

Selected Publications:

96. Irene Sciriha*, Bableen Kaur, James L. Borg and Mark Debono. Potential counter-examples to a conjecture on the column space of the adjacency matrix. *Special Matrices* 2025; 13: 20250033, De Gruyter, 2025. <https://doi.org/10.1515/spma-2025-0033>
95. T. Calamoneri, R. Petreschi, I. Sciriha and V. Zverovich. Matrogenic, Matroidal and Threshold Graphs Chapter 3 in Dr Vadim Zverovich and Dr Pavel Skums, Eds. "Methods of Graph Decompositions", Chapter 3, 83–131. Academic Oxford University Press. 2025. Book in memory of Regina TYSHKEVICH (1929-2019). ISBN: 9780198882091
94. I. Sciriha. Ballistic Conduction of Carbon Molecules, Chapter 28 in Klavs Hansen and Anibal Garcia, Eds. "Roadmap on carbon molecular nanostructures in space", The European Physical Journal D. 119-125, 2025. manuscript number: EPJD-D-24-00346R2.
93. I. Sciriha, Connected sum of graphs as molecular electronic devices , Art Discrete Appl. Math. (2024), doi:10.26493/2590-9770.1522.8ca
<https://adam-journal.eu/index.php/ADAM/article/view/1522>
92. I. Sciriha and J. L. Borg. Reconstruction from one labelled card and more. *Linear Algebra and its Applications*. 693, 271–287, 2024. <https://doi.org/10.1016/j.laa.2023.08.009> 91.
91. I. Sciriha and Z. Stanić. The polynomial reconstruction problem: The first 50 years. *Discrete Mathematics*, 346(6), 113349, 1-15, 2023.
90. I. Sciriha and L. Collins. The walks and CDC of graphs with the same main eigenspace. *Discussiones Mathematicae Graph Theory*, 43(2):507-532, 2023.
89. I. Sciriha. The fibre-sum of graphs. The Art of Discrete and Applied Mathematics-ADAM, in the press, 2023.
88. T. Pisanski N. Basić, P. W. Fowler and I. Sciriha. On singular signed graphs with nullspace spanned by a full vector: signed nut graphs. *Discussiones Mathematicae Graph Theory*, 42:1351-1382, 2022.
87. I. Sciriha. Joining forces for reconstruction inverse problems. *Symmetry*, MDPI, 13(9), 2021. <https://doi.org/>
86. I. Sciriha and A. Farrugia. Book; From Nut Graphs to Molecular Structure and Conductivity. Mathematical Chemistry Monographs, University of Kragujevac, 2021.
85. J. B. Gauci, T. Pisanski, and I. Sciriha. Existence of regular nut graphs and the Fowler construction. *Applicable Analysis and Discrete Mathematics*, Accepted 2020.
84. J. Briffa and I. Sciriha. On the displacement of eigenvalues when removing a twin vertex. *Discussiones Mathematicae. Graph Theory*, 402:435-450, 2020.
83. I. Sciriha, X. Mifsud, and J.L. Borg. Nullspace vertex partition in graphs. *J. Comb*, 42:310-326, 2020.
82. L. Mitchell and I. Sciriha. A reduction procedure for the Colin de Verdière number of a graph. *Linear Algebra and its Applications*, 596:36-48, 2020.
81. P.W. Fowler, J.B. Gauci, J. Goedgebeur, T. Pisanski, and I. Sciriha. Existence of regular nut graphs for degree at most 11. *Discussiones Mathematicae Graph Theory* 40:533–557, 2020. doi:10.7151/dmgt.2283
80. I. Sciriha and L. Collins. Two-graphs and NSSDs: An algebraic approach. *Discrete Applied Mathematics*, 266:92-102, 2019. The Second Malta Conference in Graph Theory and Combinatorics 2MCGTC2017.
79. Irene Sciriha, Didar A. Ali, John Baptist Gauci and Khidir R. Sharaf. The conductivity of superimposed key-graphs with a common one-dimensional adjacency nullspace. *Ars Mathematica Contemporanea (AMC)*, 16(1):141-155, 2019.
78. P.W. Fowler, M. Borg, B.T. Pickup, and I. Sciriha. Molecular graphs and molecular conduction: the d -omni-conductors. *Phys. Chem. Chem. Phys.*, 22(3):1349-1358, 2019.

77. I. Sciriha, J. Briffa, and M. Debono. Fast algorithms for indices of nested split graphs approximating real complex networks. *Discrete Applied Mathematics*, 247:152-164, 2018.
