

Michael A. Langston's Contributions to Science

Refereed Papers in Journals, Books and Conference Proceedings

1. "Maximizing the Minimum Processor Finish Time in a Multi-Processor System," *SIAM Journal on Algebraic and Discrete Methods* 3 (1982), 190–196, with B. Deuermeyer and D. K. Friesen.
2. "Improved O/1 Interchange Scheduling," *BIT* 22 (1982), 282–290.
3. "Hybrid Algorithms for \mathcal{NP} -Hard Problems," *Proceedings, Allerton Conference on Communication, Control and Computing*, University of Illinois, Urbana, Illinois, October, 1982, with D. K. Friesen.
4. "Bounds for Multifit Scheduling on Uniform Processors," *SIAM Journal on Computing* 12 (1983), 60–70, with D. K. Friesen.
5. "Improved LPT Scheduling for Identical Processor Systems," *Technology and Science of Informatics* 1 (1983), 51–57.
6. "Variable Sized Bin Packing," *Proceedings, Allerton Conference on Communication, Control and Computing*, University of Illinois, Urbana, Illinois, October, 1983, with D. K. Friesen.
7. "Performance of Heuristics for a Computer Resource Allocation Problem," *SIAM Journal on Algebraic and Discrete Methods* 5 (1984), 154–161.
8. "A Storage-Size Selection Problem," *Information Processing Letters* 18 (1984), 295–296, with D. K. Friesen.
9. "Remarks on the Makespan Minimization Problem," *Computers and Industrial Engineering* 8 (1984), 193–196.
10. "A Performance Guarantee for the Greedy Set-Partitioning Algorithm," *Acta Informatica* 21 (1984), 409–415, with E. G. Coffman, Jr.
11. "Movement Coordination for Single-Track Robot Systems," *Proceedings, IEEE Conference on Robotics and Automation*, St. Louis, Missouri, March, 1985, with C. E. Kim.
12. "Exact and Approximate Solutions for the Gate Matrix Layout Problem," *Proceedings, Symposium on Complexity of Approximately Solved Problems*, Columbia University, New York, New York, April, 1985 with N. Deo and M. S. Krishnamoorthy.
13. "Variable Sized Bin Packing," *SIAM Journal on Computing* 15 (1986), 222–230, with D. K. Friesen.

14. "Evaluation of a Multifit-Based Scheduling Algorithm," *Journal of Algorithms* 7 (1986), 35–59, with D. K. Friesen.
15. "Interstage Transportation Planning in the Flow-Shop Environment," *Proceedings, Symposium on Real-Time Optimization in Automated Manufacturing Facilities*, National Bureau of Standards, Gaithersburg, Maryland, January, 1986, with A. M. Morasch.
16. "Stable Duplicate-Key Extraction with Optimal Time and Space Bounds," *Proceedings, Allerton Conference on Communication, Control and Computing*, University of Illinois, Urbana, Illinois, October, 1986, with B.-C. Huang.
17. "Bin Packing: On Optimizing the Number of Pieces Packed," *BIT* 27 (1987), 148–156, with D. K. Friesen.
18. "A Study of Composite Heuristic Algorithms," *Journal of the Operational Research Society* 38 (1987), 539–544.
19. "Interstage Transportation Planning in the Deterministic Flow-Shop Environment," *Operations Research* 35 (1987), 556–564.
20. "Movement Coordination for Single-Track Robot Systems," *Journal of Robotic Systems* 4 (1987), 49–62, with C. E. Kim. (A preliminary version of a portion of this paper appeared in publication number 11.)
21. "Nonconstructive Advances in Polynomial-Time Complexity," *Information Processing Letters* 26 (1987), 157–162, with M. R. Fellows.
22. "Exact and Approximate Solutions for the Gate Matrix Layout Problem," *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems* 6 (1987), 79–84, with N. Deo and M. S. Krishnamoorthy. (A preliminary version of a portion of this paper appeared in publication number 12.)
23. "Planning of a Material Handling System," in Artificial Intelligence – Implications for Computer Integrated Manufacturing (A. Kusiak, editor), Springer-Verlag, 1987, 338–346, with A. M. Morasch.
24. "Processor Utilization in a Linearly Connected Parallel Processing System," *Proceedings, IEEE Phoenix Conference on Computers and Communications*, Phoenix, Arizona, February, 1987, with M. R. Fellows.
25. "Nonconstructive Tools for Guaranteeing Polynomial-Time Complexity," *Proceedings, Princeton Forum on Algorithms and Complexity*, Princeton University, Princeton, New Jersey, March, 1987, with D. J. Brown and M. R. Fellows.
26. "On Finding Obstruction Sets and Polynomial-Time Algorithms for Gate Matrix Layout," *Proceedings, Allerton Conference on Communication, Control and Computing*, University of Illinois, Urbana, Illinois, October, 1987, with R. L. Bryant, M. R. Fellows and N. G. Kinnarsley.

