## List of Publications

Louis Halle Rowen

## Books - author

1. Polynomial Identities in Ring Theory, Academic Press (Pure and Applied Math. Series), 384 pp., March, 1980.
2. Ring Theory (2 volumes), Academic Press (Pure and Applied Math. Series 127 and 128), 1988. (Revised student edition 1991)
3. Algebra - Groups, Rings, and Fields, 239 pp. AK Peters, 1994.
4. (with A. Belov) Polynomial Identities- A combinatoric approach, 378 pages, AK Peters, 2005. Second edition, renamed Computational Aspects of Polynomial Identities, with Y. Karasik, CRC Press, 2015.
5. Graduate algebra: Commutative view. Graduate Studies in Mathematics, 73. American Mathematical Society, Providence, RI, 2006. xviii+438 pp. ISBN: 0-8218-0570-3
6. Graduate algebra: Noncommutative view. Graduate Studies in Mathematics, 91. American Mathematical Society, Providence, RI, 2008. xxi+648 pp.

## Books - editor

- Ring Theory 1989 (in honor of S.A. Amitsur), IMCP Vol. 1, Weizmann Press, 1989.
- Proceedings of Miskolc Ring Theory Conference (In conjunction with the European Mathematical Union Meeting, 1996), appeared as special issue of the Journal of Pure and Applied Algebra
- (with A. Mann, A. Regev, D. Saltman and L. Small) Collected papers of S.A. Amitsur, Amer. Math. Soc. 2001.
- (with S. Montgomery and H.J. Schneider) Special issue of Comm. in Algebra in honor of Miriam Cohen, 2011.


## Book Reviews

- Polynomial identity rings (book by V. Drensky and E. Formanek) Bull. Amer. Math. Soc. 43 (2006), 259-267.


