

# Curriculum Vitae

## MARIUS VLADOIU

Office Address: University of Bucharest  
Faculty of Mathematics and Computer Science  
Str. Academiei 14  
Bucharest, RO-010014, Romania

Date of Birth: 16.11.1977 (Târgu-Jiu, Romania)

Marital status: married, one daughter

Date of CV: October 2016

### Education

- Aug. 2004 Ph.D. Mathematics, University of Bucharest, Thesis: "Combinatorial and computational methods in Commutative Algebra" (advisor: Prof. Dorin Popescu)
- 2000 – 2002 M.Sc. Mathematics, University of Bucharest, Thesis: "Sequentially Cohen-Macaulay modules with applications to Castelnuovo–Mumford regularity" (advisor: Prof. Dorin Popescu)
- 1996 – 2000 B.Sc. Mathematics, University of Bucharest, Thesis: "Gröbner bases" (advisor: Prof. Ion D. Ion)

### Employment

- Oct. 2008 – Sr. Lecturer, University of Bucharest
- Feb. 2004 – Oct. 2008 Assistant Professor, University of Bucharest
- Apr. 2002 – Feb. 2004 Teaching Assistant, University of Bucharest

### Awards/fellowships and grants

- 2010 – 2013 Principal Investigator of the Grant CNCSIS TE.46/2010, Nr. 83/2010 (Aug. 2010 – Sept. 2013), "Algebraic Modeling of some Combinatorial Objects and Computational Applications" (approx. 175.000 €) (see <http://gta.math.unibuc.ro/pages/mv/em.htm>)
- 2004 Italian Government Research Fellowship at Universita degli Studi di Genova, Genova, Italy (host - Prof. Aldo Conca) 6 months, Apr. 2004 – Oct. 2004.
- 2002 Humboldt Research Fellowship in the frame of Stability Pact for South - Eastern Europe, University Essen, Essen, Germany (host - Prof. Jürgen Herzog) 5 months, Jan. 2002 - March 2002 and Oct. 2002 - Nov. 2002.
- 1996 – 2002 merit based scholarship awarded annually based on the the academic performances from the previous year, as a student of the Faculty of Mathematics and Computer Science, University of Bucharest.
- 1990 – 1996 several prizes obtained at the 2 most prestigious national contests: National Mathematical Olympiad (Second Prize in 1990, Honorable Mention in 1993, Third Prize in 1995, Third Prize in 1996), and "Gheorghe Țițeica" contest (Third Prize in 1991, Special Prize in 1992, First Prize in 1993, Honorable Mention in 1994, Special Prize in 1995, Second Prize in 1996).

### Research interests

Combinatorial commutative algebra, algebraic combinatorics, computer algebra, matroid theory, graph theory, algebraic statistics.

**Publications**

## Refereed journal articles

1. H. Charalambous, A. Thoma, M. Vladoiu, *Binomial fibers and indispensable binomials*, **J. Symbolic Computation**, 74, 578–591, 2016. arXiv:1501.05142v2
2. H. Charalambous, A. Thoma, M. Vladoiu, *Markov bases and generalized Lawrence liftings*, **Annals of Combinatorics**, 19(4), 661–669, 2015. arXiv:0697072v3
3. H. Charalambous, A. Thoma, M. Vladoiu, *Markov complexity of monomial curves*, **J. Algebra** 417, 391–411, 2014. arXiv:1311.4707
4. J. Herzog, M. Vladoiu, *Monomial ideals with primary components given by powers of monomial prime ideals*, **Electronic J. Combinatorics** 21 (1), #P1.69, 18 pp., 2014. arXiv:1310.3409
5. J. Herzog, M. Vladoiu, *Squarefree monomial ideals with constant depth function*, **J. Pure Applied Algebra** 217(9), pp. 1764–1772, 2013. arXiv:1209.5890
6. J. Herzog, A. Rauf, M. Vladoiu, *The stable set of associated prime ideals of a polymatroidal ideal*, **J. Algebraic Combinatorics** Vol. 37(2), 289–312, 2013. arXiv:1109.5834
7. J. Herzog, D. Popescu, M. Vladoiu, *Stanley depth and size of a monomial ideal*, **Proc. Amer. Math. Soc.** 140, 493–504, 2012. arXiv:1011.6462
8. J. Herzog, M. Vladoiu, X. Zheng, *How to compute the Stanley depth of a monomial ideal*, **J. Algebra** 322, 3151–3169, 2009. arXiv:0712.2308
9. M. Vladoiu, *Equidimensional and unmixed ideals of Veronese type*, **Communications in Algebra** 36(9), 3378–3392, 2008. arXiv:math/0611326
10. D. Popescu, M. Vladoiu, *Strong Lefschetz property on algebras of embedding dimension three*, **Bull. Math. Soc. Sci. Math. Roumanie** (N.S.) 49(97), no.1, 75–86, 2006.
11. M. Vladoiu, *Discrete Polymatroids*, **An. Șt. Univ. Ovidius Constanța**, Vol. 14(2), 89–112, 2006.
12. J. Herzog, T. Hibi, M. Vladoiu, *Ideals of fiber type and polymatroids*, **Osaka J. Math.** 42, 807–829, 2005.
13. J. Herzog, D. Popescu, M. Vladoiu, *On the Ext-modules of ideals of Borel type*, **Contemporary Mathematics** 331, 171–186, 2003.