27. "Practical In-Place Merging," *Proceedings, ACM-IEEE/CS Fall Joint Computer Conference*, Dallas, Texas, October, 1987, with B.-C. Huang.
28. "On a Special Case of Uniform Processor Scheduling," *Journal of Algorithms* 9 (1988), 287–296, with M. Kunde and J.-M. Liu.
29. "On a Proposed Divide-and-Conquer Minimal Spanning Tree Algorithm," *BIT* 28 (1988), 785–791, with I. Stojmenovic.
30. "Nonconstructive Tools for Proving Polynomial-Time Decidability," *Journal of the ACM* 35 (1988), 727–739, with M. R. Fellows.
31. "Processor Utilization in a Linearly Connected Parallel Processing System," *IEEE Transactions on Computers* 37 (1988), 594–603, with M. R. Fellows. (A preliminary version of a portion of this paper appeared in publication number 24.)
32. "On Finding Optimal and Near-Optimal Lineal Spanning Trees," *Algorithmica* 3 (1988), 549–560, with M. R. Fellows and D. K. Friesen.
33. "Practical In-Place Merging," *Communications of the ACM* 31 (1988), 348–352, with B.-C. Huang. (A preliminary version of a portion of this paper appeared in publication number 27.)
34. "Layout Permutation Problems and Well-Partially-Ordered Sets," in Advanced Research in VLSI (J. Allen and F. T. Leighton, editors), The MIT Press, 1988, 315–327, with M. R. Fellows.
35. "Fast Self-Reduction Algorithms for Combinatorial Problems of VLSI Design," *Proceedings, International Workshop on Parallel Computation and VLSI Theory*, Corfu Island, Greece, June, 1988, with M. R. Fellows. Proceedings published as Lecture Notes in Computer Science 319 (J. Reif, editor), Springer-Verlag, 278–287.
36. "Stable Set and Multiset Operations in Optimal Time and Space," *Proceedings, ACM Symposium on Principles of Database Systems (PODS)*, Austin, Texas, March, 1988, with B.-C. Huang.
37. "Dense Symmetric Networks from Linear Groups and Codes," *Proceedings, Symposium on the Frontiers of Massively Parallel Computation*, Fairfax, Virginia, October, 1988, with L. Campbell, G. E. Carlsson, V. Faber, M. R. Fellows, J. W. Moore, A. P. Mullhaupt and H. B. Sexton.
38. "Online Variable-Sized Bin Packing," *Discrete Applied Mathematics* 22 (1989), 143–148, with N. G. Kinnersley.
39. "Stable Duplicate-Key Extraction with Optimal Time and Space Bounds," *Acta Informatica* 26 (1989), 473–484, with B.-C. Huang. (A preliminary version of a portion of this paper appeared in publication number 16.)

40. "Polynomial-Time Self-Reducibility: Theoretical Motivations and Practical Results," *International Journal of Computer Mathematics* 31 (1989), 1–9, with D. J. Brown and M. R. Fellows.
41. "Finite-Basis Theorems and a Computation-Integrated Approach to Obstruction Set Isolation," in *Computers and Mathematics* (E. Kaltofen and S. M. Watt, editors), Springer–Verlag, 1989, 37–45, with M. R. Fellows and N. G. Kinnersley.
42. "On Search, Decision and the Efficiency of Polynomial-Time Algorithms," *Proceedings, ACM Symposium on Theory of Computing (STOC)*, Seattle, Washington, May, 1989, with M. R. Fellows.
43. "Fast Stable Merging and Sorting in Constant Extra Space," *Proceedings, International Conference on Computing and Information*, Toronto, Ontario, May, 1989, with B.-C. Huang.
44. "Constructive Complexity," *Proceedings, Capital City Conference on Combinatorics and Theoretical Computer Science*, George Washington University, Washington D.C., May 1989, with K. Abrahamson, M. R. Fellows and B. M. E. Moret.
45. "Time-Space Optimal Parallel Merging and Sorting," *Proceedings, International Conference on Parallel Processing (ICCP)*, St. Charles, Illinois, August, 1989, with X. Guan.
46. "An Analogue of the Myhill-Nerode Theorem and Its Use in Computing Finite-Basis Characterizations," *Proceedings, IEEE Symposium on Foundations of Computer Science (FOCS)*, Raleigh, North Carolina, October, 1989, with M. R. Fellows.
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48. "Time-Space Optimal Parallel Set Operations," *Proceedings, International Conference on Databases, Parallel Architectures and Applications*, Miami Beach, Florida, March, 1990, with X. Guan.
49. "Distributed Algorithms for Multi-Channel Broadcast Networks," *Proceedings, Distributed Memory Computing Conference*, Charleston, South Carolina, April, 1990, with X. Guan.
50. "On Experiments with Time-Space Optimal Parallel Merging and Sorting Algorithms," *Proceedings, IEEE Symposium on Parallel and Distributed Processing*, Dallas, Texas, December, 1990, with X. Guan.
51. "Time-Space Optimal Parallel Merging and Sorting," *IEEE Transactions on Computers* 40 (1991), 596–602, with X. Guan. (A preliminary version of a portion of this paper appeared in publication number 45.)
52. "Fast Search Algorithms for Layout Permutation Problems," *International Journal of Computer Aided VLSI Design* 3 (1991), 325–342, with M. R. Fellows.

53. “Stable Set and Multiset Operations in Optimal Time and Space,” *Information Processing Letters* 39 (1991), 131–136, with B.-C. Huang. (A preliminary version of a portion of this paper appeared in publication number 36.)
54. “Analysis of a Compound Bin Packing Algorithm,” *SIAM Journal on Discrete Mathematics* 4 (1991), 61–79, with D. K. Friesen.
55. “Dense Layouts for Series-Parallel Circuits,” *Proceedings, Great Lakes Symposium on VLSI*, Kalamazoo, Michigan, March, 1991, with S. Ramachandramurthi.
56. “Constructive Complexity,” in Combinatorics and Theoretical Computer Science (R. Simion, editor), North-Holland, 1992, 3–16, with K. Abrahamson, M. R. Fellows and B. M. E. Moret. (A preliminary version of a portion of this paper appeared in publication number 44.)
57. “Small Diameter Symmetric Networks from Linear Groups,” *IEEE Transactions on Computers* 41 (1992), 218–220, with L. Campbell, G. E. Carlsson, M. J. Dinneen, V. Faber, M. R. Fellows, J. W. Moore, A. P. Mullhaupt and H. B. Sexton.
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59. “Parallel Methods for Solving Fundamental File Rearrangement Problems,” *Journal of Parallel and Distributed Computing* 14 (1992), 436–439, with X. Guan.
60. “Fast Stable Merging and Sorting in Constant Extra Space,” *The Computer Journal* 35 (1992), 643–650, with B.-C. Huang. (A preliminary version of a portion of this paper appeared in publication number 43.)
61. “Constructivity Issues in Graph Algorithms,” *Proceedings, Symposium on Constructivity in Computer Science*, San Antonio, Texas, June, 1991, with M. R. Fellows. Proceedings published as Lecture Notes in Computer Science 613 (J. P. Myers and M. J. O’Donnell, editors), Springer-Verlag, 150–158.
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71. "Computational Experience with In-Place Parallel Algorithms," *Proceedings, DIMACS Workshop on Organizing and Moving Data in Parallel Computers*, Princeton University, Princeton, New Jersey, January, 1994, with C. P. Breshears.
72. "On Non-Numeric Algorithms for Parallel Benchmarks," *Proceedings, Scalable High Performance Computing Conference*, Knoxville, Tennessee, May, 1994, with C. P. Breshears.
73. "Computational Experience with the CMMD Library," *Proceedings, Scalable High Performance Computing Conference*, Knoxville, Tennessee, May, 1994, with C. P. Breshears.
74. "Algorithmic Implications of the Graph Minor Theorem," in Handbook of Operations Research and Management Science: Network Models (M. O. Ball, T. L. Magnanti, C. L. Monma and G. L. Nemhauser, editors), North-Holland, 1995, 481–502, with D. Bienstock.
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80. “On Algorithmic Applications of the Immersion Order,” *Discrete Mathematics* 182 (1998), 191–196, with B. C. Plaut.
81. “Approximating the Pathwidth of Outerplanar Graphs,” *Information Processing Letters* 68 (1998), 17–23, with R. Govindan and X. Yan.
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83. “Fast Algorithms for K_4 Immersion Testing,” *Journal of Algorithms* 30 (1999), 344–378, with H. D. Booth, R. Govindan and S. Ramachandramurthi.
84. “On Computing Graph Minor Obstruction Sets,” *Theoretical Computer Science* 233 (2000), 107–127, with K. Cattell, M. J. Dinneen, R. G. Downey and M. R. Fellows.
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87. “On Special-Purpose Hardware Clusters for High-Performance Computational Grids,” *Proceedings, International Conference on Parallel and Distributed Computing and Systems (PDCS)*, Cambridge, Massachusetts, November, 2002, with F. N. Abu-Khzam, D. W. Bouldin, J. M. Lehrter and G. D. Peterson.
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90. “Scalable Parallel Algorithms for Difficult Combinatorial Problems: A Case Study in Optimization,” *Proceedings, International Conference on Parallel and Distributed Computing*