## Research articles (in refereed publications)

1. Some results on the center of a ring with polynomial identity, Bull. Amer. Math. Soc. 79 (1973), 219-223.
2. On classical quotients of polynomial identity rings with involution, Proc. Amer. Math. Soc. 40 (1973), 23-29.
3. Maximal quotients of semiprime PI-algebras, Trans. Amer. Math. Soc. 196 (1974), 127-135.
4. A subdirect decomposition of semiprime rings and its application to maximal quotient rings, Proc. Amer. Math. Soc. 46 (1974), 176-180.
5. (with J. Fisher), An embedding of semiprime PI-rings, Pacif. Journal of Math. 52 (1974), 369-375.
6. Universal PI-algebras and algebras of generic matrices, Israel J. Mathematics 18 (1974), 65-74.
7. On rings with central polynomials, J. Algebra 31 (1974), 393-426.
8. Standard polynomials in matrix algebras, Trans. Amer. Math. Soc. 196 (1974), 252-283.
9. Structure of rings with involution applied to generalized polynomial identities, Canad. J. Math. 27 (1975), 573-584.
10. Identities in algebras with involution, Israel J. Math. 20 (1975), 70-95.
11. Generalized polynomial identities, J. Algebra 34 (1975), 458-480.
12. Generalized polynomial identities II, J. Algebra 38 (1976), 380-392.
13. Monomial conditions on rings, Israel J. Math. 23 (1976) 19-30.
14. Generalized polynomial identities III, J. Algebra 47 (1977), 305-314.
15. Monomial conditions on prime rings, Israel J. Math. 27 (1977), 131-150. Correction ibid. 30 (1978), 192.
16. Classes of rings torsion free over the center. Pacific Journal of Math. 69 (1977), 527-534.
17. Nonassociative rings satisfying a normal polynomial identity, J. Algebra 49 (1977), 104- 111.
18. The theory of generalized polynomial identities, Proc. Ohio University Ring Theory Conference, Marcel Dekker (1977), 15-61.
19. Central simple algebras with involution, Bull. Amer. Math. Soc. 83 (1977), 1031-1032.
20. A short proof of the Chevalley-Jacobson Density Theorem, MAA Monthly 85 (1978), 185-186.
21. Central simple algebras, Israel J. Math. 29 (1978), 285-301.
22. (with U. Schild) A scalar expression for matrices with symplectic involution, Mathematics of Computation 32 (1978), 607-613.
23. Polynomial identities of nonassociative rings, Ill. Journal Math. 22 (1978), 342-378.
24. Polynomial identities of nonassociative rings II, Ill. Journal Math. 22 (1978), 521-540.
25. Polynomial identities of nonassociative rings III, Ill. Journal Math. 23 (1979), 15-35.
26. (with S.A. Amitsur and J.P. Tignol) Division algebras of degree 4 and 8 with involution, Bull. Amer. Math. Soc. 1 (1979), 133-148.
27. (with S.A. Amitsur and J.P. Tignol) Division algebras of degree 4 and 8 with involution, Israel J. Math 33 (1979), 133-148.
28. Invariant subgroups of rings with involution, Comm. in Alg. 7 (1979), 20072025.
29. Central polynomials for special Jordan rings without nilpotent elements, and an analogue of Kaplansky's theorem, J. Algebra 63 (1980), 41-55.
30. Central simple algebras with involution viewed through centralizers, J. Algebra 63 (1980), 41-55.
31. Division algebra counterexamples of degree 8, Israel J. Math. 38 (1981), 51-57.
32. (with D. Saltman) Dihedral algebras are cyclic, Proc. Amer. Math. Soc. 84 (1982), 162- 164.
33. Cyclic division algebras, Israel J. Math. 41 (1982), 213-234. Correction ibid. 43 (1982), 277-280.
34. A simple proof of Kostant's Theorem, with an analog for the symplectic involution, Contemporary Math. 13 (1982), 207-215.
35. Division algebras of exponent 2 and characteristic 2, J. Algebra 9 (1983), 71-83.
36. (with M. Cohen) Group graded rings, Comm. Alg. 11 (1983), 1253-1270.
37. Brauer factor sets and simple algebras, Trans. Amer. Math. Soc. 282 (1984) 765-772.
38. Finitely presented modules over semiperfect rings, Proc. Amer. Math. Soc. 97(1986), pp.1-7.
39. Finitely presented modules over semiperfect rings satsifying ACC $-\infty$, J. Algebra 107 (1987), pp. 284-291.
40. (with L. Manevitz) Generic structures, Freedom via forcing: Uniform construction of relatively free or generic structures, Springer Lecture Notes in Math. 1987? Primitive ideals, Springer Lecture Notes in Math. 1404 ( M.-P. Malliavin seminar) (1989), 322-345.
41. Examples of semiperfect rings, Israel J. Math. 65 (1989), 273-283. Koethe's conjecture, Israel Mathematics Conference Proceedings vol. 1 (Amitsur Conference Volume) (1989), pp. 193-202.
42. Modules over affine algebras having subexponential growth, J. Algebra 133 (1990), 527-532.
43. Wedderburn's method and algebraic elements of simple Artinian rings, Contemporary Mathematics 124 (1991), 179-202.
44. (with D. Saltman) Prime to p extensions of division algebras, Israel J. of Mathematics 78 (1992), 197-207.
