

ACADEMIC CV FOR DR. PEYMAN NASEHPOUR

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1. EDUCATION

2006-2011 Ph.D. in Pure Mathematics: Commutative Algebra, University of Osnabrück, Osnabrück, Lower Saxony, Germany

Dissertation Title: “Content Algebras and Zero-Divisors” under the supervision of **Prof. Dr. Winfried Bruns**

Brief Synopsis of Research: This thesis concerns two topics. The first topic is related to the Dedekind-Mertens Lemma, the notion of the so-called content algebra. It is proved that in content extensions, minimal primes extend to minimal primes, and zero-divisors of a content algebra over a ring which has Property (A) or whose set of zero-divisors is a finite union of prime ideals are discussed. The preservation of diameter of zero-divisor graph under content extensions is also examined. Gaussian and Armendariz algebras and a special localization of content algebras are considered and zero-divisors of semigroup modules are studied also.

The second topic of the thesis, the grade of the zero-divisor modules is discussed. It is shown that the grade defined by the Koszul complex is consistent with the definition of grade defined by the length of maximal sequences. The new family of modules called locally Nakayama modules are introduced and investigated.

1997-1999 M.S. in Pure Mathematics: Commutative Algebra, University of Tehran, Tehran, Iran

Thesis Title: “Cancellation Ideals and Content Modules in Commutative Algebra” under the supervision of **Prof. Siamak Yassemi**

Brief Synopsis of Research: The new concept of M -cancellation ideals is introduced and cancellation ideals and modules, content modules and algebras and polynomial rings and modules are discussed.

1992-1997 B.S. in Pure Mathematics: Shahid Beheshti University (formerly known as National University of Iran), Tehran, Iran

Thesis Title: “Fourier Series”

1989-1992 High School Diploma in Mathematics & Physics: Shahid Mohammad Montazeri High School (formerly known as Hadaf High School)¹, Tehran, Iran

1993-2004 Private Education in Logic and Philosophy: House of **Professor Seyyed Abdollah Anwar**², Shemiran, Tehran, Iran

- (1) Jun. 2001 - Feb. 2004 Studying the book “Human Knowledge: Its Scope and Limits” (Routledge Classics) written by **Bertrand Russell**.
- (2) Jun. 1998 - Jun. 2001 Studying the book “Philosophical Investigations” written by **Ludwig Wittgenstein**, translated into English by G. E. M. Anscombe.
- (3) Jan. 1997 - Mar. 1998 Studying the book “Resaleh dar Elm va Notgh - Menhaj-e-Mobin (Treatise in Science and Logic)” (Ancient Modal Logic) written by **Baba Afzal al-Din Kashani**.
- (4) Jun. 1995 - Jun. 1998 Studying the book with the title “An Introduction to Wittgenstein’s Tractatus” written by **G. E. M. Anscombe**.

¹Hadaf Educational Group (Goruh-e Farhangi-e Hadaf) was a pioneering private educational complex founded in Tehran in 1949-50 by **Ahmad Birashk** and a number of well-known high school teachers of mathematics and natural sciences, including Ahmad Anwari, Taqi Hurfar, Ali Motemadden and Ahmad Reza Qolizadeh. Ahmad Birashk was an Iranian mathematician and science historian who contributed in Persian calendar reform.

²Parallel to my academic studies and musical activities, I used to participate in weekly seminars on ancient and modern logic and philosophy given by **Professor Seyyed Abdollah Anwar**.

- (5) Mar. 1994 - Jun. 1995 Studying the book with the title “Logisch-Philosophische Abhandlung (Tractatus Logico-Philosophicus)” written by **Ludwig Wittgenstein**, translated into Persian by Mir Shamseddin Adib-Soltani.
- (6) Jun. 1993 - Mar. 1994 Studying the book with the title “Introduction to Formal Logic (Madkhal-e-Mantegh-e-Surat)” written in Persian by **Gholamhossein Mossaheb**.

