Dumitru Ioan Stamate   **Curriculum Vitae**

Contact information
University of Bucharest
Faculty of Mathematics and Computer Science
Str. Academiei Nr. 14, Sector 1
010014 Bucharest, Romania
phone: + 40-21-3143508
fax: + 40-21-3156990
webpage: `http://www.unibuc.ro/~dstamate/`
e-mail: `dumitru.stamate@fmi.unibuc.ro`

Education:

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, Şcoala Normală Superioară Bucureşti, Romania.
Jun 2004	M.Sc. in Mathematics, University ”Al. I. Cuza” of Iaşi, Romania.
Jun 2002	B.Sc. in Mathematics, University ”Al. I. Cuza” of Iaşi, Romania. I ranked the first in my class.

Employment:

Apr 2011 – present : asistent universitar, 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:

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.

Feb-Jul 2001 Socrates–Erasmus fellowship at Università degli Studi di Udine, Udine, Italy.

1998 – 2004 Merit based scholarships based on academic performances, as a student at the University "Al. I. Cuza" of Iaşi and Şcoala Normală Superioară Bucureşti, Romania.

Nov 1999 3rd prize – UNESCO Math Competition, Chişinău, Rep. Moldova

May 1998 The 3rd largest general score and the largest score of a Romanian student, at the Descartes Math Contest, Canada.

Mai 1997 The largest score at the Euclid Math Contest, Canada.

1994 – 2000 Various prizes and special awards at various national or regional Romanian Mathematics competitions.

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, Cryptography, Computability and Complexity.

Papers and preprints:

in progress 1 *On Sally semigroup rings*, with Alexandra Seceleanu, in preparation.

in press 2. *Quadratic numerical semigroups and the Koszul property*, with Jürgen Herzog, to appear in the Kyoto Journal of Mathematics, 24 pp. preprint arXiv:1510.00935 [math.AC].

2016 3. *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.

4. *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.

5. *On the Cohen-Macaulay property for quadratic tangent cones*, The Electronic Journal of Combinatorics, Volume 23, Issue 3 (2016), Paper P3.20. 22 pp, arXiv:1512.04893 [math.AC].

2014 6. *On the defining equations of the tangent cone of a numerical semigroup rings*, with Jürgen Herzog, Journal of Algebra vol 418 (2014), 8–28. doi: 10.1016/j.jalgebra.2014.07.008, arXiv:1308.4644 [math.AC].

2010 7. *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 arXiv:0904.1683v2 [math.AC].

Theses:

2009 1. *Computational algebra and combinatorics in commutative algebra*, Ph.D. thesis, University of Bucharest, Romania.

2004 2. *Chordal graphs, Alexander duality and Cohen-Macaulayness*, M.Sc. dissertation, Şcoala Normală Superioară Bucureşti, Romania.

3. *Cohen–Macaulay rings and modules* (in Romanian), M.Sc. dissertation, University ”Al. I. Cuza” of Iaşi, Romania.

2002 4. *Operations with modules* (in Romanian), B.Sc. dissertation, University ”Al. I. Cuza” of Iaşi, 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, Suedia, July 2012, 5pp.

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 `svn://svn.macaulay2.com/Macaulay2/workshops/IMA-2011/TensorComplexes/TensorComplexes.m2`.

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://www.math.princeton.edu/~craicu/mrc/nonStdBetti.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, Constanţa, 19–25 September 2005. Accepted, this was supposed to appear at Analele Ştiinţifice 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, Constanţa, 19–25 September 2005. Accepted, this was supposed to appear at Analele Ştiinţifice ale Univ Ovidius, Seminar Series in Mathematics.

Events organized:

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, Iaşi, 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 Roşca, Marius Vlădoiu, Andrei Zarojanu.

2013 Sep. 21st National Algebra School – Algebraic Methods in Combinatorics, Bucureşti, IMAR, 2-6 sept 2013, co-organized with Viviana Ene, Mihai Epure, Miruna Roşca, 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, Constanţa, România, 11 May 2012, co-organized with Denis Ibadula, Bogdan Ichim, Marius Vlădoiu.

Conference and external seminar talks:

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, Campus Essen, 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 Constanţa, 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, Constanţa, 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 Constanţa, 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, Universite de Montpellier 2, France.

	May	On the defining equations of tangent cones of numerical semigroup rings, Workshop for Young Researchers in Mathematics, Ovidius University Constanţa, 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, Constanţa, 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, Constanţa, 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, Constanţa, 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 Constanţa, 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, Buşteni, 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, Constanţa, Romania .
	Sep	The planar resolution algorithm, idem.
2003	Oct	Symmetry groups. Applications of groups in combinatorics, Algebra Seminar at University ”Al.I.Cuza” of Iaşi, Romania.