45. Polynomials over Division Rings, and their applications in RING THEORY ( S.K. Jain, S. Tariq Rizi ed.), World Scientific (1993), 287-302.
46. (with S.A. Amitsur) Elements of reduced trace 0, Israel J. of Mathematics 87 (1994), 161-179.
47. (with D. Haile) Factorizations of Polynomials, Algebra Colloquium 2 (1995), 145-156.
48. Azumaya algebras with Involution, Polarizations, Linear Generalized Identities, J. Algebra 178 (1995), 430-443.
49. Left ideals of polynomial rings in several indeterminates, Comm. in Algebra 23 (6)(1995), 2263-2279.
50. Elements in division algebras of degree 3 and 4, Contemporary Math. 184 (1995), 405-410.
51. (with S.K. Jain and S. Lopez) Superfluous Covers, Comm. in Algebra, 23 (6)(1995), 1663-1677.
52. (with J.-P. Tignol) On the decomposition of cyclic division algebras, Israel J. Math 96 (1996), 553-578.
53. (with D. Saltman) Semidirect product division algebras, Israel J. Math 96 (1996), 527-552.
54. (with D. Saltman) Normalized Brauer factor sets, J. Algebra 198 (1997), 446468.
55. (with Small L.) Primitive ideals of algebras, Comm. in Algebra 25 (12) (1997), 3853-3857.
56. (with F. Cedo) Examples of Semiperfect Rings II (addendum), Israel J. Math. 107 (1998), 343-348.
57. (with Y. Segev) The finite quotients of the multiplicative group of a division algebra of degree 3 are solvable, Israel J. Math (1999), 111 (1999), 373-380.
58. Are p-Algebras having cyclic quadratic extensions necessarily cyclic?, J. Algebra 215 (1999), 215-228.
59. (with A. Berele) T-ideals and superAzumaya algebras, J. Algebra 212 (1999), 703-720.
60. (with Y. Segev) The multiplicative group of a division algebra of degree 5, and Wedderburn's Theorem, Contemporary Math. (2000), 145-156. Division algebras over $C_{2}$ and $C_{3}$-fields, Proc. Amer. Math. Soc. 130 (2001), 16071610.
61. (with D. Haile) Weakly Azumaya algebras, J. Algebra 250 (2002), 134-177.
62. (with I. Kantor) Ring-theoretic Properties of Algebras of Invariants, J. Algebra 266 (2003), 239-260.
63. (with M. Lorenz, Z. Reichstein, and D. Saltman) The field of definition of a division algebra, J. London Math. Soc. 68 no. 3 (2003), 651-679.
64. (with B. Kunyavski, V. Yanchevskii, and Tikhonov S), Division algebras over $P_{2}$ that ramify only on a quartic curve, Proc. Amer. Math. Soc. 134 (2006), 921-929.
65. (with B. Kunyavski, V. Yanchevskii, and Tikhonov S) Bicyclic algebras of prime exponent over function fields, Trans. Amer. Math. Soc. 358 (2006), 2579-2610.
66. (with A.S. Sivatski and J.-P. Tignol) Division algebras over rational function fields in one variable, Algebra and Number Theory, Hindustan Book Agency, Delhi (2005), 158-180.
67. (with Rapinchuk A. and Segev Y.) Nonabelian free subgroups in homomorphic images of valued quaternion division algebras, Proc. Amer. Math. Soc. 134 (2006), 3107-3114
68. (with Segev Y.) Normal subgroups generated by a single pure element in quaternion algebras. J. Algebra 305 (2006), no. 1, 130-145.
69. (with A. Belov and U. Vishne) Normal bases of PI-algebras. Adv. in Appl. Math. 37 (2006), no. 3, 378-389.
70. (with I. Kantor) The Peirce decomposition for generalized Jordan triple systems of finite order. J. Algebra 310 (2007), no. 2, 829-857.
71. (with Z. Izhakian) The tropical rank of a tropical matrix. Comm. Algebra 37 (2009), no. 11, 3912-3927.
72. (with Z. Izhakian) A guide to supertropical algebra, Advances in Ring Theory, Dinh van Huynh and Sergio R. López-Permouth (eds.), Trends in Mathematics, Birkhäuser, 283-302, 2010.
73. (with D. Saltman, Y. Segev, and U. Vishne) An Azumaya algebra version of the Kneser-Tits problem for groups of type ${ }^{3,6} D_{4}$, Comm. in Algebra.
74. (with A. Belov and U. Vishne) Structure of Zariski-closed algebras. Trans. Amer. Math. Soc. 362 (2010), no. 9, 4695-4734.
75. (with Z. Izhakian) Supertropical algebra, Adv. in Math 225 (2010), 2222-2286.
76. (with Z. Izhakian) Supertropical matrix algebra, Israel J. Math. 182 (2011), 383-424.
77. (with Z. Izhakian) Supertropical polynomials and resultants, J. Algebra 324 (2010), no. 8, 1860-1886.
78. (with Z. Izhakian) Completions, reversals, and duality for tropical varieties, J. Algebra Appl. 10 (2011), no. 6, 1141-1163.
79. (with Izhakian, Z. and Knebusch, M.) A glimpse at supertropical valuation theory. Analele Stiintifice ale Universitatii Ovidius Constanta, Ser. Mat. 19 (2011), no. 2, 131-142.
80. (with Z. Izhakian) Supertropical matrix algebra II: Solving tropical equations, Israel Journal of Mathematics, 186(1):69-97, 2011.