2. PUBLICATIONS

2.1. Refereed Journal Publications.

- (1) Nasehpour, Peyman, “On the Anderson-Badawi $\omega_{R[X]}(I[X]) = \omega_R(I)$ conjecture”, Arch. Math. (Brno) 52.2 (2016): pp 71-78.
- (2) Nasehpour, Peyman, “On the Content of Polynomials Over Semirings and Its Applications”, to appear in J. Algebra Appl.
- (3) Epstein, Neil, and Nasehpour, Peyman. “Zero-divisor graphs of nilpotent-free semigroups”, Journal of Algebraic Combinatorics 37.3 (2013): 523-543.
- (4) Nasehpour, Peyman, “Zero-divisors of semigroup modules”, Kyungpook Math. J. 51 (2011): pp. 37-42.
- (5) Nasehpour, Peyman, “Zero-divisors of content algebras”, Arch. Math.(Brno) 46.4 (2010): pp. 237-249.
- (6) Nasehpour, Peyman, and Payrovi, Sh. “Modules having very few zero-divisors”, Communications in Algebra 38.9 (2010): pp. 3154-3162.
- (7) Nasehpour, Peyman, and Yassemi, Siamak. “ M -cancellation Ideals”, Kyungpook Math. J. 40 (2000): pp. 259-263.
- (8) Nasehpour, Peyman, “Some problems”, Reconciliation with Math.³ (in Persian), 38 (1993) pp. 416-419.

2.2. Submitted Papers.

- (1) Nasehpour, Peyman, “Valuation Semirings”, preprint, (2015).

2.3. Papers in Preparation.

- (1) Nasehpour, Peyman, and Parvardi, Amir Hossein, “Finitely Additive, Modular and Probability Functions on Semirings”, preprint, (2016).
- (2) Ghalandarzadeh, Shaban, Nasehpour, Peyman, and Razavi, Rafieh, “Invertible Ideals of Semirings”, preprint, (2015).
- (3) Nasehpour, Peyman, “McCoy Semialgebras”, preprint, (2015).

2.4. Other Publications.

- (1) Nasehpour, Peyman, “Content Algebras and Zero-divisors”, PhD Thesis, University of Osnabrück, 2010.
- (2) Nasehpour, Peyman, “Content Algebras Over Commutative Rings With Zero Divisors”, arXiv preprint arXiv:0807.1835 (2008).

³Reconciliation with Mathematics (Ashti-ba-riaziat) was a prestigious quarterly journal of mathematics in Persian language and **Parviz Shahriari**, who was an Iranian mathematician, writer, translator, political and social activist, was its editor-in-chief.

3. TEACHING EXPERIENCE

- (1) Lectured Different Courses of Mathematics such as Calculus, Differential Equations, Engineering Mathematics, Applied Algebra, and Logic for Computer Science for Engineering Students in Department of Engineering Science, **Faculty of Engineering, University of Tehran**, Tehran, Iran, 2012-2016⁴.
- Feb 2016 - Advanced Engineering Mathematics, Ordinary Differential Equations, and Multi-variable Calculus
 - Sep 2015 - Advanced Engineering Mathematics, and Single-variable Calculus
 - Feb 2015 - Logic for Computer Science, Advanced Engineering Mathematics, and Ordinary Differential Equations
 - Sep 2014 - Applied Algebra, Advanced Engineering Mathematics, and Single-variable Calculus
 - Feb 2014 - Logic for Computer Science, Advanced Engineering Mathematics, and Multi-variable Calculus
 - Sep 2013 - Advanced Engineering Mathematics, Multi-variable Calculus, and Single-variable Calculus
 - Feb 2013 - Ordinary Differential Equations, Engineering Mathematics, and Multi-variable Calculus
 - Sep 2012 - Applied Abstract Algebra, Multi-variable Calculus, and Single-variable Calculus

Lectures in Other Universities

- (2) Lectured Linear Algebra for Industrial Engineering Students in Faculty of Industrial Engineering, Amirkabir University of Technology, Tehran, Iran, 2015-2016.
- (3) Lectured Calculus for Engineering Students in Faculty of Electrical Engineering, K.N. Toosi University of Technology, Tehran, Iran, 2013-2014.
- (4) Lectured Musical Acoustics in Faculty of Music, Art University of Tehran, Iran, 2013-2014.
- (5) Lectured General Mathematics in Faculty of Music, Sooreh University, Tehran, Iran, 2001-2002.
- (6) Teaching Assistant, “Foundation of Mathematics”, Department of Mathematics, Shahid Beheshti University, Tehran, Iran, 1994-1995.