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

Other conferences and summer schools attended:

2015	Mar	Discrete Models in Geometry and Topology, Freie Universität, Berlin, Germany.
2014	Sep	KUMUNU Conference, University of Missouri, Columbia, MO, USA.
2013	Sep	KUMUNU Conference, University of Missouri, Columbia, MO, USA.
	Jun	International Conference Experimental and Theoretical Methods in Algebra, Geometry and Topology, Eforie Nord, Romania.
	May	GMZ50 conference– Freie Universität, Berlin, Germany.
	May	Năstăsescu-Fest: Rings, Categories and Hopf Algebras, Universitatea Bucureşti, Romania.
2011	Jul	Macaulay2 Workshop, IMA, University of Minnesota, Minneapolis, USA.
2010	Sep	National Algebra School: Combinatorial Commutative Algebra, Bucureşti, Romania.
	Jun	Mathematics Research Communities: Commutative Algebra, Snowbird, Utah, USA.
2009	Mar	Combinatorial, Enumerative and Toric Geometry, MSRI, Berkeley, USA.
2008	May	Commutative Algebra: Connections with Algebraic Topology and Representation Theory (Lucho Fest), University of Nebraska, Lincoln, USA.
2007	Sep	KUMUNU Conference, University of Nebraska, Lincoln, NE, USA.
	Jun	COCOA School, RISC, Linz, Austria.
	May	Interactions between Algebraic Combinatorics and Algebraic Geometry, School and Workshop at CRM, Montreal, Canada.

I attended several workshops and conferences organized by the Institute of Mathematics and Its Applications, Minneapolis during the 2006/2007 special year on Algebraic geometry and its applications.

2006 Sep KUMUNU Conference, University of Kansas, Lawrence, KS, USA.

Jul Summerschool "Hilbert functions, syzygies. and generic initial ideals", Cortona, Italia, with lectures by prof. A. Conca (Genova) and prof. J. Migliore (Notre Dame) (2 weeks).

Jun Resolution of Singularities, ICTP, Trieste, Italy.

May Recent advances on Castelnuovo-Mumford regularity, CIRM, Luminy, France.

Jan Winter School on Commutative Algebra and Applications, Univ. Barcelona, Spain.

2005 Sep National Algebra School: Combinatorial methods in Commutative Algebra, Constanţa, Romania.

Aug Singularities in Geometry and Topology, ICTP, Trieste, Italy.

Jun Local cohomology and its interactions with algebra, geometry, and analysis, Snowbird, Utah, USA.

May 4th International COCOA Summer School, Porto Conte, Sardinia, Italy.

Apr Workshop on Cohen-Macaulay rings and related structures, Constanţa, Romania.

2004 Jul Interactions between Homotopy Theory and Algebra, University of Chicago, USA.

Jul National School on Commutative Algebra: The Theory of Local Cohomology Modules, Tg. Jiu, Romania.

2003 Sep National School on Commutative Algebra: Monomial Algebras, Eforie, Romania.

Aug Summer school "Commutative and Noncommutative Algebra", Cortona, Italy, lectures with prof. R. Wiegand (Univ. Nebraska) and prof. A. Facchini, (Univ. Padova) (3 weeks).

2002 Jul Scuola Matematica Interuniversitaria, Perugia, Italy, where I took graduate level courses in Algebra, Algebraic Geometry, Numerical Analysis (5 weeks).

Service to the community:

Referee for Communications in Algebra, Journal of Algebra and Its Applications, Rocky Mountain Journal of Mathematics, Springer INdAM series of conference proceedings, Mathematical Reports, An. Stiint. Univ. Al. I. Cuza Iasi Math.

Grants:

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

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

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 şi aplicaţii computaţionale, PI Marius Vlădoiu.

PN II-542/2009 Algoritmi şi combinatorică în algebră şi geometrie, PI Dorin Popescu.

ID-PCE-51/2007 Metode combinatorice, omologice şi aritmetice în studiul idealelor polino-
miale, PI Iustin Coandă.

249-CEx-M3-249-2006 Cooperare internaţională în domeniul algebrei, geometriei şi topologiei,
PI Dorin Popescu.

CNCSIS 2-CEx06-11-20/25.07.06 Invarianţi ai structurilor algebrice, geometrice şi topologice,
PI V. Brînzănescu.

CNCSIS 1055/2006 Criptografie, algoritmi, utilizarea de programe informatice în algebră şi
geometrie, Univ. Bucureşti, PI Dorin Popescu.

CEx05-D11-11/2005 Metode combinatoriale, algebrice, topologice în algebră şi geometrie, PI
Nicolae Manolache.

CERES 4-147/2004 Reprezentări şi omologie în Geometrie, Algebră şi Fizică, PI Şerban
Basarab.

CERES 4-131/2004 Metode geometrice şi algebrice pentru modele cuantice ale interacţiilor
fundamentale, PI Paltin Ionescu.

Teaching:

2009 – 2017 **Course assistant**. University of Bucharest: I tought seminar classes of Algebra
for the first and second year students in Mathematics and in Computer Science,
Algebra and geometry for first year students in Computers and Information Tech-
nology, Geometry I, Mathematical Logic, Galois Theory, Algebraic methods in
geometry, Codes and criptography, Computational Cryptography (master level),
Commutative algebra (master level). Algebra course for foreign students enter-
ing a Romanian university.
Şcoala Normală Superioară Bucureşti: seminar for Homological Algebra (2012/2013).

2007 – 2008 **Teaching specialist**. University of Minnesota, Minneapolis, USA. In Fall 2007
I was the main instructor for MATH 4242 -Linear Algebra and Applications.
Responsable with establishing the contents of the course, homwork, test, office
hours, final grades. In Spring 2008, I tought 2 recitation sections for MATH
2243-Linear Algebra and Differential Equations. Responsable with choosing the
seminar problems, weekly quizzes, office hours, partly final grades.

2002 – 2003 **Course assistant**. University "Al. I. Cuza" of Iaşi, Romania, Fall 2002. Semi-
nars 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 Iaşi: psychology, pedagogy, methodics of teaching
mathematics. Practice lectures with high shool students.

Languages:

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

Updated:

11 November 2016