- and Systems (PDCS)*, Marina Del Rey, California, November, 2003, with F. N. Abu-Khzam and P. Shanbhag.
91. “A Combinatorial Approach to the Analysis of Differential Gene Expression Data: The Use of Graph Algorithms for Disease Prediction and Screening,” *Proceedings, International Conference for the Critical Assessment of Microarray Data Analysis (CAMDA)*, Durham, North Carolina, November, 2003, with N. E. Baldwin, L. Lin, X. Peng, J. R. Snoddy, C. T. Symons and B. Zhang.
 92. “Grid Computing, An Introduction to the Minitrack,” *Proceedings, Hawaii International Conference on System Sciences (HICSS)*, Big Island, Hawaii, January, 2004, with F. N. Abu-Khzam.
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 94. “High Performance Computational Tools for Motif Discovery,” *Proceedings, IEEE International Workshop on High Performance Computational Biology (HiCOMB)*, Santa Fe, New Mexico, April, 2004, with N. E. Baldwin, R. L. Collins, M. R. Leuze, C. T. Symons and B. H. Voy.
 95. “Practical FPT Implementations and Applications (Plenary Lecture),” *Proceedings, International Workshop on Parameterized and Exact Computation (IWPEC)*, Bergen, Norway, September, 2004. Proceedings published as Lecture Notes in Computer Science 3162 (R. Downey and M. R. Fellows, editors), Springer, 291.
 96. “A Direct Algorithm for the Parameterized Face Cover Problem,” *Proceedings, International Workshop on Parameterized and Exact Computation (IWPEC)*, Bergen, Norway, September, 2004, with F. N. Abu-Khzam. Proceedings published as Lecture Notes in Computer Science 3162 (R. Downey and M. R. Fellows, editors), Springer, 213–222.
 97. “Detecting Network Motifs in Gene Co-expression Networks,” *Proceedings, International Conference for the Critical Assessment of Microarray Data Analysis (CAMDA)*, Durham, North Carolina, November, 2004, with N. E. Baldwin, X. Peng, A. M. Saxton and J. R. Snoddy.
 98. “Complex Trait Analysis of Gene Expression Uncovers Polygenic and Pleiotropic Networks that Modulate Nervous System Function,” *Nature Genetics* 37 (2005), 233–242, with N. E. Baldwin, E. J. Chesler, J. Gu, H. C. Hsu, L. Lu, K. F. Manly, J. D. Mountz, Y. Qu, S. Shou, D. W. Threadgill, J. Wang and R. W. Williams.
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101. "A Methodology to Support Dependable Survivable Cyber-Secure Infrastructures," *Proceedings, Hawaii International Conference on System Sciences (HICSS)*, Big Island, Hawaii, January, 2005, with S. G. Batsell, S. J. Prowell and F. T. Sheldon.
102. "Fast, Effective Vertex Cover Kernelization: A Tale of Two Algorithms," *Proceedings, ACS/IEEE International Conference on Computer Systems and Applications (AICCSA)*, Cairo, Egypt, January, 2005, with F. N. Abu-Khzam and W. H. Suters.
103. "On the Relative Efficiency of Maximal Clique Enumeration Algorithms, with Application to High-Throughput Computational Biology," *Proceedings, International Conference on Research Trends in Science and Technology*, Beirut, Lebanon, March, 2005, with F. N. Abu-Khzam, N. E. Baldwin and N. F. Samatova.
104. "Linear-Time Algorithms for Problems on Planar Graphs of Fixed Disk Dimension," *Proceedings, International Workshop on Algorithms and Complexity in Durham (ACiD)*, Durham, England, July, 2005, with F. N. Abu-Khzam.
105. "Asymptotically Faster Algorithms for the Parameterized Face Cover Problem," *Proceedings, International Workshop on Algorithms and Complexity in Durham (ACiD)*, Durham, England, July, 2005, with F. N. Abu-Khzam and H. Fernau.
106. "FPT is P-Time Extremal Structure I," *Proceedings, International Workshop on Algorithms and Complexity in Durham (ACiD)*, Durham, England, July, 2005, with V. Estivill-Castro, M. R. Fellows and F. A. Rosamond.
107. "A New Approach and Faster Exact Methods for the Maximum Common Subgraph Problem," *Proceedings, International Computing and Combinatorics Conference (COCOON)*, Kunming, China, August, 2005, with F. N. Abu-Khzam, N. F. Samatova, W. H. Suters, C. T. Symons and Y. Zhang. Proceedings published as Lecture Notes in Computer Science 3595 (L. Wang, editor), Springer, 717–727.
108. "An $O^*(2^{O(k)})$ FPT Algorithm for the Undirected Feedback Vertex Set Problem," *Proceedings, International Computing and Combinatorics Conference (COCOON)*, Kunming, China, August, 2005, with F. Dehne, M. R. Fellows, F. A. Rosamond and K. Stevens. Proceedings published as Lecture Notes in Computer Science 3595 (L. Wang, editor), Springer, 859–869.
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110. “Combinatorial Genetic Regulatory Network Analysis Tools for High Throughput Transcriptomic Data,” *Proceedings, RECOMB Satellite Workshop on Systems Biology and Regulatory Genomics*, San Diego, California, December, 2005, with E. J. Chesler. Proceedings published as *Lecture Notes in Computer Science* 4023 (E. Eskin, T. Ideker, B. Raphael and C. Workman, editors), Springer, 150–165.
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122. “Combinatorial Algorithms and High Performance Implementations for Elucidating Complex Ecosystem Relationships from North Sea Historical Data,” *Proceedings, International Council for the Exploration of the Sea Annual Science Conference*, Maastricht, The Netherlands, September, 2006, with D. J. Beare, R. W. Gauldie, A. J. Kenny, P. J. Kershaw, A. D. Perkins, J. Reid and K. Winpenny.
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224. “Integration of Heterogeneous Functional Genomics Data in Gerontology Research Identifies Genes and Pathways Underlying Aging across Species,” *PLoS ONE* 14 (2019), DOI 10.1371/journal.pone.0214523, with J. A. Bubier, G. L. Sutphin, T. J. Reynolds, R. Korstanje, A. Fuksman-Kumpa, E. J. Baker and E. J. Chesler.
225. “The Social and Structural Determinants of Non-Adherence to Antihypertensive Medication Treatment,” *Annals of Epidemiology* 36 (2019), 77, with M. M. Donneyong, T. J. Chang, J. W. Jackson, P. D. Juarez, S. Sealy-Jefferson, P. Salsberry, B. Lu, W. Im, M. A. Fischer, R. Burciaga Valdez and D. B. Hood.
226. “A Robustness Metric for Biological Data Clustering Algorithms,” *BMC Bioinformatics* 20 Suppl 15 (2019), with Y. Lu and C. A. Phillips. (A preliminary version of a portion of this paper appeared in publication number 221.)
227. “The Structural and Social Determinants of Differences in Non-adherence to Antihypertensive Medications between Blacks and Whites,” *AHA Circulation* 140 Suppl 1 (2019), with M. M. Donneyong, T-J Chang, S. Sealy-Jefferson, J. Jackson, J. Ricks, P. D. Juarez, P. Salsberry, R. O. Valdez, B. Lu, W. Im, D. B. Hood and M. Fischer.
228. “Compound Analytics Using Combinatorics for Feature Selection: A Case Study in Biomarker Detection,” *Proceedings, Workshop on Graphs, Architectures, Programming and Learning*, Rio De Janeiro, Brazil, May, 2019, with R. D. Hagan, B. D. Hagan, C. A. Phillips and B. J. Rhodes.
229. “Molecular Subtyping in Human Disease Using the Paraclique Algorithm,” *Proceedings, International Workshop on Biological Knowledge Discovery from Big Data*, Linz, Austria, August, 2019, with R. D. Hagan.
230. “MicroRNA Profiling in Adipose Before and After Weight Loss Highlights the Role of miR-223-3p and the NLRP3 Inflammasome,” *Obesity Biology and Integrated Physiology* 28 (2020), 570–580, with D. Macartney-Coxson, K. Danielson, J. Clapham, M. C. Benton, A. Johnston, A. Jones, O. Shaw, R. D. Hagan, E. Hoffman, M. Hayes, J. Harper and R. S. Stubbs.
231. “The Effects of Social, Personal, and Behavioral Risk Factors and PM2.5 on Cardio-Metabolic Disparities in a Cohort of Community Health Center Patients,” *International Journal of Environmental Research and Public Health* 17 (2020), DOI: 10.3390/ijerph17103561, with P. D. Juarez, M. Tabatabai, R. B. Valdez, D. B. Hood, W. Im, C. Mouton, C. Colen, M. Z. Al-Hamdan, P. Matthews-Juarez, M. Y. Lichtveld, D. Sarpong, A. Ramesh, G. L. Rogers, C. A. Phillips, J. F. Reichard, M. M. Donneyong and W. J. Blot.
232. “Biclique: An R package for Maximal Biclique Enumeration in Bipartite Graphs,” *BMC Research Notes* 13 (2020), DOI: 10.1186/s13104-020-04955-0, with Y. Lu and C. A. Phillips.
233. “Structural and Social Determinants of Health Factors Associated with County-Level Variation in Non-Adherence to Antihypertensive Medication Treatment,” *International Journal of*

