

DR. AYMAN BADAWI COMPLETE CV

Professor of Mathematics

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- (3) Fax: 971-6-515-2950
- (4) Birth date: 2/14/1963
- (5) Status: Married To Rawya Abuhijleh and I have two children (Nadeem (12 years old) and Raneem (6 years old))

1. RESEARCH INTEREST

(ALGEBRA) Commutative Ring Theory : Multiplicative Ideal Theory. My most work is devoted to ϕ -Commutative Rings: a class of commutative rings that I defined and it contains the class of integral domains. My work focuses on : ϕ -Valuation domains (ϕ -Chained rings), ϕ -Pseudo-Valuation rings, ϕ -Integral Closure of rings, ϕ -Noetherian rings, ϕ -Prüfer rings, ϕ -Dedekind rings, and ϕ -Krull rings. Other interests include : n -Absorbing Ideals (a concept that I defined and it is a generalization of the concept of prime ideals), Finite Fields, Zero-Divisor Graphs, Total Graphs, and π -Regular rings.

2. EDUCATION

- 1) Dept. of Mathematics, Univ. of North Texas, Denton, TX 76203, U. S. A. (PH.D, confirmed, 1993)
- 2) Dept. of Mathematics, Tenn. Tech. Univ., Cookeville, TN 35805, U. S. A. (M. S. in Mathematics 1988).
- 3) Dept. of Mathematics and Computer Science, Tenn. Tech. Univ., Cookeville, TN 35805, U. S. A. (B. S. in Mathematics and B. S. Computer Science 1986) .

3. EXPERIENCE

1) (2003-currently) Dept. of Mathematics, American Univ. of Sharjah, P.O. Box 26666, Sharjah, United Arab Emirates.

Responsibilities at the American Univ. of Sharjah: Taught Differential equations, Business Math , Calculus for business, Calculus I, Linear Algebra, Discrete Math., Modern Abstract Algebra with Application, Geometry for the arts and architecture, and College Algebra. **Also, I supervised an undergraduate math research project titled " distribution of prime numbers," and it was received a university recognition.**

2) (1996-2002) Dept. of Mathematics, Birzeit University, Box 14, Birzeit, West Bank

Responsibilities at Birzeit Univ. : Taught Calculus I, II, and III, Basic Statistics, Calculus for business students, Abstract Algebra (Group Theory and Ring Theory), Linear Algebra, Advanced Linear Algebra, Number Theory, Advanced Topic in finite fields and their application, Coding Theory, Modern Geometries.

3) (1998-1999), Visiting Assistant Professor (titled visiting scholar), Dept. of Mathematics, Univ. of Tennessee, Knoxville, TN 37996, U. S. A.

Responsibilities at the Univ. of Tennessee: I conducted research activities with professors David F. Anderson and David E. Dobbs, also I taught Calculus III for engineering, Pre-Calculus, Logic and Foundation of Mathematics.

4) (1993-1995), Visiting Assistant Professor of Mathematics, Dept. of Mathematics, Emory & Henry College, Emory, VA 24327, U. S. A.

Responsibilities at Emory & Henry College: Taught Calculus I, II, III, Pre-Calculus, Linear Algebra, Statistics, and Modern Geometries

5) (86-93), I worked as a Teaching Assistant, a Teaching Associate, and a Teaching Fellow at all the universities I attended.

4. HONORS AND GRANTS

- (1) Editor for the first palestinian Journal : Palestine Journal of Mathematics
(<http://pjm.ppu.edu/index.php/pjm>).
- (2) Guest Editor for International Journal of Mathematics and Mathematic Sciences (IJMMS).
- (3) Guest Editor for Arabian Journal for Science and Engineering (AJSE-Mathematics).
- (4) I am currently an honorary member of the Middle East Center of Algebra and its Applications 2010-2015 at KING ABDULAZIZ UNIVERSITY, Jeddah
- (5) I served on the University Faculty Research Grant (UFRG) for three consecutive years (2003-2006).
- (6) Pew Fellowship at the Univ. of Kentucky, Lexington, KY, U. S. A., in the summer of 94 where I visited Professor Paul Eakin.
- (7) Ashrawi Scholarship at Vrije University, Amsterdam, Holland in October of 97.
- (8) Visiting Scholar (98-99) at the Univ. of Tennessee, Knoxville, U. S. A.
- (9) I am a reviewer for the American Math. Reviews.
- (10) A research visitor at the Univ. of Roma I, in November of 2002.
- (11) A research visitor at the Univ. of Tennessee, Knoxville, U. S. A., from Feb., 17, 003 till March, 17, 003.