## Submitted journal articles

14. H. Charalambous, A. Thoma, M. Vladoiu, *Markov bases of lattice ideals*. arXiv:1303.2303v3
15. S. Petrović, A. Thoma, M. Vladoiu, *Bouquet algebra of toric ideals*. arXiv:1507.02740v1

## Articles in progress

16. A. Thoma, M. Vladoiu, *The defining matrices of self-dual projective toric varieties*.
17. M. Roșca, M. Vladoiu, *Vertex cover algebras of weighted graphs*.
18. M. Becheanu, M. Vladoiu, *An irreducibility criterion for polynomials via Jordan matrices*.

## Books

19. G. Bercu, L. Dăuș, L.A. Pletea, L. Popa, M. Vladoiu, C. Voica – Linear Algebra (in Romanian), Vol. 1 ISBN 978-606-624-314-8, editor StudIS, 228 pages, 2013.

**Conference and seminar talks**

## Conference/schools talks

- 2015 Dec. Ankara-Istanbul Commutative Algebra Workshop 3, Hacettepe University, Ankara, Turkey, Dec. 19th.
- 2015 Sept. 23rd National School on Algebra, *Interactions of Computer Algebra with Commutative Algebra, Combinatorics and Algebraic Statistics*, Bucharest, Romania, Aug. 31st - Sept. 4th [1 one and half hour lecture]
- 2015 June The Eighth Congress of Romanian Mathematicians, Iași, Romania, June 26th - July 1st.
- 2014 Sept. Meeting On Combinatorial Commutative Algebra, Levico Terme, Italy, Sept. 8–12.
- 2014 Sept. 22nd National School on Algebra, *Algebraic and Combinatorial Applications of Toric Ideals*, Bucharest, Romania, Sept 1–5. [1 one-hour lecture]
- 2013 Sept. 21st National School on Algebra, *Algebraic Methods in Combinatorics*, Bucharest, Romania, Sept. 2–6. [2 one-hour lectures and 1 tutorial]
- 2013 June EACA'S Second International School on Computer Algebra and Applications, Valladolid, Spain, June 24–28.
- 2012 May Workshop for Young Researchers, Constanta, Romania, May 10–11.
- 2012 Feb. CIMPA Research School on Local Analytic Geometry, Lahore, Pakistan, Feb. 4–13. [3 one-hour lectures]
- 2011 Sept. 19th National School on Algebra, *Computer Algebra and Combinatorics*, Bucharest, Romania, Sept. 19–23. [3 one-hour lectures]
- 2011 July “MONICA Conference”: Conference MONomial Ideals, Computations and Applications, Cantabria, Spain, July 11–13.
- 2011 Feb. 5th World Conference on 21st Century Mathematics, Lahore, Pakistan, Feb. 9–13.
- 2010 Sept. 18th National School on Algebra, *Combinatorics in Commutative Algebra*, Bucharest, Romania, Sept. 20–24. [3 one and half hours lectures]
- 2009 Feb. CIMPA School on Combinatorial and Computational Aspects of Commutative Algebra, Lahore, Pakistan, Feb. 21–28. [2 one-hour lectures]
- 2008 July P.R.A.G.M.A.T.I.C. Summer School, Catania, Italy, Jul. 13th – Aug. 3rd [1 one-hour lecture]
- 2007 Aug. Workshop on Combinatorics and Commutative Algebra II, Thessaloniki, Greece, Aug. 27th – Sept. 1st.
- 2007 July Homological and Combinatorial Aspects in Commutative Algebra, Bușteni, Romania, July 5–10.
- 2007 Mar. Commutative Algebra and Related Topics, Constanta, Romania, March 29–31.
- 2006 Sept. 15th National School on Algebra, *Toric Algebras*, Constanța, Romania, Sept. 25–30. [1 one-hour lecture]
- 2005 Sept. 14th National School on Algebra, *Algorithmic and Combinatorial Methods in Commutative Algebra*, Constanța, Romania, Sept. 19–25. [4 one-hour lectures]
- 2003 Sept. 12th National School on Algebra, *Monomial Algebras*, Eforie-Nord, Romania, Sept. 8–14. [1 one-hour lecture]
- 2002 Sept. 11th National School on Algebra, *Homological and Combinatorial Aspects of Koszul Algebras*, Constanța, Romania, Sept. 10–14. [2 one and half hours lectures]