- Environmental Research and Public Health* 17 (2020), DOI: 10.3390/ijerph17186684, with M. M. Donneyong, T-J Chang, J. J. Jackson, P. D. Juarez, S. Sealy-Jefferson, B. Lu, W. Im, R. B. Valdez, B. Way, C. Colen, M. A. Fischer, P. J. Salsberry, J. F. P. Bridges and D. B. Hood.
234. “Natural Genetic Variation Alters Alzheimer’s-Related Gene Expression Modules in Mice,” *Alzheimer’s & Dementia* 16 Suppl 2 (2020), with A. E. Wells, N. Raghupathy, R. F. Robledo, D. M. Gatti, S. C. Munger, C. A. Phillips, J. Ndukum, T. Wilcox, J. Graber, M. Hibbs, G. A. Churchill, G. W. Carter and E. J. Chesler.
235. “Clique Selection and its Effect on Paraclique Enrichment: An Experimental Study,” *Proceedings, International Conference on Bioinformatics and Computational Biology*, San Francisco, California, March, 2020, with Y. Lu, C. A. Phillips and E. J. Chesler.
236. “Towards Controllability Analysis of Dynamic Networks Using Minimum Dominating Set,” *Proceedings, International Conference on Information Fusion*, Sun City, South Africa, July, 2020, with R. D. Hagan, S. K. Grady, C. A. Phillips and B. J. Rhodes.
237. “Molecular Subtyping and Outlier Detection in Human Disease Using the Paraclique Algorithm,” *Algorithms* 14 (2021), Special Issue on Biological Knowledge Discovery from Big Data, DOI 10.3390/a14020063, with R. D. Hagan. (A preliminary version of a portion of this paper appeared in publication number 229.)
238. “Association of Cardiovascular Disease and Long-Term Exposure to Fine Particulate Matter (PM_{2.5}) in the Southeastern United States,” *Atmosphere* 12 (2021), Special Issue on Outdoor Air Pollution and Human Health, DOI 10.3390/atmos12080947, with R. B. Valdez, M. Z. Al-Hamdan, M. Tabatabai, D. B. Hood, W. Im, D. Wilus, A. Noori-Sarma, A. Ramesh, M. M. Donneyong, C. P. Mouton and P. D. Juarez.
239. “Examining the Drivers of Racial/Ethnic Disparities in Non-Adherence to Antihypertensive Medications and Mortality Due to Heart Disease and Stroke: A County-Level Analysis,” *International Journal of Environmental Research and Public Health* 18 (2021), DOI 10.3390/ijerph182312702, with M. M. Donneyong, M. A. Fischer, J. J. Joseph, P. D. Juarez, P. Zhang and D. M. Kline.
240. “Gene-Disease-Drug Link Prediction Using Tripartite Graphs,” *Proceedings, ACM Conference on Bioinformatics, Computational Biology, and Health Informatics*, held online, August, 2021, with C. Chen, S. K. Grady and S. R. Ellingson.
241. “Domination-Based Classification Algorithms for the Controllability Analysis of Biological Interaction Networks,” *Scientific Reports* 12 (2022), DOI 10.1038/s41598-022-15464-4, with S. K. Grady, F. N. Abu-Khzam, R. D. Hagan and H. Shams.
242. “Association of Diabetes and Exposure to Fine Particulate Matter (PM_{2.5}) in the Southeastern United States,” *Hygiene and Environmental Health Advances* 4 (2022), DOI 10.1016/j.heha.2022.100024, with R. B. Valdez, M. Tabatabai, M. Z. Al-Hamdan, D. Wilus, D. B. Hood, W. Im, A. Nori-Sarma, A. Ramesh, M. M. Donneyong, C. P. Mouton and P. D. Juarez.