81. (with Izhakian, Z. and Knebusch, M.) Supertropical semirings and supervaluations. J. Pure Appl. Algebra 215 (2011), no. 10, 2431-2463.
82. (with Z. Izhakian) Supertropical matrix algebra III: Powers of matrices and their supertropical eigenvalues, Journal of Algebra, 341(1):125-149, 2011.
83. (with A. Belov and U. Vishne) Application of full quivers of representations of algebras to polynomial identities. Commun. Algebra 39 (2011), no. 12, 4536-4551.
84. (with A. Belov and U. Vishne) Full quivers of representations of algebras, Trans. Amer. Math. Soc. (2013), 2681-2722.
85. (with E. Matzri and U. Vishne) Non-cyclic algebras with $n$-central elements. Proc. Amer. Math. Soc. 140 (2012), no. 2, 513-518.
86. (with A. Kanel-Belov and S. Malev) The images of non-commutative polynomials evaluated on $2 \times 2$ matrices. Proc. Amer. Math. Soc. 140 (2012), no. 2, 465-47.
87. (with A. Belov and U. Vishne) PI-varieties associated to full quivers of representations of algebras, Trans. Amer. Math. Soc. 365 (2013), no. 5, 2681-2722.
88. (with Belov-Kanel, A., L. Rowen, U. Vishne) Full exposition of Specht's problem, Serdica Mathematical Journal Volume 38 (3), (2012), pp. 313-370.
89. (with Izhakian, Z. and Knebusch, M.) Dual spaces and bilinear forms in supertropical linear algebra. Linear Multilinear Algebra 60 no. 7 (2012), 865883.
90. (with Izhakian, Z. and Knebusch, M.) Supertropical monoids: basics and canonical factorization. J. Pure Appl. Algebra 217 (2013), 2135-2162.
91. (with Belov-Kanel, A. and Vishne, U.) PI-varieties associated to full quivers of representations of algebras. Trans. Amer. Math. Soc. 365 (2013), no. 5, 2681-2722.
92. (with Izhakian, Z.) Ideals of polynomial semirings in tropical mathematics. J. Algebra Appl. 12 no. 2 (2013), 125-143.
93. (with Saltman, D.) Simultaneous embeddings of finite dimensional division algebras. Proc. Amer. Math. Soc. 141 (2013), no. 3, 737-744.
94. (with Saltman, D.) Tensor Products of Division Algebras and Fields, J. Algebra 394 (2013), 296-309.
95. (with Izhakian, Z. and Knebusch, M.). Categorical notions of layered tropical algebra and geometry, Algebraic and combinatorial aspects of tropical geometry, Contemp. Math., 589, Amer. Math. Soc. (2013), 191-234.
96. (with Z. Izhakian and M. Knebusch) Supertropical linear algebra, Pacific J. Math. 266 (2013) no. 1, 43-75.
97. (with Z. Izhakian and M. Knebusch) Dominance and transmissions in supertropical valuation theory, Comm. Algebra 41 no. 7 (2013), 2736-2782.
98. (with Z. Izhakian and M. Knebusch) Layered tropical mathematics, J. Algebra 416 (2014), 200-273.
99. (with A. Belov, L. Bokut, and J.T. Yu) The Jacobian Conjecture, together with Specht and Burnside-type problems Proc. Groups of Automorphisms in Birational and Affine Geometry, editors M.Zaidenberg, M. Rich, and M. Reizakis, Springer (2014), 249-286.
100. (with A. Belov-Kanel, A. Giambruno, and U. Vishne), Zariski closed algebras in varieties of universal algebra, J. Algebra and Representation Theory 17 (2014), no. 6, 1771-1783.
101. (with Izhakian, Z. and Knebusch, M.) Algebraic structures of tropical mathematics, in Tropical and Idempotent Mathematics and Applications, G.L. Litvinov and S.N.Sergeev, editors, Cont. Math. 616(28)(2014), 125-150.
102. Monoid valuations and value ordered supervaluations (with M. Knebusch), Commun. in Algebra, 43(8):3207-3248 (2015).
103. (with, A. Kanel-Belov and U. Vishne ) Specht's problem for associative affine algebras over commutative Noetherian rings, Trans. Amer. Math. Soc. 367 (2015), 5553-5596.
104. (with Izhakian, Z. and Knebusch, M.), Categories of layered semirings, Commun. in Algebra 43(5) (2015), 1807-1836.
105. (with L. Small) Representability of algebras finite over their centers, J. Algebra 442 (2015), 506-524.
106. (with Izhakian, Z. and Knebusch, M.) Supertropical quadratic forms I, J. Pure Appl. Algebra 220, no. 1 (2016), 61-93.
107. (with A. Kanel-Belov and S. Malev) The images of multilinear polynomials evaluated on $3 \times 3$ matrices, Proc. Amer. Math. Soc. 144 (2016), no. 1, 7-19.
108. (with B. Greenfeld and U. Vishne) Unions of Chains of Primes, J. Pure Appl. Algebra 220 (2016), no. 4, 1451-1461.
109. (with Z. Izhakian) Congruences and coordinate semirings of tropical varieties. Bull. Sci. Math. 140 no. 3(2016), 231-259.
110. (with A. Kanel-Belov and S. Malev) Power-central polynomials on matrices, arXiv:1310.1598, J. Pure Appl. Algebra 220 (2016), no. 6, 2164-2176.
111. (with A. Chapman, D.J. Grynkiewicz, E. Matzri, and U. Vishne) Kummer Spaces in Cyclic Algebras of Prime Degree, J. Pure Appl. Algebra 220 (2016), no. 10, 3363-3371.
