

## DR. AYMAN BADAWI COMPLETE CV

Professor of Mathematics

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- (4) Birth date: 2/14/1963
- (5) Status: Married To Rawya Abuhijleh and I have two children (Nadeem ( 16 years old) and Raneem (10 years old))

### **1. Research Interest**

(ALGEBRA) Commutative Ring Theory : Multiplicative Ideal Theory. My most work is devoted to  $\phi$ -Commutative Rings: a class of commutative rings that I defined and it contains the class of integral domains. My work focuses on :  $\phi$ -Valuation domains ( $\phi$ -Chained rings),  $\phi$ -Pseudo-Valuation rings,  $\phi$ -Integral Closure of rings,  $\phi$ -Noetherian rings,  $\phi$ -Prufer rings,  $\phi$ -Dedekind rings, and  $\phi$ -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  $\pi$ -Regular rings.

### **6. Publications**

- (1) A. Badawi, "On dot-product graph of a commutative ring," *Communications in Algebra* 43, no. 1 (2015): 43-50. doi: [10.1080/00927872.2014.897188](https://doi.org/10.1080/00927872.2014.897188).
- (2) A. Badawi, Unsal Tekir, and Ece Yetkin. "ON WEAKLY 2-ABSORBING PRIMARY IDEALS OF COMMUTATIVE RINGS." *Korean Mathematical Society* 52, no. 1 (2015): 97–111. doi: [10.4134/JKMS.2015.52.1.097](https://doi.org/10.4134/JKMS.2015.52.1.097).
- (3) A. Badawi, Unsal Tekir, and Ece Yeikin. "ON 2-ABSORBING PRIMARY IDEALS IN COMMUTATIVE RINGS." *Bulletin of the Korean Mathematical Society* (ISSN:1015-8634) 51, no. 4 (2014): 1163-1173. doi: [10.4134/BKMS.2014.51.4.1163](https://doi.org/10.4134/BKMS.2014.51.4.1163).
- (4) A. Badawi, "On the Total Graph of a Ring and Its Related Graphs: A Survey." In *Commutative Algebra: Recent Advances in Commutative Rings, Integer-Valued Polynomials, and Polynomial Functions*, DOI 10.1007/978-1-4939-0925-4\_\_3, edited by M. Fontana et al. (eds.),, 39-54. New York: Springer Science + Business Media, 2014.
- (5) A. Badawi. "Matrix Algebra, Basics of." In *Encyclopedia of Social Network Analysis and Mining*, edited by Alhajj, Reda, Rokne, Jon (Eds.), 9 pages. New York: Springer, 2014.
- (6) A. Badawi, "On the annihilator graph of a commutative ring," *Comm. Algebra*, Vol.(42)(1), 108-121 (2014), DOI: [10.1080/00927872.2012.707262](https://doi.org/10.1080/00927872.2012.707262)

- (7) A. Badawi and D. F. Anderson, "The generalized total graph of a commutative ring," *Journal of Algebra and Its Applications (JAA)*, .Vol. 12, No. 5 (2013). DOI: 10.1142/S021949881250212X .
- (8) A. Badawi and Ahmad Yousef Darani, "On weakly 2-absorbing ideals of commutative rings," *Houston Journal of Mathematics*, Vol. 39(2), 441-452 (2013).
- (9) A. Badawi and D. F. Anderson, "On the total graph of a commutative ring without the zero element," *Journal of Algebra and its applications (JAA)* 11(4), (2012).
- (10) A. Badawi, "A Characterization of normal subgroups via n-closed sets (suitable for under-graduate Math. Students)," *Adv. Studies Contemp. Math.* 22(2), 233-237 (2012).
- (11) A. Badawi and D. F. Anderson, "Von Neumann Regular and Related Elements in Commutative Rings," *Algebra Colloquium* 19, 1017-1040 (2012).
- (12) A. Badawi and D. F. Anderson, "The generalized total graph of a commutative ring," *Journal of Algebra and Its Applications (JAA)*, .Vol. 12, No. 5 (2013). DOI: 10.1142/S021949881250212X
- (13) A. Badawi, "On  $\phi$ -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
- (14) 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
- (15) A. Badawi and D.F. Anderson, "The total graph of a commutative ring," *J. Algebra* 320 (2008), 2706-2719.
- (16) A. Badawi and A. Jaballah, "Some finiteness conditions on the set of overrings of a  $\phi$ -ring," *Houston J. Math.* 34(2) (2008), 397-407.
- (17) A. Badawi and D.F. Anderson, "On the zero-divisor graph of a ring," *Comm. Algebra* 36(2008), 3073-3092.
- (18) A. Badawi, "On 2-absorbing ideals of commutative rings," *Bull. Austral. Math. Soc.* 75(2007), 417-429.
- (19) A. Badawi, "On Pseudo-almost valuation domains," *Comm. Algebra* 35(2007), 1167-1181.
- (20) A. Badawi and Thomas Lucas, "on  $\phi$ -Mori rings," *Houston J. Math.* 32(2006), 1-31.
- (21) A. Badawi and D. E. Dobbs, "Strong ring extensions and  $\phi$ -pseudo-valuation rings," *Houston J. Math.* 32(2006), 379-398.
- (22) A. Badawi, "Factoring nonnil ideals as a product of prime and invertible ideals," *Bulletin of the London Math. Society* 37(2005), 665-672.

