, Marius Vlădoiu, Andrei Zarojanu.
- 2013 Sep. 21st National Algebra School – Algebraic Methods in Combinatorics, București, IMAR, 2-6 sept 2013, co-organized with Viviana Ene, Mihai Epure, Miruna Roșca, Marius Vlădoiu, Andrei Zarojanu.

- 2012 Sep. 20th National Algebra School – Discrete Invariants in Commutative Algebra and in Algebraic Geometry, Mangalia, Romania, 2-8 sept 2012, co-organized with Mircea Cimpoeaş, Viviana Ene, Bogdan Ichim, Dorin Popescu.
- May Special Session on Commutative Algebra in Honor of Prof. Dorin Popescu, Workshop for Young Researchers in Mathematics, Constanța, România, 11 May 2012, co-organized with Denis Ibadula, Bogdan Ichim, Marius Vlădoiu.

Conference and external seminar talks:

- 2023 Sep Canonical trace ideals and Gorenstein related properties, Algebra-Geometry Seminar, University of Genova, Italy.
- Jul Progress on canonical trace ideals, 10th Congress of Romanian Mathematicians, Pitești, Romania.
- May Progress on canonical trace ideals, Algebra Seminar, University of Pisa, Italy.
- 2022 Jun Ulrich elements in normal affine semigroup rings, INdAM Worskhop on Numerical Semigroups, Rome, Italy.
- May Ulrich elements in normal affine semigroup rings, Algebra Seminar, University of Pisa, Italy.
- 2021 Sep Virtual Commutative Algebra Seminar – IIT Bombay, India (online).
- Jan The 17th (Virtual) Seminar on Commutative Algebra and Related Topics, IPM, Iran (online).
- 2020 Dec The defining equations of numerical semigroup rings, at the 1st MIM short research course on Affine Semigroup Rings, Kharazmi University, Iran (online).
- 2019 Sep About the almost Gorenstein property for toric rings, Workshop on Commutative Algebra and related fields at the Ovidius University of Constanța, Romania.
- Aug Cohen-Macaulay criteria for projective monomial curves via Groebner bases, Workshop on Commutative Algebra at the Ovidius University of Constanța, Romania.
- June On nearly- and almost- Gorenstein rings, The Ninth Congress of Romanian Mathematicians, Galați, Romania.
- Mar Canonical trace ideals and nearly Gorenstein rings, Universidad La Laguna, Tenerife, Spain.
- 2018 Sep Cohen-Macaulay criteria for projective monomial curves via Gröbner bases, International meeting on numerical semigroups with applications, Cortona, Italy.
- Aug Canonical trace ideals and nearly Gorenstein rings, The 26th National School on Algebra: Combinatorial structures in algebra and geometry, Constanța, Romania.
- Jun Canonical trace ideals and nearly Gorenstein rings, Algebra Seminar, University of Pisa, Italy.
- 2017 Jun Trace ideals and nearly Gorenstein semigroups, Special session on Numerical Semigroups and Applications, Meeting of the Catalan, Spanish, Swedish Math Societies, Umeå, Sweden.
- 2016 Oct On the Koszul property for numerical semigroup rings, Workshop and Conference on Commutative Algebra, Tribhuvan University, Kathmandu, Nepal.
- Oct Betti numbers for numerical semigroup rings, Workshop and Conference on Commutative Algebra, Tribhuvan University, Kathmandu, Nepal.