5. PROFESSIONAL ACTIVITIES & COMMITTEES

- (1) I served on the CAS-FPC, as the Dept. Representative (2010-2011), Nine cases were brought to my attention.
- (2) I served on CAS-FPC, as the Dept. Representative (2009-2010) (Nine cases were brought to my attention).
- (3) An active organizer of the Math Conference (March 2010) AUS-ICMS2010. Two special sessions of Algebra were organized, I served as an editor for two special issues : One to be published by IJMMS, and the other to be published in AJSE-MATHEMATICS.
- (4) Member of the Master-Degree Committee for the Dept. of Math. (2009-currently)
- (5) I served on the Business FPC (Permanent member), 2008-2009.
- (6) I served on the FPC (Faculty Personal Committee) for the CAS (College of Art and Science), 2007-2008.
- (7) I served on the University Committee for Faculty Rolling and Promotions, 2007-2008.
- (8) I worked as the seminar coordinator for the Math. Dept, 2004-now.
- (9) The IT (Web-Designer) for the Math. Dept., 2006-2009.
- (10) The IT (WebPage) for the INTERNATIONAL CONFERENCE ON MODELING, SIMULATION AND APPLIED OPTIMIZATION 2008.
- (11) Reviewer for The American Math. Reviews.
- (12) I supervised an undergraduate math research project titled " distribution of prime numbers," and it was received a university recognition.
- (13) I served on the University Faculty-Research-Grant Committee (FRGC) for three consecutive years (2003-2006)
- (14) A. Badawi , " Abstract Algebra Manual: Problems and Solutions," published by Nova Science, 2nd Edition (New York)(2004), ISBN 1-59033-924-X.
- (15) A. Badawi, "Focus on Commutative Rings Research," Nova Science, NewYork, U. S. A. (2006), ISBN 1-60021-065-1.

I refereed articles for the following Journals

- (1) Journal of Pure and Applied Algebra.
- (2) Journal of Algebra and Its application.
- (3) Canadian Math Bulletin.
- (4) Communications in Algebra
- (5) Houston Journal of Mathematics.
- (6) Rocky Mountain Journal of Mathematics
- (7) Linear Algebra and Its Applications
- (8) Discrete Mathematics.
- (9) Discrete Mathematics, Algorithms and Applications (DMAA).
- (10) Algebra Colloquium
- (11) Matematicki Vesnik.
- (12) Acta Mathematica Academiae Paedagogicae Nyiregyhaziensis (AMAPN)
- (13) Kyungpook Mathematical Journal
- (14) Korean Mathematical Society (JKMS).
- (15) International Journal of Mathematics and Mathematic Sciences (IJMMS).
- (16) Acharya Nagarjuna International Journal of Mathematics & Information Technology.
- (17) Arabian Journal for Science and Engineering.
- (18) International Electric Journal of Algebra.
- (19) Indian Journal of Mathematics (IJM).
- (20) Bulletin of the Allahabad Society (BAMS).
- (21) Indian Journal of Pure and Applied Mathematics
- (22) Proc. Pakistan Acad. Sci.
- (23) Algebra and Game Theory Journal.
- (24) Novi Sad Journal of Mathematics.
- (25) Jordan Journal of Mathematics and statistics (JJMS)
- (26) International Journal of Modern Mathematics (Int. J. Mod. Math.)
- (27) Marcel-Dekker (now Francis and Taylor) Conferences-Proceedings series: Lecture notes in pure and applied mathematics.

**I supervised and directed the following
undergraduate research projects at Birzeit University**

- (1) Perfect Polynomials over Z_P .
- (2) Partition Z_n into disjoint multiplicative groups.
- (3) Embedding an integer m as the identity of a multiplicative group module n .
- (4) Von-Neumann Regular Rings.
- (5) Some basic properties of Z_n .
- (6) On radical ideals of a commutative ring.
- (7) On Primary ideals.
- (8) Fundamental Theorem on finite abelian group.
- (9) Vector Spaces over Z and over R/M .
- (10) Sylow's Theorems with Applications.
- (11) On the Characteristic and minimal polynomials of Matrices.
- (12) Using nullity to check the solution for a Matrix.
- (13) On Quotient Rings.
- (14) Perfect Polynomials over finite fields.
- (15) Non-Euclidian Geometries: Hyperbolic Geometries.