- (23) A. Badawi and D. F. Anderson, "On  $\phi$ -Dedekind rings and  $\phi$ -Krull rings," *Houston J. Math.* 31(2005), 1007-1022.
- (24) A. Badawi and D. F. Anderson, "On  $\phi$ -Prüfer rings and  $\phi$ -Bezout rings," *Houston J. Math.* 30(2004), 331-343.
- (25) A. Badawi, "A Characterization of valuation domains via  $m$ -canonical ideals," *Comm. Algebra* 32(2004), 4363-4374.
- (26) A. Badawi, "On nonnil-Noetherian rings," *Comm. Algebra* 31(2003), 1669-1677.
- (27) A. Badawi and D. F. Anderson, "Divisibility conditions in commutative rings with zero-divisors," *Comm. Algebra* 38(2002), 4031-4047.
- (28) A. Badawi and E. Houston, "Powerful ideals, strongly primary ideals, almost pseudo-valuation domains, and conducive domains," *Comm. Algebra* 30(2002), 1591-1606.
- (29) 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
- (30) A. Badawi, "On Divided rings and  $\phi$ -pseudo-valuation rings," *International J. Comm. Rings (IJCR)*, Vol. 1(2002), 51-60.
- (31) A. Badawi and D. F. Anderson, "On root closure in commutative rings," *Arabian J. of Science and Engineering (Arabian J. Sci. Eng)*, Vol. 26, 1C(2001), 17-30.
- (32) A. Badawi and David E. Dobbs, "On Locally divided rings and going down rings," *Comm. Algebra*. 29(2001), 2805-2825.
- (33) A. Badawi, "On  $\phi$ -chained rings and  $\phi$ -pseudo-valuation rings," *Houston J. Math* 27(2001), 725-736.
- (34) A. Badawi, "On  $\phi$ -pseudo-valuation rings, II," *Houston J. Math.* 26(2000), 473-480.
- (35) A. Badawi, "Remarks on pseudo-valuation rings", *Comm. Algebra* 28(2000), 2343-2358.
- (36) A. Badawi, "On Chained overrings of pseudo-valuation rings," *Comm. Algebra* 28(2000), 2359-2366.
- (37) A. Badawi and D. F. Anderson and D. E. Dobbs "Pseudo-valuation rings II," *Boll. Un. Mat. Ital.* B(8)3(2000), 535-545.
- (38) A. Badawi, "On divided commutative rings," *Comm. Algebra* 27(1999), 1465-1474.
- (39) A. Badawi, "On comparability of ideals of commutative rings," *Comm. Algebra* 26(1998), 793-802.
- (40) A. Badawi, "On Abelian  $\pi$ -regular rings," *Comm. Algebra* 25(1997), 1009-1021.

- (41) A. Badawi, "On domains which have prime ideals that are linearly ordered," *Comm. Algebra* 23(1995), 4365-4373.
- (42) A. Badawi, "On semicommutative  $\pi$ -regular rings," *Comm. Algebra* 22(1994), 151-157.
- (43) A. Badawi, " $R_n$  contains a division ring iff  $R$  does," *Amer. Math. Monthly*, 100(1994), 679-680.
- (44) 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.
- (45) A. Badawi and Thomas Lucas, "Rings with prime nilradical," *Arithmetical Properties of Commutative Rings and Monoids*, Chapman & Hall/CRC, Vol. 241(2005), 198–212.
- (46) A. Badawi, "On the complete integral closure of rings that admit a  $\phi$ -strongly prime ideal," *Lecture Notes Pure Appl. Math.* Vol. 231(2002), 15-22. Marcel Dekker, New York/Basel.
- (47) 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
- (48) A. Badawi, "On  $\phi$ -pseudo-valuation rings," *Advances in commutative ring theory*, *Lecture Notes Pure Appl. Math.* Vol.205(1999), 101-110, Marcel Dekker, New York/Basel.
- (49) 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.
- (50) 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.
- (51) 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.
- (52) 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.

## **8. 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, New York, U. S. A. (2006), ISBN 1-60021-065-1.