- Sep On the Koszul property for numerical semigroup rings, University Osnabrück, Germany.
- Jul Quadratic numerical semigroups and the Koszul property, International meeting on numerical semigroups with applications, Levico Terme, Italy.
- May Periodic properties in the shifted family of a numerical semigroup, Workshop for Young Researchers in Mathematics, Ovidius University Constanța, Romania.
- Feb Quadratic numerical semigroups and the Koszul property, Welcome Workshop, University of Genova, Italy.
- 2015 Oct On the Koszul property for numerical semigroup rings, The first Romanian-Turkish Mathematics Colloquium, Constanța, Romania.
- Sep Koszul filtrations for ungraded rings, National Algebra School – Interactions of Computer Algebra with Commutative Algebra, Combinatorics and Algebraic Statistics, IMAR, Bucharest.
- Aug On the Koszul property for numerical semigroup rings, Syzygies in Algebra and Geometry 2015, Busan, South Korea.
- Jun Ungraded strongly Koszul rings, The Eighth Congress of Romanian Mathematicians, Iasi, Romania.
- May On the defining equations of tangent cones of numerical semigroup rings, Algebra / Algebraic Geometry seminar, University of Sheffield, United Kingdom.
- May Filtrations for Koszul rings, Workshop for Young Researchers in Mathematics, Ovidius University Constanța, Romania.
- 2014 Sep Flavors of Koszul rings, Comm. Algebra Seminar, University of Nebraska, Lincoln, NE, USA.
- Sep Asymptotic properties of numerical semigroups, National Algebra School – Algebraic and Combinatorial Applications of Toric Ideals, IMAR, Bucharest.
- Jun On the defining equations of the tangent cone of a numerical semigroup ring, Commutative Algebra Seminar, University of Genova, Italy.
- May On numerical semigroup rings and their defining relations, Seminaire Algebre et geometrie combinatoires, Université de Montpellier 2, France.
- May On the defining equations of tangent cones of numerical semigroup rings, Workshop for Young Researchers in Mathematics, Ovidius University Constanța, Romania.
- Feb About the structure of Sally rings, Comm. Algebra Seminar talk, University of Minnesota, Minneapolis, MN, USA.
- 2013 Oct On the defining equations of the tangent cone of a numerical semigroup ring, Commutative Algebra Seminar, University of Missouri, Columbia, USA.
- Oct On the defining equations of the tangent cone of a numerical semigroup ring, Commutative Algebra Seminar, University of Minnesota, Minneapolis, USA.
- Sep On the defining equations of the tangent cone of a numerical semigroup ring, Commutative Algebra Seminar, University of Nebraska, Lincoln, USA.
- Sep Tools of combinatorial commutative algebra, National Algebra School, IMAR, Bucharest.
- Sep Matroids and realisability, National Algebra School, IMAR, Bucharest.
- Aug On the equations of semigroup rings, University Duisburg-Essen, Campus Essen, Germany.
- Jun On the CI property of the tangent cone of a toric ring, Special Session on Commutative Algebra, Joint AMS-RMS meeting, Alba-Iulia, Romania.