243. “The Effects of Air Pollution, Meteorological Parameters, and Climate Change on COVID-19 Comorbidity and Health Disparities: A Systematic Review,” *Environmental Chemistry and Ecotoxicology* 4 (2022), 194-210, DOI 10.1016/j.enceco.2022.10.002, with P. D. Juarez, A. Ramesh, D. B. Hood, R. O. Valdez, M. Aramandla, M. Tabatabai, P. Matthews-Juarez, M. Al-Hamdan, A. N. Sarma, W. Im and C. Mouton.
244. “Detecting Anomalous Sequences in Electronic Health Records using Higher-Order Tensor Networks,” *Journal of Biomedical Informatics* (2022), DOI 10.1016/j.jbi.2022.104219, with H. Niu, O. A. Omitaomu, M. Olama, O. Ozmen, H. B. Klasky, A. Laurio, B. Sauer, M. Ward and J. Nebeker.
245. “The Public Health Exposome and Pregnancy Related Mortality in the United States: A High Dimensional Computational Analysis,” *BMC Public Health* 22 (2022), DOI 10.1186/s12889-022-14397-x, with E. W. Harville, S. K. Grady, P. D. Juarez, D. Vilda and M. E. Wallace.
246. “Scalable Preprocessing Tools for Exposomic Data Analysis,” *Environmental Health Perspectives* 131 (2023), DOI 10.1289/EHP12901, with S. K. Grady, L. Dojcsak, E. W. Harville, M. E. Wallace, D. Vilda, M. M. Donneyong, D. B. Hood, R. B. Valdez, A. Ramesh, W. Im, P. Matthews-Juarez and P. D. Juarez.
247. “A Brief Study of Gene Co-Expression Thresholding Algorithms,” *Proceedings, International Symposium on Bioinformatics Research and Applications*, Wrocław, Poland, October, 2023, with C. Bleker and S. K. Grady.
248. “Decoding the Exposome: Data Science Methodologies and Implications In Exposome-Wide Association Studies (ExWASs),” *Exposome* 4 (2024), DOI 10.1093/exposome/osaee001, with M. K. Chung, J. S. House, F. S. Akhtari, K. C. Makris, K. T. Islam, P. Holmes, M. Chadeau-Hyam, A. I. Smirnov, X. Du, A. E. Thessen, Y. Cui, K. Zhang, A. K. Manrai, A. Motsinger-Reif and C. J. Patel.
249. “EHR-BERT: A BERT-Based Model for Effective Anomaly Detection in Electronic Health Records,” *Journal of Biomedical Informatics* 150 (2024), DOI 10.1016/j.jbi.2024.104605, with H. Niu, O. A. Omitaomu, M. Olama, O. Ozmen, H. B. Klasky, A. Laurio, M. Ward and J. Nebeker.
250. “A Comparative Study of Gene Co-Expression Thresholding Algorithms,” *Journal of Computational Biology* 31 (2024), DOI: 10.1089/cmb.2024.0509, with C. Bleker and S. K. Grady
251. “A Graph Theoretical Approach to Experimental Prioritization in Genome-Scale Investigations,” *Mammalian Genome* (2024), DOI: 10.1007/s00335-024-10066-z, with S. K. Grady, K. A. Peterson, S. A. Murray, E. J. Baker and E. J. Chesler.
252. “Particulate Matter 2.5 (PM2.5) – Associated Cognitive Impairment and Morbidity in Humans and Animal Models: A Systematic Review,” *Journal of Toxicology and Environmental Health, Part B UTEB* (2025), DOI: 10.1080/10937404.2025.2450354, with R. Chauhan, S. Dande, D. B. Hood, S. S. Chirwa, S. K. Grady, L. Dojcsak, M. Tabatabai, D. Wilus, R. B.