76. P.W. Fowler, B.T. Pickup, and I. Sciriha. Spectra and structural polynomials of graphs of relevance to the theory of molecular conduction. *Ars Mathematica Contemporanea*, 13:379-408, 2017.
75. A. Farrugia and I. Sciriha. Triangles in inverse NSSD graphs. *Linear and Multilinear Algebra*, 2017.
74. P.W. Fowler, I. Sciriha, M. Borg, V.E. Seville, and B.T. Pickup. Near omni-conductors and insulators: Alternant hydrocarbons in the SSP model of ballistic conduction. *The Journal of Chemical Physics*, 147(16), 2017.
73. A. Farrugia, J.B. Gauci, and I. Sciriha. Complete graphs with zero diagonal inverse. *ARS Mathematica Contemporanea*, 11(2):231-245, 2016.
72. B.T. Pickup, P.W. Fowler, and I. Sciriha. A Hückel source-sink-potential theory of Pauli spin blockade in molecular electronic devices. *The Journal of Chemical Physics*, 145:204113, 2016.
71. A. Farrugia, J.B. Gauci, and I. Sciriha. Non-singular graphs with a singular deck. *Discrete Applied Mathematics*, 202:50-57, 2016.
70. I. Sciriha and A. Farrugia. No chemical graph on more than two vertices is nuciferous. *Ars Mathematica Contemporanea*, (Mathematical Chemistry Issue - In Memory of Ante Graovac), 11(2):397-402, 2016.
69. D.A. Ali, J.B. Gauci, I. Sciriha, and K.R. Sharaf. Nullity of a graph with a cut-edge. *MATCH Commun. Math. Comput. Chem.*, 76(3):771-791, 2016.
68. D.A. Ali, J.B. Gauci, I. Sciriha, and K.R. Sharaf. Coalescing Fiedler and core vertices. *Czechoslovak Mathematical Journal*, 66(141):971-985, 2016.
67. I. Gutman, B. Furtula, A. Farrugia, and I. Sciriha. Constructing NSSD molecular graphs. *Croatica Chemica Acta*, 89(4):449-454, 2016.
66. A. Farrugia, J.B. Gauci, and I. Sciriha. Complete graphs with zero diagonal inverse. *Ars Mathematica Contemporanea*, (Mathematical Chemistry Issue - In Memory of Ante Graovac), 11-2(2):231-245, 2016.
65. F. Belardo, I. Sciriha, and S. K. Simić. On eigenspaces of some compound signed graphs. *Linear Algebra and its Applications*, 509(2):19-39, 2016.
64. B. T. Pickup, P. W. Fowler, M. Borg, and I. Sciriha. A new approach to the method of source-sink potentials for molecular conduction. *The Journal of Chemical Physics*, 143(194105):1-20, 2015.
63. K. Meagher and I. Sciriha. Graphs that have a weighted adjacency matrix with spectrum $\{\lambda^{(n-2)}, \lambda^2\}$ arXiv:1504.04178, 2015.
62. A. Farrugia and I. Sciriha. On the main eigenvalues of universal adjacency matrices and U-controllable graphs. *Electronic Journal of Linear Algebra*, 30:812-826, 2015.
61. P.W. Fowler, B.T. Pickup, T.Z. Todorova, M. Borg, and I. Sciriha. Omni-conducting and omni-insulating molecules. *The Journal of Chemical Physics*, 140(5), 2014.
60. M. Debono, J. Lauri, and I. Sciriha. Balanced centrality of networks. *ISRN Discrete Mathematics International Scholarly Research Notices*, 871038:18, 2014.
59. A. Farrugia and I. Sciriha. Controllability of undirected graphs. *Linear Algebra and its Applications (LAA)*, 454:138-157, 2014.
58. I. Sciriha, A. Farrugia, and J.B. Gauci. The adjacency matrices of complete and nutful graphs. *Communications in mathematical and computer chemistry*, MATCH, 72:165-178, 2014.

57. A. Farrugia, J.B. Gauci, and I. Sciriha. On the inverse of the adjacency matrix of a graph. Special Matrices, Versita, De Gruyters, pages 28-41, 2013.
56. A. Farrugia and I. Sciriha. The main eigenvalues and number of walks in self-complementary graphs. Linear and Multilinear Algebra, 62(10):1346-1360, 2013.
55. J. Coates, J. Lauri, and I. Sciriha. Polynomial reconstruction for certain subclasses of disconnected graphs. Graph Theory Notes of New York, LXIII(5):41-48, 2013.