- Jun Shifted semigroup rings, University Osnabrück, Germany (Oberseminar).
- May Shifting semigroups, Syzygies in Berlin Workshop , Freie Universität, Berlin, Germany. (short presentation).
- May On the CI property of the tangent cone of a toric ring, Workshop for Young Researchers in Mathematics, Constanța, Romania.
- 2012 Sep Shellings for semigroups, National Algebra School-Discrete Invariants in Commutative Algebra and in Algebraic Geometry, Mangalia, Romania.
- Sep Resolutions and Singular, tutorial at Discrete Invariants in Commutative Algebra and in Algebraic Geometry, Mangalia, Romania.
- Jul A Γ -equivariant setting for matroids, School on Discrete Morse Theory and Commutative Algebra, Institut Mittag Leffler, Sweden.
- May Semigroups with few generators and shellings, Workshop for Young Researchers in Mathematics, Constanța, Romania.
- 2011 Oct The Koszul property in affine semigroups, International School on computational commutative algebra and algebraic geometry, Messina, Italia.
- Sep The Koszul property for numerical semigroups, National School on Algebra, IMAR, Bucharest.
- May The Koszul property for numerical semigroups, Workshop for Young Researchers in Mathematics, Constanța, Romania.
- 2009 Mar Koszul incidence algebras, affine semigroups, and Stanley-Reisner ideals, Discrete Math Seminar, University of California, Berkeley, USA.
- Mar Koszul incidence algebras, affine semigroups, and Stanley-Reisner ideals, American Mathematical Society meeting, Special Session on "Algebra, Geometry and Combinatorics", University of Illinois, Urbana-Champaign, USA.
- 2008 Oct On Koszul algebras, National School on Algebra, Ovidius University of Constanța, Romania.
- Apr On sequentially Cohen-Macaulay posets, Combinatorics Seminar, University of Minnesota, Minneapolis, USA.
- Apr On sequentially Cohen-Macaulay posets, Graduate Student Combinatorics Conference, University of California at Davis, USA.
- Mar On sequentially Cohen-Macaulay rings and Koszulness, Commutative Algebra Seminar, University of Minnesota, Minneapolis, USA.
- Jan Koszul rings via sequentially CM posets, Combinatorial Algebra meets Algebraic Combinatorics Conference, Dalhousie University, Halifax, Canada.
- 2007 Jul Koszul rings via sequentially Cohen-Macaulay posets, Conference on Homological and Combinatorial Aspects in Commutative Algebra, Bușteni, Romania.
- Apr Combinatorics of posets via the incidence algebra, Graduate Student Combinatorics Conference, University of Washington, Seattle, USA.
- Apr Sequentially Cohen-Macaulay modules and combinatorics, Commutative Algebra Seminar, University of Nebraska, Lincoln, USA.
- Apr Koszul rings via sequentially Cohen-Macaulay posets, Commutative Algebra Seminar, University of Nebraska, Lincoln, USA.
- Apr Properties of posets reflected by their incidence algebra, Junior Combinatorics Seminar, University of Minnesota, Minneapolis, USA.

- 2005 Sep Strongly generic monomial ideals, National School on Commutative Algebra, Constanța, Romania .
- Sep The planar resolution algorithm, idem.
- 2003 Oct Symmetry groups. Applications of groups in combinatorics, Algebra Seminar at University “Al.I.Cuza” of Iași, Romania.

I am an active participant at the weekly Commutative Algebra seminar organized jointly by IMAR and the University of Bucharest.

Service to the community:

Referee for Acta Mathematica Vietnamica, Algebra Colloquium, Algebraic Combinatorics, Beiträge zur Algebra und Geometrie, Bulletin of the Australian Mathematical Society, Bulletin of the London Mathematical Society, Communications in Algebra, Communications of the Korean Mathematical Society, International Electronic Journal of Algebra, International Journal of Algebra and Computation, Journal of Algebra, Journal of Algebra and Its Applications, Journal of Algebraic Combinatorics, Journal of Pure and Applied Algebra, Mediterranean Journal of Mathematics, Proceedings of the American Mathematical Society, Publicationes Mathematicae Debrecen, Revista Matemática Complutense, Rocky Mountain Journal of Mathematics, Journal of Symbolic Computation, Semigroup Forum, Studia Scientiarum Mathematicorum Hungarica, Springer INdAM series of conference proceedings, Proceedings of the AWM Research Symposium, Bollettino dell’Unione Matematica Italiana, Bulletin of the Iranian Mathematical Society, International Electronic Journal of Algebra, Mathematical Reports, An. Stiint. Univ. Al. I. Cuza Iasi Math.

Reviewer for Mathematical Reviews since 2017.

Lecturer for the program SummerSchool UB (July 2019) for highschoolers.

Member of the PhD advisory committee for Claudia Andrei-Ciobanu, Rodica Dinu at the University of Bucharest and Silviu Bălănescu at the Politehnica University of Bucharest.