- Valdez, M. Z. Al-Hamdan, W. Im, M. McCallister, D. J. Alcendor, C. P. Mouton and A. Ramesh.
253. “Anomaly Detection in Electronic Health Records Across Hospital Networks: Integrating Machine Learning with Graph Algorithms,” *IEEE Journal of Biomedical and Health Informatics* 29 (2025), 3723-3735, DOI: 10.1109/JBHI.2025.3527752, with H. Niu, O. A. Omitaomu, S. K. Grady, M. Olama, O. Ozmen, H. B. Klasky, A. Laurio, M. Ward and J. Nebeker.
 254. “Circulating Mycobiota Signatures and Cardiovascular Mortality among Patients Undergoing Hemodialysis,” *Journal of the American Society of Nephrology*, (2025), DOI: 10.1681/ASN.0000000829, with K. Sumida, Y. Mallisetty, C-Y Chiu, Z. Han, T.S. Mims, C. Chen, R. T. Beach, M. Sumida, Q. Zhao, A. Bajwa, J. C. Seegmiller, A. B. Karger, P. Stenvinkel, S. Datta, C. P. Kovesdy and J. F. Pierre.
 255. “Influence of Multi-Species Data on Gene-Disease Associations in Substance Use Disorder using Random Walk with Restart Models,” *PLoS ONE* (2025), DOI: 10.1371/journal.pone.0325201, with E. U. Castaneda, S. Moore, J. A. Bubier, S. K. Grady, E. J. Chesler and E. J. Baker.
 256. “Link Prediction in Multipartite Graphs with Application to Drug Repositioning Studies,” *IEEE Transactions on Computational Biology and Bioinformatics* (2025), DOI 10.1109/TCB-BIO.2025.3609315, with C. Chen, S. K. Grady, L. Dojcsak and S. R. Ellingson.
 257. “A Novel and Practical Algorithmic Enhancement for Enumerating Maximal and Maximum k -Partite Cliques in k -Partite Graphs,” *Algorithms*, with C. Chen, F. N. Abu-Khzam and L. Dojcsak, accepted for publication.
 258. “Liver Sinusoid Constraints Make Random Search of CD8 T Cells for Plasmodium Parasites Efficient,” with V. S. Zenkov, I. A. Cockburn, R. Lin, W. N. Griffith and V. V. Ganusov, in review.
 259. “Study Finding Environmental Variables’ Correlations with Decline in Readiness-to-Read Scores in Environmental Justice Communities,” with H. Lochotzki, T. Bils, S. K. Grady, O. Adetona, K. P. Williams, G. M. Ginn, C. Colen, J. Wu and D. B. Hood, in review.
 260. “Highly Connected Metabolic Networks and Discriminatory Reactions for Necrotizing Enterocolitis Extracted from Metaproteomics of Preterm Human Infant Gut Microbiomes,” with J. A. Blakeley-Ruiz, S. K. Grady, C. Bleker and R. L. Hettich, in review.
 261. “Network Enhanced Semantic Similarity (NESS) Improves Classification of Disease from Heterogeneous Functional Genomics Data,” with T. Reynolds, E. J. Baker, J. A. Bubier and E. J. Chesler, in review.
 262. “An Unexplained Disparities Success: Declines in Racial Disparities for Alcohol Mortality, 1979-2006,” with L. S. Gittner, B. J. Kilbourne, M. Aliyu, R. Zoorob, A. M. Saxton, A. D. Kershenbaum, S. H. Baktash and R. S. Levine, in review.

263. "Systems Genetic Discovery of Host-Microbiome Interactions Reveals Mechanisms of Microbial Involvement in Disease," with J. A. Bubier, V. M. Philip, C. Quince, J. Campbell, Y. Zhou, T. Vishnivetskaya, S. Duvvuru, R. H. Blair, J. Ndukum, K. D. Donohue, C. A. Phillips, C. M. Foster, D. Mellert, G. Weinstock, C. T. Culiati, E. J. Baker, B. O'Hara, A. V. Palumbo, M. Podar and E. J. Chesler, in review.
264. "The Genome-wide Structure of Linkage Disequilibrium in Mouse Reference Populations," with E. J. Chesler, G. A. Churchill, C. T. Culiati, Y. Ding, R. Kirova, J. R. New, V. M. Philip, G. L. Rogers and Y. Zhang, in review.
265. "Systems Genetics Approach to Low Dose Radiation Sensitivity in BXD Recombinant Inbred Mice," with J. S. Bogard, E. J. Chesler, S. Das, S. A. Kania, R. M. Lynch, S. Naswa, G. L. Rogers, A. M. Saxton, and B. H. Voy, in review.
266. "An Alternative Sampling Method for Systematic Community Selection in Evaluating Breast Cancer Interventions: The Use of Mortality Data," with V. K. Agboto, P. D. Juarez, P. Matthews-Juarez, D. B. Hood, G. S. Rust, B. J. Kilbourne, E. M. Maboudou, M. Sander-son, M. Pisu and R. S. Levine, in review.
267. "Distinct Subtypes of Type 1 Diabetes Defined by Complex Genetic Interactions," with P. Concannon, L. C. Harrison, M. Mehta, G. Morahan, C. Nguyen, R. Ram, S. S. Rich and G. L. Rogers, in review.

Conference/Workshop Papers and Abstracts Without a Published Proceedings

268. "Performance of Bin-Packing Heuristics for Maximizing the Number of Pieces Packed into Bins of Different Sizes," *SIAM Annual Conference*, Stanford University, Stanford, California, July, 1982.
269. "Fast Algorithms for Processor Scheduling," *ORSA/TIMS Joint Conference*, San Francisco, California, May, 1984. **Invited.**
270. "Towards a Theory of Constructive Polynomial Complexity," *SIAM Conference on Discrete Mathematics*, Clemson University, Clemson, South Carolina, May, 1986, with M. R. Fellows.
271. "The End of Innocence in Polynomial-Time Complexity," *New Mexico Computer Science Conference*, New Mexico State University, Las Cruces, New Mexico, November, 1986, with M. R. Fellows.
272. "Cayley Graphs of Large Order for Fixed Degree and Diameter," *Vermont Workshop on Combinatorics*, University of Vermont, Burlington, Vermont, June, 1987, with G. E. Carlsson, M. R. Fellows, A. P. Mullhaupt and H. B. Sexton. **Invited.**
273. "Combinatorial Problems of VLSI Design and RS Posets," *IMA Workshop on Applications of Combinatorics and Graph Theory to Computer Science*, University of Minnesota, Minneapolis, Minnesota, December, 1987. **Invited.**