112. (with Z. Izhakian and M.Knebusch) Minimal orderings and quadratic forms on a free module over a supertropical semiring, Linear Algebra Appl. 507 (2016), 420-461.
113. (with A. Kanel-Belov and S. Malev) The images of Lie polynomials evaluated on $2 \times 2$ matrices over an algebraically closed field, Comm. Algebra 45 (2017), no. 11, 48014808.
114. (with Adi Niv) Dependence of Tropical Eigenspaces, Comm. Algebra 45 (2017), no. 3, 924-942.
115. (with E. Matzri, D.J. Saltman, U. Vishne) Bimodule structure of central simple algebras. J. Algebra 471 (2017), 454-479.
116. (with Y. Segev) Associative and Jordan algebras generated by two idempotents, Algebras and Representation Theory 20(6) (2017), 1495-1504.
117. (with S. Lopez) Distributive hierarchies of binary operations, Contemporary Mathematics Volume 715 (2018), 225-242.
118. (with Izhakian, Z. and Knebusch, M.) Supertropical quadratic forms II: Tropical trigonometry and applications, Internat. J. Algebra Comput. 28 (2018), no. $8,16331676$.
119. (with T. Perri) Kernels in tropical geometry and a Jordan-Ho"lder Theorem, J. Algebra Applications to appear (2018), arXiv:1405.0115 (2014).
120. (with Izhakian, Z. and Knebusch, M.) Supertropical quadratic and symmetric bilinear forms on modules with unique base over a semiring, Documenta Mathematica, 21:773-808, 2016.
121. (with Izhakian, Z. and Knebusch, M.) Decompositions of Modules lacking zero sums, Israel J. Math., 225(2), 503-524, (2018).
122. (with Z. Izhakian and M. Knebusch) Supertropical Quadratic Forms II: Tropical trigonometry and applications, International Journal of Algebra and Computation, 28(08):1633-1675, 2018.
123. (with Z. Izhakian and A. Niv) Supertropical SL, Linear and Multilinear Algebra 66(7):1461-1483, 2018.
124. (with A. Belov, A. Yakovlevich, and J.T. Yu), The Jacobian conjecture for the free associative algebra (of arbitrary characteristic). (English) Chebyshevski Sb. 20, No. 3(71), 390-393 (2019).
125. (with Z. Izhakian and M. Knebusch) Summand absorbing submodules of a module over a semiring, J. Pure Appl. Algebra 223 (2019), 3262-3294.
126. An informal overview of triples and systems, arXiv 1709.03174 (2017), NCRA V, Contemporary Mathematics Volume 727, Amer. Math. Soc., Providence, RI (2019), pp. 317335.
127. (with J. Jun) Categories with negation, in Categorical, Homological and Combinatorial Methods in Algebra? (AMS Special Session in honor of S.K. Jain's 80th birthday), Contemporary Mathematics 751 (2020), 221-270.
128. (with D. Haile and J.P. Tignol, On quaternion algebras split by a given extension, Clifford algebras, and hyperelliptic curves, Algebras and Representation Theory 23 (2020), 18071826.
129. (with G. Blachar and U. Vishne) Noncommutative inclusion-exclusion, representations of left regular bands and the Tsetlin library, International Journal of Algebra and Computation Vol. 31, No. 01, pp. 37-62 (2021).
130. (with G. Blachar, E. Matzrie, and U. Vishne) l-Weak identities and central polynomials for matrices, Onofrio PI Proceedings INDAM 44, Springer, 69-96 (2021).
131. (with L. Gatto), Grassmann semialgebras and the Cayley-Hamilton theorem, Proceedings of the American Mathematical Society, series B Volume 7, Pages 183-201 (2020) arXiv:1803.08093v1.
132. (with A. Kanel-Belov, S. Malev, R. Yavich) Evaluations of noncommutative polynomials on algebras: Methods and problems, and the L'vov-Kaplansky Conjecture, SIGMA Symmetry Integrability Geom. Methods Appl. 16 (2020), Paper No. 071, 61 pp.
133. (with J. Jun and K. Mincheva), Projective module systems, Journal of Pure and Applied Algebra 224 (5), (2020), 106-243.
134. (with J. Jun and K. Mincheva), Homology of systemic modules, Manuscripta Mathematica, (2021), 1-52.
135. (with A. Niv and S. Sergeev) Tropical elementary matrices and systemically prime matrices, NCRA, VI. ed. Leroy 31 January 2020.
136. (with D. Krashen, E. Matzri, A. Rapinchuk, D. Saltman) Division Algebras with common subfields, Manuscripta Mathematica, 10.1007/s00229-021-01315-5 (2021).
137. (with Y. Segev) Axes of Jordan type in non-commutative algebras, Journal of Algebra and Applications (2021) arXiv:2011.11702.
138. Algebras with a negation map, European Journal of Mathematics, 1-77 DOI 10.1007/s40879-021-00499-0 (2021).
139. (with Y. Segev) Axes in non-associative algebras, http://arXiv.org/abs/2109.00941 Turkish Journal of Mathematics (2021).
140. (with A. Chapman and L. Gatto) Clifford semialgebras, Rendiconti del Circolo Matematico di Palermo Series 2 https://doi.org/10.1007/s12215-022-00719-w (2022).
141. (with G. Blachar, and U. Vishne) Identities of the algebra $O \otimes O$, Contemp. Math.