Ph.D. students:

Teodor Grigorescu (since Oct 2022)

Gabriela Petcu (since Oct 2023)

Grants:

I am/was member in the research team of the grants:

PN-III-P1-1.1-TE-2021-1633 New results for combinatorially defined algebras, Young Researchers Teams, grant run at the University of Bucharest, *principal investigator*

ICUB Equations, syzygies and periodicity, Young Researchers Grant at the Research Institute of the University of Bucharest, *principal investigator*

PN-II-RU-PD-2012-3-0656 Combinatorial and homological methods in the study of algebras, postdoctoral grant at IMAR, *principal investigator*. Mentor Mihai Cipu.

ID-PCE-2011-1023 Algorithmic and theoretical methods for studying monomial and binomial ideals with applications in combinatorics, commutative algebra and graph theory, PI: Dorin Popescu.

TE-46/2010 Modelarea algebrică a unor obiecte combinatoriale și aplicații computaționale, PI Marius Vlădoiu.

- PN II-542/2009 Algoritmi și combinatorică în algebră și geometrie, PI Dorin Popescu.
- ID-PCE-51/2007 Metode combinatorice, omologice și aritmetice în studiul idealelor polinomiale, PI Iustin Coandă.
- 249-CEx-M3-249-2006 Cooperare internațională în domeniul algebrei, geometriei și topologiei, PI Dorin Popescu.
- CNCSIS 2-CEx06-11-20/25.07.06 Invarianți ai structurilor algebrice, geometrice și topologice, PI V. Brînzănescu.
- CNCSIS 1055/2006 Criptografie, algoritmi, utilizarea de programe informatice în algebră și geometrie, Univ. București, PI Dorin Popescu.
- CEx05-D11-11/2005 Metode combinatoriale, algebrice, topologice în algebră și geometrie, PI Nicolae Manolache.
- CERES 4-147/2004 Reprezentări și omologie în Geometrie, Algebră și Fizică, PI Șerban Basarab.
- CERES 4-131/2004 Metode geometrice și algebrice pentru modele cuantice ale interacțiilor fundamentale, PI Paltin Ionescu.

Teaching:

- 2009 – 2023 **University of Bucharest:** I taught courses in Linear Algebra, Modern Algebra (Galois theory), Lectures on Rings and Algebras (Commutative Ring Theory-Master Level), Homological Methods in Commutative Algebra (Master Level), Applied Cryptography (Master level), Cryptography, for students in Mathematics; Algebraic structures in Computer Science, Linear Algebra for Computer Science; Linear Algebra for students in Business Administration. I taught seminar classes (problem sessions) of Algebra for the first and second year students in Mathematics and in Computer Science, Linear algebra, Algebra and geometry for first year students in Computers and Information Technology, Geometry I, Mathematical Logic, Galois Theory, Algebraic methods in geometry, Codes and criptography, Computational Cryptography (master level), Commutative algebra (master level), Algebraic geometry (master level), Elliptic curves (master level). Short Course in Academic Deontology (master level). Algebra course for foreign students entering a Romanian university.
- Școala Normală Superioară București:** seminar/problem sessions for Homological Algebra (2012/2013), Homological Methods in Commutative Algebra (2016/2017).
- 2007 – 2008 **University of Minnesota, Minneapolis, USA.** In Fall 2007 I was the main instructor for MATH 4242 -Linear Algebra and Applications. Responsible with establishing the contents of the course, homework, test, office hours, final grades. In Spring 2008, I taught 2 recitation sections for MATH 2243-Linear Algebra and Differential Equations. Responsible with choosing the seminar problems, weekly quizzes, office hours, partly final grades.
- 2002 – 2003 **University "Al. I. Cuza" of Iași, Romania:** in Fall 2002 I taught Seminars in Linear Algebra, Math first year students, 2 sections.
- 1999 – 2002 **Training for teaching.** I attended the pedagogy program for future teachers, at the University "Al. I. Cuza" of Iași: psychology, pedagogy, methodics of teaching mathematics. Practice lectures with high school students.

Languages:

Romanian (native), English, French, Italian (fluent), German (basic).

Updated:

6 October 2023