

# Rashid Zaare-Nahandi

**Associate Professor of Mathematics**

**Institute for Advanced Studies in Basic Sciences**

Birth: 1964, Tabriz, IRAN, Married to Parvaneh Bakhtiari, Two children: Kouros (1999) and Arash (2004).

## Education

Ph. D.: University of Tehran (Tehran, Iran), 1994-1999.

M.Sc.: University of Teacher Education (Kharazmi) (Tehran, Iran), 1992-1993.

Bachelor: Sharif University of Technology (Tehran, Iran), 1986-1991.

**Area of Research:** Algebraic Geometry, Commutative Algebra, Algebraic Combinatorics.

## Publications

1. (with Rahim Zaare-Nahandi) Gröbner basis and free resolution of the ideal of 2-minors of a  $(2 \times n)$  matrix of linear forms, *Communications in Algebra* 28 (9), (2000) 4433-4453.
2. (with Hamid Usefi) A note on minors of a generalized Hankel matrix, *International Mathematical Journal* 3 (11), (2003) 1197-1201.
3. (with Rahim Zaare-Nahandi) The minimal free resolution of a class of square-free monomial ideals, *Journal of Pure and Applied Algebra* 189, (2004) 264-278.
4. Perfect matchings in graphs; an approach via Gröbner basis, *Southeast Asian Bulletin of Mathematics* 30, (2006) 341-345.
5. Some infinite classes of Fullerene graphs, *International Mathematical Forum* 1 (40), (2006) 1997-2002.
6. On isomorphism of simplicial complexes and their related algebras, *Bulletin of the Iranian Mathematical Society* 35 (1), (2009) 41-48.
7. (with Leila Sharifan) Minimal free resolution of associated graded ring of monomial curves of generalized arithmetic sequences, *Journal of Pure and Applied Algebra* 213, (2009) 360-369.
8. (with Abbas Nasrollah Nejad) Aluffi torsion-free ideals, *Journal of Algebra* 346, (2011) 284-298.
9. Invariance of the barycentric subdivision of a simplicial complex, *Bulletin of the Iranian Mathematical Society* 38 (2), (2012) 423-432.
10. Universally Koszul algebras defined by graphs, *Journal of Discrete Mathematical Sciences and Cryptography* 15 (6), (2012) 349-352.
11. (with Marcel Morales and Ali Akbar Yazdan Pour) The regularity of edge ideals of graphs, *Journal of Pure and Applied Algebra* 216, (2012) 2714-2719.
12. (with Asghar Madadi) Cohen-Macaulay  $r$ -partite graphs with minimal clique cover, *Bulletin of the Iranian Mathematical Society* 40 (3), (2014) 609-617.
13. (with Marcel Morales, Abbas Nasrollah Nejad, Ali Akbar Yazdan Pour), Monomial ideals with 3-linear resolution, *Annals de Mathématiques de Toulouse, Series 6*, 23 (4), (2014) 877-891.
14. (with Marcel Morales, Ali Akbar Yazdan Pour) Castelnuovo-Mumford regularity under reduction processes on Graphs and Hypergraphs, *Electronic Notes in Discrete Mathematics* 45, (2014) 57-62.
15. (with Asghar Madadi) Perfect Matching of 3-uniform Hypergraphs, *Electronic Notes in Discrete Mathematics* 45, (2014) 63-66.
16. Pure simplicial complexes and well-covered graphs, *Rocky Mountain Journal of Mathematics* 45 (2), (2015) 695-702.