4. GRANTS, HONORS, AND AWARDS

- (1) A Letter of Recognition Written by Vice-Dean of Buein Zahra Technical University for Helping to Upgrade the Status of Science at Buein Zahra Technical University, Buein Zahra, Iran, May, 6th., 2016.
- (2) A Letter of Recognition Written by Vice-Dean of the University of Tehran in special cooperation with the student consulting center and education upgrading office, University of Tehran, Tehran, Iran, Feb., 19th, 2014.
- (3) Mathematical Reviewer for **Mathematical Reviews**[®] (MathSciNet[®]), **American Mathematical Society**, Ann Arbor, USA, 2013–2015.

⁴For some of the reference books for the courses, please refer to the last section!

- (4) “**DAAD** Teaching and Research Assistantship”, Osnabrück, Germany, 2011.
- (5) “Full Scholarship for Postgraduate Workshops on Formal Languages and Applications”, Rovira i Virgili University, Tarragona, Spain, 2006.
- (6) Rank 12 in the Second National University Student Olympiad of Mathematics, Iran, 1997.
- (7) Rank 10 out of 2836 participants, National University Entrance Exam for Master of Science in Mathematics, Iran, 1997.

5. INVITED TALKS

- (1) An Open Problem on a Generalization of Prime Ideals in Commutative Ring Theory, Institute for Research in Fundamental Sciences (IPM), Tehran, Iran, 2014⁵.
- (2) On the Anderson-Badawi $\omega_{R[X]}(I[X]) = \omega_R(I)$ Conjecture, Department of Mathematics, Statistics and Computer Science, Faculty of Science, University of Tehran, Tehran, Iran, 2014.
- (3) Semirings and Their Applications, Institute for Research in Fundamental Sciences (IPM), Tehran, Iran, 2013.
- (4) Zero-divisor Graphs of Nilpotent-free Semigroups, Second Seminar on Algebra and its Applications, University of Mohagheh Ardabili, Ardabil, Iran, 2012.
- (5) Zero-divisor Graphs of Content Algebras, Second Seminar on Algebra and its Applications, University of Mohagheh Ardabili, Ardabil, Iran, 2012.
- (6) Content Algebras and Their Zero-Divisor Graphs, Institute for Research in Fundamental Sciences (IPM), Tehran, Iran, 2012.
- (7) Gaussian Elements and Zero-divisors of Semigroup Modules, Sharif University of Technology, Tehran, Iran, 2012.
- (8) Modules having very few zero-divisors, University of Osnabrück, Osnabrück, Germany, 2009.
- (9) Content algebras over commutative rings with zero-divisors, University of Osnabrück, Osnabrück, Germany, 2008.
- (10) Mathematization of ancient Persian rhythms, “fourth international workshop on computational music theory” at Escuela Universitaria de Informatica, Universidad Politecnica de Madrid (U.P.M.), Madrid, Spain, 2006.
- (11) Relationship between musical rhythms and mathematics, for the occasion “Mathematics Decade” launched by the Iranian Mathematical Society (IMS), Arasbaran, Tehran, Iran, 2004.
- (12) M -cancellation ideals, Department of Mathematics and Computer Sciences, Faculty of Science, University of Tehran, Tehran, Iran, 1998.
- (13) Mathematics of Persian ancient music theory, Shahid Beheshti University, Tehran, Iran, 1995.
- (14) Picture theory in Wittgenstein’s philosophy, Shahid Beheshti University, Tehran, Iran, 1994.
- (15) Transcendental numbers, Shahid Beheshti University, Tehran, Iran, 1993.