**Seminar talks abroad**

- 2015 Dec. Bilkent University, Ankara, Turkey.  
2015 Oct. University of Ioannina, Ioannina, Greece.  
2015 Apr. Bilkent University, Ankara, Turkey.  
2015 Mar. Bilkent University, Ankara, Turkey.  
2015 Feb. University of Ioannina, Ioannina, Greece.  
2014 Nov. University of Ioannina, Ioannina, Greece.  
2013 Nov. University of Ioannina, Ioannina, Greece.  
2013 Aug. University Duisburg–Essen, Campus Essen, Germany.  
2011 Nov. University Aristotle of Thessaloniki, Thessaloniki, Greece.  
2009 June University of Ioannina, Ioannina, Greece.  
2007 Nov. University Duisburg–Essen, Campus Essen, Germany.  
2005 June University of Osnabrück, Osnabrück, Germany.  
2004 May Università degli Studi di Genova, Genoa, Italy.  
2002 Nov. Essen University, Essen, Germany.

**Research stages abroad**

- Sept. 2016 – Oct. 2016 Univ. of Ioannina, Greece, three weeks. (host Prof. A. Thoma)  
June 2016 Univ. of Ioannina, Greece, two weeks. (host Prof. A. Thoma)  
Dec. 2015 Bilkent Univ., Turkey, two weeks. (host Prof. M. Sezer)  
Sept. 2015 – Nov. 2015 Univ. of Ioannina, Greece, two months. (host Prof. A. Thoma)  
July 2015 – Aug. 2015 Univ. of Ioannina, Greece, three weeks. (host Prof. A. Thoma)  
May 2015 – June 2015 Univ. of Ioannina, Greece, 19 days. (host Prof. A. Thoma)  
Jan. 2015 – Feb. 2015 Univ. of Ioannina, Greece, one month. (host Prof. A. Thoma)  
Oct. 2014 – Dec. 2014 Univ. of Ioannina, Greece, 6 weeks. (host Prof. A. Thoma)  
June 2014 Univ. of Ioannina, Greece, 3 weeks. (host Prof. A. Thoma)  
Jan. 2014 – Feb. 2014 Univ. of Ioannina, Greece, 4 weeks. (host Prof. A. Thoma)  
Nov. 2013 – Dec. 2013 Univ. of Ioannina, Greece, 5 weeks. (host Prof. A. Thoma)  
Oct. 2013 Univ. of Ioannina, Greece, 16 days. (host Prof. A. Thoma)  
Aug. 2013 Univ. Duisburg–Essen, Essen, Germany, 4 weeks. (host Prof. J. Herzog)  
July 2013 Univ. of Ioannina, Greece, 2 weeks. (host Prof. A. Thoma)  
June 2013 Univ. of Thessaloniki, Greece, one week. (host Prof. H. Charalambous)  
March 2013 Univ. of Ioannina, Greece, 12 days. (host Prof. A. Thoma)  
Oct. 2012 – Nov. 2012 Univ. of Ioannina, Greece, 7 weeks. (host Prof. A. Thoma)  
Aug. 2012 – Sept. 2012 Univ. Duisburg–Essen, Essen, Germany, 2 months. (host Prof. J. Herzog)  
June 2012 – July 2012 Univ. of Ioannina, Greece, 3 weeks. (host Prof. A. Thoma)  
Oct. 2011 – Nov. 2011 Univ. of Thessaloniki, Greece, one month. (host Prof. H. Charalambous)  
Aug. 2011 Univ. Duisburg–Essen, Essen, Germany, one month. (host Prof. J. Herzog)  
June 2011 Univ. of Ioannina, Greece, one month. (host Prof. A. Thoma)  
June 2009 Univ. of Ioannina, Greece, one week. (host Prof. A. Thoma)  
Dec. 2008 Univ. Duisburg–Essen, Essen, Germany, 4 weeks. (host Prof. J. Herzog)  
Oct. 2007 – Nov. 2007 Univ. Duisburg–Essen, Essen, Germany, 2 months. (host Prof. J. Herzog)  
May. 2005 – July 2005 Univ. Duisburg–Essen, Essen, Germany, 3 months. (host Prof. J. Herzog)  
Oct. 2001 – Nov. 2001 Univ. of Kaiserslautern, Germany, one month. (host Prof. G. Pfister)