17. Cohen-Macaulayness of bipartite graphs, revisited, *Bulletin of the Malaysian Mathematical Sciences Society*, Volume 38 (4), (2015) 1601–1607.
18. (with Marcel Morales, Ali Akbar Yazdan Pour), Regularity and free resolution of ideals which are minimal to  $d$ -linearity, *Mathematica Scandinavica* 118, (2016) 161–182.
19. (with Abbas Nasrollah Nejad, Aron Simis) The Aluffi algebra of the Jacobian of points in projective space: torsion-freeness, *Journal of Algebra* 467, (2016) 268–283.
20. (with Mina Bigdeli, Ali Akbar Yazdan Pour) Stability of Betti numbers under reduction process: towards to chordality of clutters, *Journal of Combinatorial Theory, Series A* 145, (2017) 129–149.
21. (with Reza Jafarpour-Golzari) Unmixed  $r$ -partite graphs, to appear in *Bulletin of the Iranian Mathematical Society*.
22. (with Abbas Nasrollah Nejad, Ashkan Nikseresht, Ali Akbar Yazdan Pour) Tame graphs and clutters, to appear in *Journal of Pure and Applied Algebra*.
23. (with Mina Bigdeli, Jurgen Herzog, Ali Akbar Yazdan Pour) Simplicial orders and chordality, to appear in *Journal of Algebraic Combinatorics*.
24. (with Mina Bigdeli, Jurgen Herzog) On the index of powers of edge ideals, submitted.
25. (with Ashkan Nikseresht) On Generalizations of Cycles and Chordality to Hypergraphs, submitted.
26. (with Reza Jafarpour-Golzari) Unmixed  $r$ -partite  $d$ -uniform hypergraphs, submitted.

### Publications in Persian

History of Iranian mathematics competitions for university students, a chapter in the book "Iranian Mathematics Competitions for University Students", by B. Yahaghi, Iranian Math. Soc. and Iran University Press, Tehran, 2009. (English version is published by Hindustan Publishing Co. 2009).

Buchberger and Gröbner bases (an expository and review article on history of Gröbner bases and role of Buchberger in improving the theory), *Farhang va Andishe Riazi*, 44 (2010) 55-80.

### Academic Positions

- Associate Professor, Institute for Advanced Studies in Basic Sciences (IASBS), (2011-present).
- Assistant Professor, Institute for Advanced Studies in Basic Sciences (IASBS), (1999-2011).
- Chairman, Research Center for Basic Sciences and Contemporary Technologies (IASBS) (2014-present).
- Deputy Chancellor for Administration and Finance, IASBS (2013).
- Manager of Research Affairs, IASBS (2012).
- Head of the Evaluation Office, IASBS (2011-2012).
- Chairman, Department of Mathematics, IASBS (2002-2004 and 2006-2009).
- Member of Executive Committee of the Iranian Mathematical Society (1998-2000, 2003-2006, 2006-2009).
- Editor-in-chief, Newsletter of the Iranian Mathematical Society (1998-2000 and 2004-2006).
- Member of editorial board of *Farhang va Andishe Riazi*, a Persian expository journal in mathematics (2010-present).
- Member of the National and State Councils of World Mathematical Year 2000.

- Chair of Scientific Committee of the Mathematics House of Zanjan (2002-present).
- Organizer of Workshop on Mathematical Writing, 3-5 November 2003, IASBS.
- Head, Scientific Committee of the Iranian Mathematics Competitions for University Students (2003-2006).
- Organizer of CIMPA-UNESCO-IRAN School on Gröbner Bases and Applications, 19-30 July 2005, IASBS.
- Organizer of Workshop on Computational Commutative Algebra, 2-7 July 2011, IPM, (joint with Hossein Sabzrou).
- Organizer of Workshop on Computational Differential Algebras, 21-25 June 2014, IPM, (joint with Amir Hashemi).
- Organizer of First Festival on Mind Toys, 27-30 June 2011, Mathematics House of Zanjan.
- Organizer of Second Festival on Mind Toys, 1-4 September 2015, Mathematics House of Zanjan.

### **Language Ability**

Persian, Azerbaijani, Turkish, English (Fluent in all)

### **Scientific Travels**

- Research fellowship of ICTP, Abdus-salam ICTP, Trieste, Italy, June-September 2001.
- Research fellowship of Austrian Academy of Science, Research Institute for Symbolic Computation, University of Johan Kepler, Linz, Austria, March, July-August 2006.
- Sabbatical Leave, University of Genova, Genova, Italy, September 2009-June 2010.
- Visit to University of Grenoble 1, Grenoble, France, 7 – 30 March 2012.
- Mathematics Education Program, World Learning & USA Academy of Sciences, 10 January – 2 February 2014, USA.

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