Publications and Scholarly Work

Research interests: Structural graph theory with emphasis on (i) distance notions in graphs including graph convexity and the metric dimension in graphs, (ii) graph connectivity, (iii) local structure versus global structure, including Ryjacek’s conjecture, Saito’s conjecture and Oberly-Sumner’s conjectures and (iv) the path partition conjecture.

Articles Submitted for Publication in Peer Reviewed Journals:
* indicates work with a student or a post-doctoral fellow.

1. Comparing the metric and strong dimensions of graphs
   G. Moravcik*, O.R. Oellermann and S. Yusim*

Articles Accepted for Publication in Peer Reviewed Journals:

1. Global cycle properties in graphs with large minimum clustering coefficient.
   A. Borchert*, S. Nicol* and O.R. Oellermann
   arXiv 1506.03691 (Accepted for publication in Quaestiones Mathematicae)

Peer Reviewed Journal Publications:

1. Global cycle properties in locally connected, locally traceable, and locally Hamiltonian graphs
   S. van Aardt, M. Frick, O.R. Oellermann and J. de Wet

2. Global cycle properties in locally isometric graphs
   A. Borchert*, S. Nicol* and O.R. Oellermann

   P. Lafrance*, O.R. Oellermann and T. Pressey*

4. On the simultaneous metric dimension of graph families.
   O.R. Oellermann, Y. Ramirez-Cruz and J.A. Rodriguez-Velazquez.

5. On the spectrum and number of convex sets in graphs.
   J.I. Brown and O.R. Oellermann

6. Reconstructing graphs from digitally convex sets.
   P. Lafrance*, O.R. Oellermann and T. Pressey*

7. On the strong metric dimension of Cartesian and direct product graphs.

   S. van Aardt, J. Dunbar, M. Frick, M. Nielsen* and O.R. Oellermann
   O.R. Oellermann

10. Graphs with a minimal number of convex sets.
    J.I. Brown and O.R. Oellermann

11. Local 3-monophonic convexity.
    M. Nielsen* and O.R. Oellermann

12. Separation properties for 3-Steiner and 3-monophonic convexity in graphs.
    M. Nielsen* and O.R. Oellermann

13. Induced trees and monophonic convexity.
    (J. Caceres, O.R. Oellermann and M.L. Puertas)

    S. van Aardt, F. Bulloch, P. Dankelmann, M. Frick, M.A. Henning and O.R. Oellermann
    Electronic J. Combinatorics 18 (2011) # P63

15. Helly Theorems for 3-Steiner and 3-Monophonic Convexity in Graphs.
    M. Nielsen* and O.R. Oellermann

16. The strong dimension of distance hereditary graphs.
    T. May* and O.R. Oellermann

17. Traceability of k-traceable Oriented Graphs.
    S. van Aardt, J. Dunbar, M. Frick, P. Katrenic, M. Nielsen* and O.R. Oellermann

18. Steiner intervals in strongly chordal graphs.
    O.R. Oellermann and S. Phillips

19. Local Steiner convexity
    M.A. Henning, M. Nielsen* and O.R. Oellermann

20. Steiner trees and convex geometries.
    M. Nielsen* and O.R. Oellermann

    S.A. van Aardt, J. Dunbar, M. Frick and O.R. Oellermann
22. On 3-Steiner simplicial orderings of graphs.
J. Caceres and O.R. Oellermann