**Organizing activities for conferences**

- 2016 Aug. 24th National School on Algebra, *EMS Summer School on Multigraded Algebra and Applications*, Moieciu de Sus, Romania, Aug. 17-24, 2016, coorganized with Viviana Ene and Dumitru Stamate.  
(<http://math.univ-ovidius.ro/sna/edition.aspx?cat=GeneralInfo&itemID=10>)
- 2015 Sep. 23rd National School on Algebra, *Interactions of Computer Algebra with Commutative Algebra, Combinatorics and Algebraic Statistics*, Bucharest, Romania, Aug. 31 - Sept. 4, coorganized with Viviana Ene, Mihai Epure and Dumitru Stamate.  
(<http://math.univ-ovidius.ro/sna/edition.aspx?cat=Organizers&itemID=9>)
- 2014 Sep. 22nd National School on Algebra, *Algebraic and Combinatorial Applications of Toric Ideals*, Bucharest, Romania, Sept 1–5, coorganized with Florin Ambro, Viviana Ene, Mihai Epure, Miruna Roșca, Dumitru Stamate and Andrei Zarojanu.  
(<http://math.univ-ovidius.ro/sna/edition.aspx?itemID=8>)
- 2013 Sep. 21st National School on Algebra, *Algebraic Methods in Combinatorics*, Bucharest, Romania, Sept. 2–6, coorganized with Viviana Ene, Mihai Epure, Miruna Roșca, Dumitru Stamate, Andrei Zarojanu.  
(<http://math.univ-ovidius.ro/sna/edition.aspx?itemID=7>)
- 2012 May Special Session on Commutative Algebra in Honor of Prof. Dorin Popescu, Workshop for Young Researchers in Mathematics, Constanța, Romania, 11 May 2012, coorganized with Denis Ibadula, Bogdan Ichim and Dumitru Stamate.  
(<http://math.univ-ovidius.ro/workshop/2012/WYRM/program.htm>)
- 2011 Sep. 19th National School on Algebra, *Computer Algebra and Combinatorics*, Bucharest, Romania, Sept. 19–23, coorganized with Bogdan Ichim and Dorin Popescu.  
(<http://math.univ-ovidius.ro/sna/edition.aspx?itemID=5>)
- 2010 Sep. 18th National School on Algebra, *Combinatorics in Commutative Algebra*, Bucharest, Romania, Sept. 20–24, coorganized with Șerban Bărcănescu, Viviana Ene, Bogdan Ichim and Dorin Popescu.  
(<http://math.univ-ovidius.ro/sna/edition.aspx?itemID=4>)
- 2008 Oct. 17th National School on Algebra, *Combinatorial Commutative Algebra*, Bucharest, Romania, Oct. 5–12, coorganized with Alexandru Bobe, Viviana Ene, Denis Ibadula, Cristodor Ionescu and Mirela Ștefănescu.  
(<http://math.univ-ovidius.ro/sna/edition.aspx?itemID=1>)
- 2005 Sep. 14th National School on Algebra, *Algorithmic and Combinatorial Methods in Commutative Algebra*, Constanța, Romania, Sept. 19–25, coorganized with Viviana Ene, Cristodor Ionescu, Dorin Popescu and Mirela Ștefănescu.  
(<http://math.univ-ovidius.ro/sna/eng/ed14.html>)

**Referee activities**

Journals refereed (in alphabetic order)

Bull. Math. Soc. Sci. Math. Roumanie  
 Central European Journal of Mathematics  
 Communications in Algebra  
 Electronic Journal of Combinatorics  
 Journal of Combinatorial Theory Series A

Le Matematiche  
 Manuscripta Mathematica  
 Mathematical Reports  
 Proceedings of the American Mathematical Society  
 Rocky Mountain Journal of Mathematics  
 Turkish Journal of Mathematics

### Teaching activities

#### Courses and tutorials taught

- 2002 – I taught for undergraduate and master students of University of Bucharest **tutorials** on: Algebra (1st year, 2nd year), Number Theory, Galois Theory, Computational Algebra and Geometry, Cryptography and Codes Theory, Local Algebra and Singularities, Combinatorics in Commutative Algebra, Commutative Algebra, Mathematical Logic, Geometry (1st year), Didactics.
- 2004 – I taught for undergraduate and master students of University of Bucharest **courses** on: Computational Algebra and Geometry, Galois Theory, Algebra 1st year, Algebra 2nd year, Geometry 1st year, Number Theory, Computational Algebra with Applications in Graph Theory, Commutative Algebra.
- 2013 – 2014 I taught the **master course** "Combinatorial Commutative Algebra with Applications to Graph Theory" at Școala Normală Superioară București (Romanian version of Ecole Normale Supérieure).