6. PUBLICATIONS

- (1) A. Badawi, "On rings with divided nil ideal", Chapter in the book : Commutative Algebra And Its Applications, 21-40(2009), Walter De Gruyter, Germany, ISBN 978-3-11-020746-0

- (2) A. Badawi, D. F. Anderson, D. E. Dobbs and J. Shapiro, "Divisibility properties in ultra-powers of commutative ring", Chapter in the book : Commutative Algebra And Its Applications, 9-19(2009), Walter De Gruyter, Germany, ISBN 978-3-11-020746-0
- (3) A. Badawi and D.F. Anderson, " The total graph of a commutative ring," J. Algebra 320 (2008), 2706-2719.
- (4) A. Badawi and A. Jaballah, " Some finiteness conditions on the set of overrings of a ϕ -ring," Houston J. Math. 34(2) (2008), 397-407.
- (5) A. Badawi and D.F. Anderson, "On the zero-divisor graph of a ring," Comm. Algebra 36(2008), 3073-3092.
- (6) A. Badawi, " On 2-absorbing ideals of commutative rings," Bull. Austral. Math. Soc. 75(2007), 417-429.
- (7) A. Badawi, " On Pseudo-almost valuation domains," Comm. Algebra 35(2007), 1167-1181.
- (8) A. Badawi and Thomas Lucas, "on ϕ -Mori rings," Houston J. Math.32(2006), 1-31.
- (9) A. Badawi and D. E. Dobbs, " Strong ring extensions and ϕ -pseudo-valuation rings," Houston J. Math.32(2006), 379-398.
- (10) A. Badawi, "Factoring nonnil ideals as a product of prime and invertible ideals," Bulletin of the London Math. Society 37(2005), 665-672.
- (11) A. Badawi and D. F. Anderson, " on ϕ -Dedekind rings and ϕ -Krull rings," Houston J. Math.31(2005), 1007-1022.
- (12) A. Badawi and D. F. Anderson,"On ϕ -Prufer rings and ϕ -Bezout rings," Houston J. Math. 30(2004), 331-343.
- (13) A. Badawi, "A Characterization of valuation domains via m-canonical ideals," Comm. Algebra 32(2004), 4363-4374.
- (14) A. Badawi, " On nonnil-Noetherian rings," Comm. Algebra 31(2003), 1669-1677.
- (15) A. Badawi and D. F. Anderson, " Divisibility conditions in commutative rings with zero-divisors," Comm. Algebra 38(2002), 4031-4047.
- (16) A. Badawi and E. Houston," Powerful ideals, strongly primary ideals, almost pseudo-valuation domains, and conducive domains," Comm. Algebra 30(2002), 1591-1606.
- (17) A. Badawi, A. Y. M. Chin, and H. V. Chen, " On rings with near idempotent elements," International J. of Pure and Applied Mathematics, 1(2002), 255-261
- (18) A. Badawi, "On Divided rings and ϕ -pseudo-valuation rings," International J. Comm. Rings (IJCR), Vol. 1(2002), 51-60.
- (19) A. Badawi and D. F. Anderson," On root closure in commutative rings," Arabian J. of Science and Engineering (Arabian J. Sci. Engrg), Vol. 26, 1C(2001), 17-30.
- (20) A. Badawi and DavidE. Dobbs, " On Locally divided rings and going down rings," Comm. Algebra. 29(2001), 2805-2825.
- (21) A. Badawi, " On ϕ -chained rings and ϕ -pseudo-valuation rings," Houston J. Math 27(2001), 725-736.
- (22) A. Badawi, "On ϕ -pseudo-valuation rings, II," Houston J. Math. 26(2000), 473-480.
- (23) A. Badawi," Remarks on pseudo-valuation rings", Comm. Algebra 28(2000), 2343-2358.
- (24) A. Badawi, "On Chained overrings of pseudo-valuation rings," Comm. Algebra 28(2000), 2359-2366.
- (25) A. Badawi and D. F. Anderson and D. E. Dobbs "Pseudo-valuation rings II," Boll. Un. Mat. Ital. B(8)3(2000), 535-545.
- (26) A. Badawi," On divided commutative rings," Comm. Algebra 27(1999), 1465-1474.
- (27) A. Badawi," On comparability of ideals of commutative rings," Comm. Algebra 26(1998), 793-802.
- (28) A. Badawi, " On Abelian π -regular rings," Comm. Algebra 25(1997), 1009-1021.
- (29) A. Badawi," On domains which have prime ideals that are linearly ordered," Comm. Algebra 23(1995), 4365-4373.
- (30) A. Badawi, " On semicommutative π -regular rings," Comm. Algebra 22(1994), 151-157.
- (31) A. Badawi, " R_n contains a division ring iff R does," Amer. Math. Monthly, 100(1994),679-680.