23. Geodetic and Steiner geodetic sets in 3-Steiner distance hereditary graphs.
L. Eroh and O.R. Oellermann

S. van Aardt, J. Dunbar, M. Frick, M. Nielsen* and O.R. Oellermann

25. Steiner intervals and Steiner geodetic numbers in distance hereditary graphs.
O.R. Oellermann and M.L. Puertas

26. The strong metric dimension of graphs and digraphs.
O.R. Oellermann and J. Peters-Fransen*

27. The metric dimension of Cayley digraphs.
M. Fehr*, S. Gosselin* and O.R. Oellermann

28. The partition dimension of Cayley digraphs.
M. Fehr*, S. Gosselin* and O.R. Oellermann

29. The metric dimension of Cartesian products of graphs.
O.R. Oellermann and J. Peters-Fransen*

30. The metric dimension of Cayley digraphs of abelian groups.
O.R. Oellermann, C. Pawluck and A. Stokke

31. Degree sequences of optimally edge-connected graphs.
P. Dankelmann and O.R. Oellermann

32. Rebuilding convex sets in graphs.
J. Caceres, A. Marquez, O.R. Oellermann and M.L. Puertas

33. The directed path partition conjecture.
M. Frick, S. van Aardt, G. Dlamini, J. Dunbar and O.R. Oellermann

34. On upper domination Ramsey numbers for graphs.
M.A. Henning and O.R. Oellermann
35. Bipartite rainbow Ramsey numbers.
   L. Eroh and O.R. Oellermann

36. The average connectivity of a digraph.
   M.A. Henning and O.R. Oellermann

37. Metric-locating dominating sets in graphs.
   M.A. Henning and O.R. Oellermann

38. Minimum average distance of orientations of graphs.
   P. Dankelmann, O.R. Oellermann and J.-L. Wu*

39. On m-chromatic factorizations of complete graphs.
   G. Chartrand, H. Hevia and O.R. Oellermann

40. Bounds on the average connectivity of a graph.
   P. Dankelmann and O.R. Oellermann

41. Distance domination critical graphs.
   M.A. Henning, O.R. Oellermann and H.C. Swart

42. Augmenting trees so that every three vertices lie on a cycle. (P. Dankelmann, W.D. Goddard, O.R. Oellermann and H.C. Swart)

43. The average connectivity of a graph.
   L.W. Beineke, O.R. Oellermann and R.E. Pippert

44. The upper domination Ramsey number u(3,3,3).
   M.A. Henning and O.R. Oellermann

45. The average connectivity of regular multipartite tournaments.
   M.A. Henning and O.R. Oellermann

46. The metric dimension and metric independence of a graph.
   J. Currie and O.R. Oellermann

47. Bounds on the total redundancy and efficiency of a graph.
   W.D. Goddard, O.R. Oellermann, P. Slater and H.C. Swart
48. Resolvability in graphs and the metric dimension of a graph.  
   G. Chartrand, L. Eroh, M. Johnson and O.R. Oellermann  

49. On the irregularity cost of a tree.  
   O.R. Oellermann  

50. Bipartite Ramsey numbers and Zarankiewicz numbers.  
   M.A. Henning, W.D. Goddard and O.R. Oellermann  

51. On Steiner centers and Steiner medians of a graph.  
   O.R. Oellermann  
   NETWORKS 34 (1999) 258–263.

52. On three conjectures of GRAFFITI.  
   P. Dankelmann, O.R. Oellermann and H.C. Swart  

53. Steiner intervals in graphs.  
   E. Kubicka, G. Kubicki and O.R. Oellermann  

54. Bipartite Ramsey theorems for multiple copies of.  
   M.A. Henning and O.R. Oellermann  

55. Bounds on the size of graphs with given order and $l$-connectivity.  
   D.P. Day*, O.R. Oellermann and H.C. Swart  

56. The chromatic number of a factorization of a graph.  
   G. Chartrand, H. Hevia and O.R. Oellermann  

57. A characterization of 3-Steiner distance hereditary graphs.  
   D.P. Day*, O.R. Oellermann and H.C. Swart  

58. The irregularity cost of a graph.  
   F. Harary and O.R. Oellermann  

59. On the average Steiner distance of a graph with prescribed properties.  
   P. Dankelmann, O.R. Oellermann and H.C. Swart  

60. The average Steiner distance of a graph.  
   P. Dankelmann, O.R. Oellermann and H.C. Swart  
   J. Graph Theory 22 (1996) 15–22.
61. On the Steiner median of a tree.  
L.W. Beineke, O.R. Oellermann and R.E. Pippert  