#### B.Sc. students advised

- Sept. 2015 Mădălina Ungureanu (thesis: *Matroids and White's conjecture*, in Romanian)
- June 2013 Irina Iliaoaia (thesis: *Solving systems of polynomial equations via Gröbner bases*, in Romanian)
- June 2013 Ioana Amarande (thesis: *Upper bound theorem for convex polytopes*, in Romanian)
- June 2012 Miruna Roșca (thesis: *Gröbner bases*, in Romanian)

#### M.Sc. students advised

- Sept. 2016 Trif Lavinia (thesis: *Primary decomposition: algorithms and applications*, in Romanian)
- June 2016 Andrei Claudia (thesis: *Koszul algebras*, in Romanian)
- June 2015 Irina Iliaoaia (thesis: *Cohen-Macaulay simplicial complexes*, in Romanian)
- June 2014 Andrei Alban (thesis: *Associated primes of powers of monomial ideals*, in Romanian)
- June 2014 Miruna Roșca (thesis: *Vertex cover algebras*, in Romanian)

### Miscellaneous

- 2007 – 2011 I was a member of the National Board of the Romanian National Mathematical Olympiad, and in the evaluation committee for the selection tests of the Romanian team for the International Mathematical Olympiad.
- 2011 Co-ordinator of the 28th Balkan Mathematical Olympiad held in the period May 4–8, 2011 in Iași, Romania.

**Grants**

I am/was member of the following grants

- UEFISCDI grant PN-II-RU-TE-2012-3-0161 (May 2013 – Nov. 2016), *Algebraic study of some combinatorial problems and associated computational experiments*, PI Dr. Bogdan Ichim.
- UEFISCDI grant PN-II-ID-PCE-2011-3-1023 (Jan. 2012 – Dec. 2016), *Algorithmic and theoretical methods for studying monomial and binomial ideals with applications in combinatorics, commutative algebra and graph theory*, PI Prof. Dorin Popescu.
- CNCSIS grant TE\_46/2010, Nr. 83/2010 (Aug. 2010 – July 2013), *Algebraic Modeling of some Combinatorial Objects and Computational Applications*, PI Dr. Marius Vladoiu.
- CNCSIS grant PNII ID.542/2008 (Jan. 2009 – Dec. 2011), *Algorithms and Combinatorics in Algebra and Geometry*, PI Prof. Dorin Popescu.
- CNCSIS grant ID-PCE nr. 51/28.09.2007 (2007–2010), *Combinatorial, Homological and Arithmetical Methods in the Study of Polynomial Ideals*, PI Prof. Iustin Coandă.
- CNCSIS grant 1055 nr. 2916/31GR/2006 (2006–2009), *Cryptography, Algorithms and Utilizations of Computer Software in Algebra and Geometry*, PI Prof. Dorin Popescu.
- CNCSIS grant 33549/2002 (2002–2004), *Commutative Algebra and Galois Theory*, PI Prof. Paltin Ionescu.

**References**

Prof. Hara Charalambous  
Department of Mathematics  
Aristotle University of Thessaloniki  
Thessaloniki 54124, Greece  
hara@math.auth.gr

Prof. Jürgen Herzog  
Fachbereich Mathematik  
Universität Duisburg-Essen, Campus Essen  
Essen 45117, Germany  
juergen.herzog@uni-essen.de

Prof. Dorin Popescu  
"Simion Stoilow" Institute of Mathematics of Romanian Academy  
Bucharest 014700, Romania  
dorin.popescu@imar.ro

Prof. Dragoș Ștefan  
Vice-Dean of the Faculty of Mathematics and Computer Science  
University of Bucharest  
Bucharest 010014, Romania  
dragos.stefan@fmi.unibuc.ro

Prof. Apostolos Thoma  
Department of Mathematics  
University of Ioannina  
Ioannina 45110, Greece  
athoma@uoi.gr