274. "Some Applications of Nonconstructive Proofs for Polynomial-Time Decidability," *Southeastern International Conference on Combinatorics, Graph Theory and Computing*, Boca Raton, Florida, February, 1987, with J. M. Abello, D. J. Brown and M. R. Fellows.
275. "On the Network Emulation Problem," *SIAM Conference on Parallel Processing for Scientific Computing*, Los Angeles, California, December, 1987, with J. M. Abello, D. J. Brown and M. R. Fellows.
276. "On Algorithmic Applications of Well-Partial-Order Theory and Constructive Search Complexity," *Washington, Oregon, British Columbia, and Alberta Theory Seminar (WOBCATS)*, University of British Columbia, Vancouver, British Columbia, April, 1989. **Invited.**
277. "On a Restricted Model of Processor Scheduling," *CORS-ORSA-TIMS Joint Conference*, Vancouver, British Columbia, May, 1989. **Invited.**
278. "Flow-Shop Transportation Sequencing," *CORS-ORSA-TIMS Joint Conference*, Vancouver, British Columbia, May, 1989. **Invited.**
279. "RS Posets: Towards Applications," *CORS-ORSA-TIMS Joint Conference*, Vancouver, British Columbia, May, 1989, with M. R. Fellows. **Invited.**
280. "On Problems of Network Design," *ONR Workshop on Computer Science*, University of Idaho, Moscow, Idaho, June, 1989, with M. R. Fellows. **Invited.**
281. "Computational Complexity and the Robertson-Seymour Theorems," *MAA Regional Meeting*, Spokane, Washington, June, 1989, with M. R. Fellows. **Invited.**
282. "Constructions of Dense Planar and Symmetric Networks," *China-USA International Conference on Graph Theory, Combinatorics, Algorithms and Applications*, San Francisco, California, July, 1989, with V. Faber, M. R. Fellows and C. S. Jagadish.
283. "Constructivization Techniques and WQO Theory," *Franco-Japan Conference on Combinatorics and Optimization*, Tokyo, Japan, October, 1989, with M. R. Fellows. **Invited.**
284. "Fundamental Advances in Algorithms for Layout Problems," *NASA VLSI System Design Symposium*, University of Idaho, Moscow, Idaho, January, 1990, with M. R. Fellows. **Invited.**
285. "Finiteness is Enough," *Cumberland Conference on Graph Theory and Applications to Computer Science*, University of Louisville, Louisville, Kentucky, May, 1990. **Invited.**
286. "Time-Space Optimal Parallel Algorithms," *International Conference on Computing and Information*, Niagara Falls, Ontario, May, 1990. **Invited.**
287. "Constructivization and Optimization," *ONR Workshop on Computer Science*, University of Idaho, Moscow, Idaho, June, 1990, with M. R. Fellows. **Invited.**

288. "On Recognizing Graphs of Bounded Width," *SIAM Annual Conference*, Chicago, Illinois, July, 1990. **Invited.**
289. "Polynomial-Time Algorithms from Finite-Basis Theorems – A Survey," *Clemson Conference on Discrete Mathematics*, Clemson University, Clemson, South Carolina, October, 1990. **Invited.**
290. "Toward Practical Algorithms for VLSI," *AMS-IMS-SIAM Joint Workshop on Graph Minors*, Seattle, Washington, June, 1991. **Invited.**
291. "Resource-Bounded Parallel Computation," *Workshop on Parallel Algorithm Derivation and Program Transformation*, New York University, New York, New York, August, 1991. **Invited.**
292. "Graph Embeddings and the Immersion Order," *DIMACS Workshop on Graph Embeddings and Parallel Architecture*, Rutgers University, New Brunswick, New Jersey, January, 1992. **Invited.**
293. "Algorithms Research for New Technologies," *ONR Workshop on Types and Algorithms*, New Orleans, Louisiana, May, 1992. **Invited.**
294. "Practical Applications of Well-Quasi-Ordering," *SIAM Conference on Discrete Mathematics*, Vancouver, British Columbia, June, 1992, with S. Ramachandramurthi. **Invited.**
295. "Recent Progress on Immersion Order Testing," *Cumberland Conference on Graph Theory and Computing*, Memphis, Tennessee, May, 1993. **Invited.**
296. "WQO-Based Methods," *International Workshop on Combinatorial Methods for Circuit Design*, Schloss Dagstuhl, Germany, October, 1993. **Invited.**
297. "Algorithmic Applications of the Immersion Order," *Slovenian International Conference on Graph Theory*, Lake Bled, Slovenia, June, 1995, with B. C. Plaut. **Invited.**
298. "On the Min-Degree Graph Partition Problem," *International Conference on Graph Theory, Combinatorics, Algorithms and Applications*, Kalamazoo, Michigan, June, 1996, with B. C. Plaut.
299. "Graph Partitioning and Cutting," *International Conference on Combinatorics, Information Theory and Statistics*, Portland, Maine, July, 1997, with R. Govindan and B. C. Plaut.
300. "Research on Graph Algorithms," *ONR Computer Technology Gathering*, Dahlgren, Virginia, May, 1997. **Invited.**
301. "Constraint-Driven Partitioning and Cutting with Applications to FPGA Design," *International Colloquium on Numerical Analysis and Computer Science with Applications*, Plovdiv, Bulgaria, August, 1999, with R. Govindan and B. C. Plaut. **Invited.**