62. An algorithm to find two distance domination parameters in a graph.  
G. Frick, M.A. Henning, O.R. Oellermann and H.C. Swart  

63. On the diversity of domination.  
M.A. Henning, O.R. Oellermann and H.C. Swart  

64. Local edge-domination critical graphs.  
M.A. Henning, O.R. Oellermann and H.C. Swart  

65. From Steiner centers to Steiner medians in graphs.  
O.R. Oellermann  

66. Relating pairs of distance domination parameters.  
M.A. Henning, O.R. Oellermann and H.C. Swart  

67. On a polynomial algorithm for testing whether a graph is 3-Steiner distance hereditary.  
O.R. Oellermann and J. Spinrad  

68. Relationships between distance domination parameters.  
M.A. Henning, O.R. Oellermann and H.C. Swart  

69. Steiner distance hereditary graphs.  
D.P. Day, O.R. Oellermann and H.C. Swart  

70. Steiner distance stable graphs.  
W.D. Goddard, O.R. Oellermann and H.C. Swart  

71. The $l$-connectivity of a digraph.  
D.P. Day, O.R. Oellermann and H.C. Swart  

72. Distance hereditary graphs and multideestination message routing in multicomputers.  
A. Esfahanian and O.R. Oellermann  

73. Which trees are uniquely framed by the Heawood graph?  
W.D. Goddard, M.A. Henning, O.R. Oellermann and H.C. Swart  
74. Some general results on the framing number of a graph.
   W.D. Goddard, M.A. Henning, O.R. Oellermann and H.C. Swart

75. A new algorithm for finding an upper bound for the genus of a graph.
   D.I. Carson and O.R. Oellermann

76. Conditional connectivity defined by hereditary properties.
   O.R. Oellermann

77. On multipartite tournaments.
   W.D. Goddard, G. Kubicki, O.R. Oellermann and S. Tian

78. Bounds on distance domination.
   M.A. Henning, O.R. Oellermann and H.C. Swart

79. Subgraph distance in graphs.
   G. Chartrand, K.S. Holbert, G.L. Johns and O.R. Oellermann

80. The \( l \)-connectivity function of trees and complete multipartite graphs.
   D.P. Day*, O.R. Oellermann and H.C. Swart

81. On the Steiner radius and Steiner diameter of a graph. Ars Combinatoria 29C (1990)
   13-19.
   with M.A. Henning and H.C. Swart

82. Steiner numbers in graphs.
   O.R. Oellermann

83. Steiner centers in graphs.
   O.R. Oellermann and S. Tian
   J. Graph Theory 14 (1990) 585–597.

84. What graphs are these?
   O.R. Oellermann

85. A new approach to distance stable graphs.
   W.D. Goddard, O.R. Oellermann and H.C. Swart

86. Greatest common subgraphs with specified properties.
   G. Chartrand, O.R. Oellermann F. Saba and H.B. Zou
87. Major n-connected graphs.
   O.R. Oellermann

88. A matter of degree.

89. Steiner distance in graphs.
   G. Chartrand, O.R. Oellermann, S. Tian and H.B. Zou

90. How to define an irregular graph.
   G. Chartrand, P. Erdős and O.R. Oellermann

91. The connected cutset connectivity of a graph.
   O.R. Oellermann

92. Variations on a theorem of Petersen.
   K.S. Bagga, L.W. Beineke, G. Chartrand and O.R. Oellermann

93. The $F$-connectivity of a graph.
   P.J. Malde and O.R. Oellermann

94. Highly irregular graphs.

95. On the $L$-connectivity of a graph.
   O.R. Oellermann

96. $F$-degrees in graphs.
   G. Chartrand, K.S. Holbert, O.R. Oellermann and H.C. Swart

97. Maximum matching in cubic graphs with a bounded number of bridge covering paths.
   G. Chartrand, S.F. Kapoor and O.R. Oellermann