54. P.W. Fowler, B. T. Pickup, T.Z. Todorova, R. De Los Reyes, and I. Sciriha. Omni-conducting fullerenes (editor's choice). Chemical Physics Letters, 568/569:33-35, 2013.
53. I. Sciriha, M. Debano, M. Borg, P.W. Fowler, and B.T. Pickup. Interlacing-extremal graphs. Ars Math. Contemp., 6(2):261-278, 2013.
52. I. Sciriha and S.K. Simić. On eigenspaces of some compound graphs, in *Recent results in design and graphs*, eds. M. Buratti et al. Quaderni di Matematica (QM), pages 401-418, 2013.
51. I. Sciriha and D. M. Cardoso. Necessary and sufficient conditions for a Hamiltonian graph. J. Combin. Math. Combin. Comput., 80:127-150, 2012.
50. I. Sciriha and C.M. da Fonseca. On the rank spread of graphs. Linear and Multilinear Algebra (LAMA), 60(1):73-92, 2012.
49. J. Coates, J. Lauri, and I. Sciriha. Polynomial reconstruction for certain subclasses of Disconnected graphs. Graph Theory Notes of New York, LXIII 42-49, 2012.
48. I. Sciriha. Maximal and extremal singular graphs II. Journal of Mathematical Sciences Springer (JMS), 182-2:117-125, 2012.
47. I. Sciriha and S. Farrugia. On the spectrum of threshold graphs. ISRN Discrete Mathematics International Scholarly Journal, 108509:21, 2011.
46. I. Sciriha. Maximal and extremal singular graphs I. Sovremennaya Matematika i Ee Prilozheniya-Contemporary Mathematics and its Applications, 71:1-9, 2011.
45. D. M. Cardoso, I. Sciriha, and C. Zerafa. Main eigenvalues and $(\kappa; \tau)$ -regular sets. Linear Algebra Appl., 432(9):2399-2408, 2010.
44. I. Sciriha. Extremal non-bonding orbitals. MATCH Commun. Math. Comput. Chem. (Impact factor 3.5) <http://www.pmf.kg.ac.rs/match/>, 63(3):751-768, 2010.
43. I. Sciriha. Maximal core size in singular graphs. Ars Math. Contemp., 2(2):217-229, 2009.
42. I. Sciriha. Graphs with a common eigenvalue deck. Linear Algebra Appl., 430(1):78-85, 2009.
41. I. Sciriha et al; AIM Minimum Rank-Special Graphs Work Group. Zero forcing sets and the minimum rank of graphs. Linear Algebra and Appl. (LAA), 428:1628-1648, 2008.
40. I. Sciriha. "Lisbon" and Gender Gaps in Employment. EU Comm., 2008.
39. I. Sciriha. Coalesced and embedded nut graphs in singular graphs. Ars Math. Contemp., 1(1):20-31, 2008.
38. I. Sciriha. Growing Larger Nut Fullerenes (POSTER). Dubrovnik, Croatia, June 16-21, 2008.
37. I. Sciriha and P. W. Fowler. On nut and core singular fullerenes. Discrete Math., 308(2-3):267-276, 2008.
36. I. Sciriha and P. W. Fowler. Nonbonding orbitals in fullerenes - nuts and cores in singular polyhedral graphs. J. Chem. Inf. Model. (JCIM) OptImp= (Impact factor 8.09), 47(5):1763-1775, 2007.
35. I. Sciriha. A characterization of singular graphs. Electron. J. Linear Algebra, 16:451-462 (electronic), 2007.
34. P. Rowlinson and I. Sciriha. Some properties of the Hoffman-Singleton graph. Appl. Anal. Discrete Math., 1(2):438-445, 2007.

33. I. Sciriha. Repeated eigenvalues of the line graph of a tree and of its deck. *Util. Math.*, 71:33-55, 2006.
32. M.C. Marino, I. Sciriha, S.K. Simić, and D.V. Tošić. More about singular line graphs of trees. *Publ. Inst. Math. (Beograd) (N.S.)*, 79(93):1-12, 2006.
31. I. Sciriha and I. Gutman. Minimal configuration trees. *Linear Multilinear Algebra*, 54(2):141-145, 2006.
30. I. Sciriha and I. Gutman. Minimal configurations and interlacing. *Graph Theory Notes N.Y.*, 49:38-40, 2005.
29. I. Sciriha and P. W. Fowler. Zooming in on fullerenes. *Xjenza*, 2:8-10, 2005.
28. S. Fiorini, I. Gutman, and I. Sciriha. Trees with maximum nullity. *Linear Algebra Appl.*, 397:245-251, 2005.
27. E.M.L. Marzi and I. Sciriha. The Boolean power sequence of graphs. *Graph Theory Notes N.Y.*, 46:20-26, 2004.
26. I. Sciriha and P.W. Fowler. A spectral view of fullerenes. *Math. Balkanica (N.S.)*, 18(1-2):183-192, 2004.
25. I. Sciriha. Recent results in algebraic graph theory. *International Congress MASSEE 2003 Borovets Bulgaria*, 16:451-462, 2003.