- (32) A. Badawi, " A Counter example for a question on pseudo-valuation rings," Abelian Groups, Rings, Modules, and Homological Algebra, Chapman & Hall/CRC, Vol. 249 (2006), 23-27.
- (33) A. Badawi and Thomas Lucas, "Rings with prime nilradical," Arithmetical Properties of Commutative Rings and Monoids, Chapman & Hall/CRC, Vol. 241(2005), 198-212.
- (34) A. Badawi, " On the complete integral closure of rings that admit a ϕ -strongly prime ideal," Lecture Notes Pure Appl. Math. Vol. 231(2002), 15-22. Marcel Dekker, New York/Basel.
- (35) A. Badawi, "Pseudo-valuation domains: A Survey," Proceedings of the Third Palestinian International Conference on Mathematics, 38-59(2002), Word Scientific Publishing Co., New York/London.
- (36) A. Badawi, " On ϕ -pseudo-valuation rings," Advances in commutative ring theory, Lecture Notes Pure Appl. Math. Vol.205(1999), 101-110, Marcel Dekker, New York/Basel.
- (37) A. Badawi, " A visit to valuation and pseudo-valuation domains," Lecture Notes Pure Appl. Math. Vol. 185(1995), 57-69, Marcel Dekker, New York/Basel.
- (38) A. Badawi and D. E. Dobbs, " Some examples of locally divided rings," Lecture Notes Pure Appl. Math., Vol. 220(2001), 73-83. Marcel Dekker, New York/Basel.
- (39) A. Badawi and D. F. Anderson, " Conditions equivalent to seminormality in certain classes of commutative rings," Lecture Notes Pure Appl. Math., Vol. 220(2001), 49-59, Marcel Dekker, New York/Basel.
- (40) A. Badawi and D. F. Anderson and D. E. Dobbs, " Pseudo-valuation rings," Lecture Notes Pure Appl. Math. Vol. 185(1997), 57-67, Marcel Dekker, New York/Basel.

c. Conferences and research papers presented

- (1) Invited 20 minutes speaker, AMS-Special Session on Commutative Rings, University of Iowa, USA, March 18-March 20, 2011.
- (2) Invited 30 minutes speaker, ICMS 2010, Bolu, Turkey, Nov 23-Nov 27, 2010 .
- (3) Invited 30 minutes speaker, Third International Conference on Integer Valued Polynomials and Unsolved Problems in Commutative Algebra," Marseille, France, Nov 28-Dec 3, 2010 .
- (4) Twenty-minutes speaker for the Algebra Conference (ICA 2010) which dedicated for the 70th Birthday of Prof. Shum Kar-Ping at The Faculty of Mathematics and Natural Sciences Gadjah Mada University, Yogyakarta, Indonesia 7-10 October 2010.
- (5) Twenty-minutes speaker for the Math&Physics Conference, Nablus, West Bank, Palestine, Najah Univ August 2-August 4, 2010
- (6) Twenty-minutes speaker for the Algebra Conference Brasilia (Brazil) July 25-July30, 2010
- (7) Invited Speaker for the Commutative Algebra Conference Rome (Italy) May 19-May21, 2010
- (8) Twenty-minutes speaker for the Math Conference Kuala Lumpur, Malaysia, October 2009
- (9) Invited speaker (40 minutes) For the Commutative Algebra Conference, June 15-June 21, 009. In Honour of 60th birthday of David F. Anderson, GyouengJu, South Korea
- (10) Invited speaker 20 minutes, Special Session on Commutative Algebra, AMS-Annual meeting, Washington DC, Jan4-Jan 8, 2009.
- (11) Invited speaker and organizer of the special session on Commutative Algebra, Univ. of Delhi, India, Dec 18-Dec 20, 2008.
- (12) Invited speaker 30 minutes, Algebra Workshp, Sultan Qaboos University, Muscat, Oman Dec 14 2008.
- (13) A 30-minutes invited speaker at the Algebra Conference, Fes-2008, Ifran, Morroco.
- (14) A 15-minutes speaker at the UAE-Math-Day, April 2007, "On the total graph of a commutative ring."
- (15) A 40-minutes invited Speaker at the Math Conference in Bangkok, Thailand , March 2008, "On the total graph of a commutative ring."
- (16) A 40-minutes invited speaker at the MATH Conference in Cairo November 2007, "Pseudo-almost valuation domains."