98. Randomly H graphs.
   G. Chartrand, O.R. Oellermann and S. Ruiz

99. An Eulerian exposition.
   L. Lesniak and O.R. Oellermann
   J. Graph Theory 10 (1986) 277–297.
100. Bipartite regulation numbers.
    Y. Alavi, G. Chartrand, L. Lesniak and O.R. Oellermann

101. The uniformity number of a graph.
    G. Chartrand, O.R. Oellermann, F. Saba and H.B. Zou

102. Connected graphs containing a given connected graph as a unique greatest common sub-
    graph.
    G. Chartrand, M. Johnson and O.R. Oellermann

103. Randomly n-cyclic digraphs.

104. On the regulation number of a multigraph.
    G. Chartrand, F. Harary and O.R. Oellermann
    Aequationes Math. 31 (1986) 137-144.

105. Some applications of graph theory.
    G. Chartrand and O.R. Oellermann

106. Graphs for which all strong orientations are Eulerian.
    O.R. Oellermann and H.C. Swart

Peer Reviewed Proceedings of Meetings:

1. Menger-type results for three or more vertices.
    Hugh Hind and O.R. Oellermann

    O.R. Oellermann

3. Unique Steiner eccentric graphs.
    M.A. Henning, O.R. Oellermann and H.C. Swart
    1123-1134.

4. Steiner distance in graphs with emphasis on eccentricity measures: A survey.
    O.R. Oellermann
    Congressus Numerantium 99 (1994) 206-211.

5. Computing the average distance of distance hereditary graphs in linear time.
    O.R. Oellermann
6. The irregularity cost or sum of a graph.
   F. Harary, M.S. Jacobson, E. Kubicka, G. Kubicki and O.R. Oellermann

7. On the cycle structure of multipartite tournaments.
   W.D. Goddard and O.R. Oellermann
   Proc. of the 6th Quadrennial International Kalamazoo Conference on the Theory and

8. On vertices with maximum Steiner eccentricity in graphs.
   M.A. Henning, O.R. Oellermann and H.C. Swart
   Graph Theory, Combinatorics, Algorithms and Applications. (eds. Y. Alavi, F.R.K.

9. Distance: A graphical tour.
   G. Chartrand, O.R. Oellermann and M. Schultz
   Graph Theory, Combinatorics, Algorithms and Applications. (eds. Y. Alavi, F.R.K.
   Chung, R.L. Graham and D.F. Hsu)

10. A new algorithm for finding an upper bound for the genus of a graph.
    D.I. Carson and O.R. Oellermann

11. Least common supergraphs of graphs.
    G. Chartrand, H. Hevia, G. Kubicki, O.R. Oellermann, F. Saba and H.B. Zou

12. On the edge-independence number of a regular graph with large edge connectivity.
    I. Broere, G. Chartrand, O.R. Oellermann and C. Wall

13. Degree uniform graphs.
    G. Chartrand, L. Lesniak, C.M. Mynhardt and O.R. Oellermann

    L. Lesniak and O.R. Oellermann
    Proc. 250th Anniversary Conf. on Graph Theory. Congressus Numerantium. 64 (1988)
    7-12.

15. Degree representative trees in graphs.
    G. Chartrand, O.R. Oellermann and H.C. Swart
    Proc. 250th Anniversary Conf. on Graph Theory. Congressus Numerantium. 64 (1988)
    73–79.

    G. Chartrand, M.S. Jacobson, J. Lehel, O.R. Oellermann, S. Ruiz and F. Saba
    Proc. 250th Anniversary Conf. on Graph Theory. Congressus Numerantium. 64 (1988)
17. \( k \)-Path irregular graphs.
Y. Alavi, A.J. Boals, G. Chartrand, P. Erdös and O.R. Oellermann

18. Explorations into graph connectivity.
O.R. Oellermann

Y. Alavi, A.J. Boals, G. Chartrand, P. Erdös

20. A note on the \( l \)-connectivity function of a graph.
O.R. Oellermann
Congressus Numerantium 60 (1987) 181-188.

Books:


Book Chapters:

1. Menger's Theorem
O.R. Oellermann

2. Distance in Graphs
W. Goddard and O.R. Oellermann

Other Publications (e.g. Contributions to Books):

1. On the Steiner periphery and Steiner eccentricity of a graph.
O.R. Oellermann and H.C. Swart
Topics in Combinatorics and Graph Theory (eds. R. Bodendiek and R. Henn) Physica Verlag Heidelberg (1990) 541-547.