## Submitted for publication

- (with A. Kanel-Belov and U. Vishne) Representability of affine algebras over an arbitrary field, arXiv 1805.04450.
- (with Y. Segev) Primitive axial algebras are of Jordan type, preprint (2021).
- (with Y. Segev) Structure of primitive axial algebras, preprint (2022).
- (with J. Jun and K. Mincheva), $\mathcal{T}$-semiring pairs, volume in honour of Prof. Martin Gavalec arXiv:submit/4190069 (2022)
- (with B. Greenfeld and L. Small) Optimal representability results for PIalgebras
- (with A. Kanel-Belov, S. Malev, C. Pines) The images of multilinear and semihomogeneous polynomials on the algebra of octonions https://arxiv.org/abs/2204.07139


## Registered in arXiv but not yet submitted for publication

- (with M. Akian and S. Gaubert) Examples of systems,
- (with A. Kanel-Belov) The Braun-Kemer-Razmyslov Theorem for affine PIalgebras arXiv:1405.0730 (2014), 37 pages.
- (with A. Kanel-Belov and U. Vishne ) Specht's problem for associative affine algebras with involution over commutative Noetherian rings.
- Hypergroups in universal algebra, arXiv 1604.03415.
- (with L. Small) Hopfian and Bassian algebras, arXiv 1711.06483.
- Morita theory of systems, arXiv 1903.02412


## Review articles

- (with A. Kanel-Belov) PI-Algebras, in book: The Concise Handbook of Algebra, ed. Mikhalev, A. Vasilevich, P. Gunter, Kluwer Academic Pub (2002) 284-288
- (with A. Kanel-Belov) Perspectives on Shirshov's Height Theorem, in book: Selected papers of A.I. Shirshov, Birkhüser Verlag AG (2009), 3-20.