24. I. Sciriha. The cradle of thought for effective policy-making. *University of Malta*, pages 33-37, 2003.
23. I. Sciriha. The challenges that european research imposes on female scientists in gender equality. FP6, J.Sikora and C.Wehele eds., EUBro, Federal Ministry of Education and Research (BMBF) Germany, pages 33-37, 2003.
22. I. Sciriha and M.J. Formosa. On polynomial reconstruction of disconnected graphs. *Util. Math.*, 64:33-44, 2003.
21. I. Sciriha. Polynomial Reconstruction. University of Sofia, 2003.
20. I. Sciriha. Polynomial reconstruction and graphs with a singular deck. *The Cyprus Journal of Sciences*, 1, 2002.
19. I. Sciriha. Polynomial reconstruction and terminal vertices. *Linear Algebra Appl.*, 356:145-156, 2002. Special issue on algebraic graph theory (Edinburgh, 2001).
18. I. Sciriha. Polynomial reconstruction: old and new techniques. *Rend. Sem. Mat. Messina Ser. II*, 8(24)(suppl.):163-179, 2002. 6th Workshop on Combinatorics (Messina, 2002).
17. I. Sciriha and M.C. Marino. On the adjacency matrix and the colouring of graphs. *Congr. Numer.*, 148:43-63, 2001.
16. I. Sciriha. Coronas are polynomial reconstructible. In *Proceedings of the Tenth General Meeting of European Women in Mathematics*, Lon, 2001), volume 148, page 300. World Scientific, Imperial College Press (UK), 2001.
15. I. Sciriha and I. Gutman. On the nullity of line graphs of trees. *Discrete Mathematics*, 232:35-45, 2001.
14. I. Sciriha. An algorithm to analyse the polynomial deck of the line graph of a triangle-free graph. *Journal of Combinatorial Mathematics and Combinatorial Computing*, 35:97-105, 2000.
13. I. Sciriha. The two classes of singular line graphs of trees. *Rend. Sem. Mat. Messina Ser. II*, 5(5 Supplemento):167-180, 2000. 5th Workshop on Combinatorics (Messina, 2000).
12. I. Sciriha and I. Gutman. Spectral properties of windmills. *Graph Theory Notes of New York*, 38:20-24, 2000.
11. I. Sciriha. On the rank of graphs. In *Graph Theory and Algorithms II* in ed Y.Alavi, D.R.Lick and A.Schwenk, Michigan,1999), volume II, pages 769-778. Springer-Verlag:Berlin, 1999.

10. I. Sciriha. On some aspects of graph spectra. PhD thesis, University of Reading, U.K., November 1998.
9. I. Sciriha. On singular line graphs of trees. *Congr. Numer.*, 135:73-91, 1998.
8. I. Sciriha and I. Gutman. Nut graphs: maximally extending cores. *Util. Math.*, 54:257-272, 1998.
7. I. Sciriha. The characteristic polynomials of windmills with an application to the line graphs of trees. *Graph Theory Notes of New York*, 35(3):16-21, 1998.
6. I. Sciriha. On the construction of graphs of nullity one. *Discrete Math.*, 181(1-3):193-211, 1998.
5. I. Sciriha. On the coefficient of λ in the characteristic polynomial of singular graphs. *Util. Math.*, 52:97-111, 1997.
4. I. Sciriha and S. Fiorini. On the characteristic polynomial of homeomorphic images of a graph. *Discrete Math.*, 174(1-3):293-308, 1997. Combinatorics (Rome and Montesilvano, 1994).
3. I. Gutman and I. Sciriha. Graphs with maximum singularity. *Graph Theory Notes N.Y.*, 30:17-20, 1996. New York Graph Theory Day, 30 (Madison, NJ, 1995).
2. I. Sciriha, S. Fiorini, and J. Lauri. Minimal basis for a vector space with an application to singular graphs. *Graph Theory Notes N.Y.*, 31:21-24, 1996. New York Graph Theory Day, 31 (1996).
1. I. Sciriha. Graphs and their Spectra. *Xjenza*, 1(1):21-23, 1996.