2. On peripheral vertices in graphs
G. Chartrand, G.L. Johns and O.R. Oellermann
3. The theory and applications of greatest common subgraphs.
   G. Chartrand, M. Johnson, G. Kubicki and O.R. Oellermann
   Contemporary Methods in Graph Theory (ed. R. Bodendiek) Wissenschaftsverlag, Mannheim

4. Steiner $n$-eccentricity sequences of graphs.
   O.R. Oellermann and S. Tian
   Recent Studies in Graph Theory. (eds. V.R. Kulli) Vishwa International Publications.

5. The mean integrity of a graph.
   G. Chartrand, S.F. Kapoor, T.A. McKee and O.R. Oellermann
   Recent Studies in Graph Theory. (eds. V.R. Kulli) Vishwa International Publications.

6. $m_3$-convex geometries are A-free. arXiv:1107:1048
   J. Caceres, O.R. Oellermann and M.L. Puertas
   (2011) 15 pages.

Unpublished Documents:

3. Introductory Calculus Text. (B. Bector, J. Currie, J. Ginsburg, D. Grant, V. Linek, O.R.

Invited and Keynote Presentations (since 1999):

1. Progress of Saito’s Conjecture, Presented at the Prairie Discrete Math Workshop, University
   of Manitoba, May 16-17, 2016.
2. The Simultaneous Metric Dimension of Graph Families, Invited presentation in a minisymposium
   on ‘Metric Dimension and related Parameters’, presented at the 8th Slovenian Conference on
   Graph Theory, Kranjska Gora, June 21-27, 2015.
3. Graph Classes and Convexity. Invited presentation in a special session on ‘Structured
   Families of Graphs’, at the 45th Southeastern Conference of Combinatorics, Graph Theory
4. Reconstructing a Graph from its Digitally Convex Sets. Keynote address given at the
   Symposium on Games and Graphs, Prince Edward Island, October 20, 2013.
5. Domination and Digital Convexity Parameters. Presented in a mini-symposium on domination
   in graphs at the CanaDAM meeting, St. Johns New Foundland, CANAD A, June
   10-13, 2013.
6. Invited mini symposium organizer on Structural Graph Theory at the Society for Industrial
   and Applied Mathematics (SIAM) Discrete Mathematics conference held in Halifax NS,
   June 18-21, 2012. Talk presented in this mini symposium: Convexity and Graph Classes.


9. Separation properties for 3-Steiner and 3-Monophonic convexity in graphs. Presented in a minisymposium on Metric Graph Theory, at the 7th Slovenian International Conference on Graph Theory, Bled Slovenia, June 19-24, 2011.

10. Separation properties for 3-Steiner and 3-Monophonic convexity in graphs. Presented in a minisymposium on Convexity and Metric Graph Theory II at the CanaDAM 2011 meeting, May 31 -June 3, 2011.


15. Local convexity in graphs. Presented at the Ottawa-Carleton Discrete Mathematics days, Carleton University, May 8-11, 2008 (expenses covered by the Fields Institute).


26. Steiner distance in graphs and centrality measures and structures. An all Institute presentation at the DIMACS conference on Distance and Centrality Concepts in Graphs held at RUTCOR Rutgers University, New Jersey USA, July 17-21, 2000.


28. The average connectivity of graphs and digraphs. Symposium given at the 32nd Midwest Graph Theory Meeting at Indiana University-Purdue University at Fort Wayne. Oct. 28-30, 1999.