- (17) A 50-minutes invited speaker at the IPM (Institute for theoretical studies in Mathematics and Physics), Iran (November 2007), "On the total graph and zero-graph of Commutative Rings."
- (18) A 20-minutes invited speaker for the Algebra Conference at the Univ. of Connecticut, USA(June, 2007), " The total graph of commutative rings."
- (19) A 15 minute speaker for the UAE-Math day, Eitaisalat College, " Zero-divisor graphs(Recent results)," 2007.
- (20) A 15 minute speaker in a Math conference in Malaysia, " Girth and Parameter of zero-divisor graph," March, 2007
- (21) A Plenary speaker(50 minutes) at Qaboos Univ. (oman), " Zero-divisor graph of a commutative ring," Algebra workshop, Dec. 2006
- (22) A 20-minute invited speaker at Algebra Workshop in Cortona, Italy, June 2006, "A General Theory for Prufer Domains."
- (23) A plenary speaker (50 minutes) in Algebra Workshop in March of 2006 at KFUPM (Saudi Arabai), " On phi-commutative rings."
- (24) A 20-minute speaker in the Algebra Session at the UAE-MATH-DAY (Univ. of Sharjah), "Commutative rings with finitely many non-nilpotent atom", 2006.
- (25) A 20-minute invited speaker at Algebra Conference in Cairo (Egypt), March, 2006, " Anderson-Mott Commutative rings."
- (26) Invited Speaker for the American Math. Society Special Session on Commutative Rings, In OCTOBER 2005, "Some finiteness conditions on the set of overring of phi-rings."
- (27) Invited Speaker for the American Math. Society Special Session on Commutative Rings, In Jan., 2006, " Anderson-Mott Commutative Rings." 3.
- (28) A plenary speaker (50 minutes) in Algebra Workshop in November of 2005 at Qaboos Univ. (Oman) , "On nonnil rings."
- (29) Invited Speaker, "On 2-absorbing ideals of commutative rings," Cortona, Italy (June, 2004).
- (30) A characterization of valuation domains via m-canonical ideals," presented in the AMS-Special Session on Commutative Rings in Baton Rouge, Louisiana, U. S. A., March 14 till March 17.
- (31) " On Nonnil Noetherian Rings," presented at the commutative ring conference in Venice, Italy, during the month of June, 2002.
- (32) "On the complete integral closure of ϕ -pseudo-valuation rings," at Fez, Morocco, the fourth international conference on commutative rings.
- (33) " ϕ -chained rings and ϕ -pseudo-valuation rings," at Colloque, Deuxieme recontre internationale sur les polynomes a valeurs, au CIRM, Luminy, France), from May, 29, 2000 till June ,3, 2000.
- (34) Root closure in rings," Special session on Commutative Rings, AMS-Meeting, Charlotte, North Carolina, U. S. A., Abstract of the American Math. Society, Vol. 20(1999), P. 23.
- (35) "Powerful ideals in integral domains," Special session on Commutative Rings, AMS-Meeting, Winston-Salem, North Carolina, U. S. A., Abstract of the American Math. Society, Vol. 19(1998), P. 447.
- (36) "On Pseudo-valuation rings," Abstract of the American Math. Society, Vol. 18(1997), P. 43.
- (37) "On Abelian pi-regular rings," Abstract of the American Math. Society, Vol. 15 (1995), P. 63.
- (38) "On semicommutative rings," Abstract of the American Math. Society, Vol. 15 (1993), P. 59.
- (39) "More on the perfection of polynomials over $GF(q)$," Abstract of the American Math. Society, Vol. 19 (1988), P. 173.

7. BOOKS

- (1) A. Badawi , " Abstract Algebra Manual: Problems and Solutions," published by Nova Science, 2nd Edition (New York)(2004), ISBN 1-59033-924-X.
- (2) A. Badawi, "Focus on Commutative Rings Research," Nova Science, NewYork, U. S. A. (2006), ISBN 1-60021-065-1.