⁵This talk was dedicated to the memories of **Professor Mohsen Hachtroudi** and **Professor Hans Bjørn Foxby**.

6. PROFESSIONAL EXPERIENCE

6.1. Participation in Research Projects.

- (1) Supervising of the MSc Thesis of Zohreh Zabeti as a Second Supervisor, Title of the Thesis: “AAA”, First Supervisor: Dara Moazzami, Department of Engineering Science, University of Tehran, 2014–2015.
- (2) Consulting Professor for MSc Thesis of Hamid Gholami, Title of the Thesis: “AAA”, Supervised by Dara Moazzami, Department of Engineering Science, University of Tehran, 2014–2015.
- (3) Consulting Professor for PhD Thesis of Masoumeh Shabani, Title of the Thesis: “Generalizations of annihilator conditions in modules” Supervised by Ahmad Yousefian Darani and Shahabaddin Ebrahimi Atani, University of Mohaghegh Ardabili, Ardabil, Iran, 2013–.
- (4) Consulting Professor for PhD Thesis of Rafieh Razavi, Title of the Thesis: “AAA”, Supervised by Shaban Ghalandarzadeh, Faculty of Mathematics, K. N. Toosi University of Technology, Tehran, Iran, 2012–.
- (5) Assisted in the final production phase of the book “Polytopes, rings and K -theory”, by Winfried Bruns and Joseph Gubeladze, University of Osnabrück, Osnabrück, Germany, 2008.
- (6) Assisted in arithmetical calculation for the book “A Treatise on Music from Dorrat al-Taj Le-qerrat al Dabbaj” by Nasrollah Nasehpour, published in Tehran, Iran, 2008.
- (7) Assisted in supervising Zahra Alibiglou, “How Music and Mathematics Relate to Each Other”, B.S. thesis, Shahid Beheshti University, Tehran, Iran, 2004.
- (8) Assisted Prof. Siamak Yassemi by giving a counterexample which appeared in the following paper: Siamak Yassemi, “Maximal elements of support”, *Acta Math. U.C.*, 67 (1998), pp. 231-236.
- (9) Research assistant for Prof. Zahra Gooya, “Mathematics Education” (Teaching Methods), Department of Mathematics, Faculty of Science, Shahid Beheshti University, Tehran, Iran, 1996.

6.2. Editor for Mathematical Journals.

- Editor for the mathematical journal “Transactions on Algebra and Its Applications”, since 2014 March.

6.3. Referee for Scientific Journals.

- Referee for the mathematical journal “Georgian Journal of Mathematics”.
- Referee for the scientific journal “National Academy Science Letters”.

6.4. Organizing Experience.

- (1) Assisted in organizing “On the status of Engineering Science in Iran” at Buein Zahra Technical University, Buein Zahra, Qazvin Province, Iran, 2016.
- (2) Assisted in organizing “Infinite Dimensional Tilting Theory and Its Applications” at Institute for Studies in Theoretical Physics and Mathematics (IPM), Tehran, Iran, 2015.

- (3) Assisted in organizing “Summer School on Gröbner Bases and Applications” at IASBS (Institute for Advanced Studies in Basic Sciences), Zanjan, Iran, 2005.
- (4) Assisted in organizing the international workshop on “Logic, Algebra and Arithmetic” at Institute for Studies in Theoretical Physics and Mathematics (IPM), Tehran, Iran, 2003.
- (5) Organized (as one of the local organizers) the international workshop on “Homological Methods in Commutative Algebra” at Institute for Studies in Theoretical Physics and Mathematics (IPM), Tehran, Iran, 2002.
- (6) Organized (as one of the local organizers) the “31st Annual Iranian Mathematics Conference” for the occasion of the “Year of Mathematics”, University of Tehran, Tehran, Iran, 2000.
- (7) Assisted Prof. Zahra Gooya in the nationwide training session of 480 mathematics teachers in the use of new geometry textbooks for 2nd and 3rd year of secondary school, Mashhad, Iran, 1997.

7. WORKSHOPS ATTENDED

- (1) Infinite Dimensional Tilting Theory and its Applications, Institute for Studies in Theoretical Physics and Mathematics (IPM), Tehran, Iran, 2015.
- (2) Combinatorial Methods in Algebra and Topology, University of Osnabrück, Osnabrück, Germany, October 8–10, 2009.
- (3) Commutative Algebra Mini-workshop, University of Bochum, Bochum, Germany, July 11, 2009.
- (4) Commutative Algebra Mini-workshop, Essen-Duisburg University, Essen, Germany, November 20, 2006.
- (5) Formal Languages and Applications, Postgraduate Workshop Series, Rovira i Virgili University, Tarragona, Spain, April 1–July 23, 2006.
- (6) Logic, Algebra and Arithmetic, Institute for Studies in Theoretical Physics and Mathematics (IPM), Tehran, Iran, 2003.
- (7) Homological Methods in Commutative Algebra, Institute for Studies in Theoretical Physics and Mathematics (IPM), Tehran, Iran, 2002.

8. SKILLS AND QUALIFICATIONS

- (1) Strong interpersonal skills; ability to interact effectively with people; effective cooperation and team work; intelligent, precise and hard-working individual
- (2) Special ability to take initiative in independent and scholarly works and motivate people to achieve maximum productivity by his friendly and social character
- (3) Excellent presentation, communication, and interaction skills
- (4) Strong knowledge and background in mathematics, especially in algebra
- (5) Very good knowledge in journalism
- (6) Highly experienced in search engine optimization (SEO) and web-promotion, familiar with web-designing and HTML
- (7) Highly experienced in \LaTeX [®], Microsoft Office[®], Open Office[®], Windows[®], and Blogging, familiar with Linux[®], HTML, Search Engine Optimization, and Web Promotion

- (8) Fluent in English⁶, Persian and Azerbaijani Languages
- (9) Strong communication skills in Turkish
- (10) Good communication skills in German

9. INTERESTS

- (1) Relations between Music and Mathematics
- (2) Indian Classical Music (Hindustani Sangeet)
- (3) Theory of Ancient Persian Music

10. PERSONAL DATA

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REFERENCES

- [1] Tom M. Apostol, *Calculus*, Vol I. and Vol. II, John Wiley & Sons, 2007.
- [2] William E. Boyce, Richard C. DiPrima, and Charles W. Haines. *Elementary Differential Equations and Boundary Value Problems*, Vol. 9. New York, Wiley, 1992.
- [3] John B. Fraleigh, *A First Course in Abstract Algebra*, Pearson Education India, 2003.
- [4] Saeed Ghahramani, *Fundamentals of Probability with Stochastic Processes*, 3rd edn., Prentice Hall, Upper Saddle River, 2005.
- [5] William M. Hartmann, *Principles of Musical Acoustics*, Springer, 2013.
- [6] Joel Hass, Maurice D. Weir, and George B. Thomas, *University Calculus, Early Transcendentals*, 2nd edn., Addison-Wesley, Pearson Education, Boston, 2012.
- [7] Mikhail Itskov, *Tensor Algebra and Tensor Analysis for Engineers: With Applications to Continuum Mechanics*, Springer, 2015.
- [8] Erwin Kreyszig, *Advanced Engineering Mathematics*, John Wiley & Sons, 2011.
- [9] R. Lidl, and G. Pilz, *Applied Abstract Algebra*, Springer, 1998.
- [10] David Lay, *Linear Algebra and Its Applications*, Addison-Wesley, 2012.
- [11] Uwe Schöning, *Logic for Computer Scientists*, Springer, 2008.
- [12] James Stewart, *Single Variable Calculus: Early Transcendentals*, Cengage Learning, 2011.
- [13] David V. Widder, *Advanced Calculus*, Courier Dover Publications, 2012.

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⁶English language courses at Iran Language Institute (formerly known as Iran-America Society)