302. "On the Disk Dimension of Planar Graphs," *Conference on Horizons in Combinatorics*, Nashville, Tennessee, May, 2001, with F. N. Abu-Khzam.
303. "A Fast Parameterized Face Cover Algorithm," *International Workshop on Parameterized Complexity*, Schloss Dagstuhl, Germany, August, 2001, with F. N. Abu-Khzam. **Invited.**
304. "Grid Computing, A Tutorial," *Hawaii International Conference on System Sciences (HICSS)*, Big Island, Hawaii, January, 2003, with F. N. Abu-Khzam.
305. "Parallel Algorithms for FPT Problems," *International Workshop on Parameterized Complexity*, Schloss Dagstuhl, Germany, July, 2003, with F. N. Abu-Khzam. **Invited.**
306. "High-Performance Tools for Fixed-Parameter Tractable Implementations," *Workshop on Fixed Parameter Tractability*, Ottawa, Ontario, Canada, August, 2003, with F. N. Abu-Khzam, P. Shanbhag and C. T. Symons. **Invited.**
307. "Computational Approaches to the Analysis of Gene Expression Data," *Tennessee Mouse Genome Consortium Annual Retreat*, Nashville, Tennessee, December, 2003. **Invited.**
308. "From RS Posets to NP-Completeness: Adventures in Fixed Parameter Tractability," *Advances in Graph and Matroid Theory*, Columbus, Ohio, December, 2003, with W. H. Suters.
309. "Novel Algorithms and Architectures for Predicting Gene Co-Regulation," *UT-ORNL Bioinformatics Summit*, Fall Creek Falls, Tennessee, March, 2004. **Invited.**
310. "Practical FPT Implementations, Parallelism and Scalability," *Winter School in Mathematics and Computational Biology*, University of Queensland, Brisbane, Australia, July, 2004. **Invited.**
311. "FPT-Based Methods for the Analysis of Gene Expression Data," *Winter School in Mathematics and Computational Biology*, University of Queensland, Brisbane, Australia, July, 2004. **Invited.**
312. "Transcriptome-QTL Analysis of Correlated CNS Transcripts using WEBQTL Reveals Major Genetic Variation in Synaptic Vesicle Related Gene Expression," *Society for Neuroscience Annual Meeting*, San Diego, California, October, 2004, with E. J. Chesler, L. Lu, K. F. Manly and R. W. Williams.
313. "Detecting Network Motifs in Gene Co-expression Networks," *Annual Conference on Computational Genomics*, Reston, Virginia, October, 2004, with X. Peng, A. M. Saxton, J. R. Snoddy.
314. "Genetic Analysis of Gene Expression in Mouse CNS Reveals Major Pleiotropic and Polygenic Control of Synaptic Machinery," *International Mouse Genome Conference*, Seattle, Washington, October, 2004, with N. E. Baldwin, E. J. Chesler, L. Lu, K. F. Manly, J. R. Snoddy, J. Wang, R. W. Williams and B. Zhang.

315. "Combinatorial Algorithms and Scalable Implementations for High-Throughput Computational Biology," *Tennessee Mouse Genome Consortium Annual Retreat*, Fall Creek Falls, Tennessee, November, 2004. **Invited.**
316. "Fixed-Parameter Tractability, Scalable Implementations with Applications," *Workshop on Promoting Collaborative Research in Computers and Communications Between US and Middle Eastern Researchers*, Cairo, Egypt, January, 2005. **Invited.**
317. "High Performance Algorithms for the Analysis of Gene Co-Expression Data," *International Conference on Research Trends in Science and Technology*, Beirut, Lebanon, March, 2005. **Invited.**
318. "Trusted Computing Amidst Untrustworthy Intermediaries," *Workshop on Cyber Security and Information Infrastructure*, Oak Ridge, Tennessee, March, 2005. **Invited.**
319. "Integrating Biocomputing Approaches for Biological Network Analysis," *Meeting on Systems Biology: Global Regulation of Gene Expression*, Cold Spring Harbor, New York, March, 2005, with E. J. Baker, E. J. Chesler, J. D. Eblen, S. Kirov, X. Peng, J. Scharff, J. R. Snoddy, A. Tebbe, R. W. Williams and B. Zhang.
320. "Genetic Analysis of Gene Transcription in Genetic Reference Populations and Relations to Complex Phenotypes," *Meeting on Systems Biology: Global Regulation of Gene Expression*, Cold Spring Harbor, New York, March, 2005, with N. E. Baldwin, E. J. Chesler, L. Lu, K. F. Manly, J. Wang and R. W. Williams.
321. "Transcriptome-QTL Analysis of Correlated CNS Transcripts in WebQTL Reveals Major Genetic Variation in Synaptic Vesicle Related Gene Expression," *UT-KBRIN-ORNL Bioinformatics Summit*, Cadiz, Kentucky, April, 2005, with N. E. Baldwin, E. J. Chesler, S. Kirov, L. Lu, K. F. Manly, and B. Zhang.
322. "Detection of Network Motifs in Large Biological Databases," *UT-KBRIN-ORNL Bioinformatics Summit*, Cadiz, Kentucky, April, 2005, with X. Peng, A. M. Saxton, J. R. Snoddy, A. M. Tebbe and B. H. Voy.
323. "Gene Expression Data from Correlation to Cluster Processing using Low-Dose IR Data for Illustration," *UT-KBRIN-ORNL Bioinformatics Summit*, Cadiz, Kentucky, April, 2005, with A. M. Saxton, J. Scharff and B. H. Voy.
324. "Exon Signal Enhancer Finding through Phylogenetic Footprinting," *UT-KBRIN-ORNL Bioinformatics Summit*, Cadiz, Kentucky, April, 2005, with J. D. Eblen, S. Kirov, J. R. Snoddy and P. Stoilov.
325. "Novel Computational and Integrative Tools for the Analysis of Gene Co-Expression Data," *DIMACS Workshop on Detecting and Processing Regularities in High Throughput Biological Data*, Rutgers University, New Brunswick, New Jersey, June, 2005. **Invited.**

326. "A Graph Theoretical Approach to Systems Genetic Analysis of Gene Transcription and Complex Phenotypes," *Annual Meeting of the Complex Trait Consortium*, Groningen, The Netherlands, July, 2005, with E. J. Chesler, L. Lu, K. F. Manly, S. M. Pitts, J. A. Scharff, J. Wang and R. W. Williams.
327. "Recent Progress on Large-Scale FPT Applications," *International Workshop on Exact Algorithms and Fixed-Parameter Tractability*, Schloss Dagstuhl, Germany, July, 2005. **Invited.**
328. "Towards Genome Scale Biological Data Analysis," *DOE SciDAC II Biology Summit: The Roll of SciDAC II in Predictive Systems Biology*, Reston, Virginia, August, 2005. **Invited.**
329. "Differential Proteomics of *Rhodospseudomonas palustris* under its Versatile Metabolic States," *International Conference on Microbial Genomes*, Madison, Wisconsin, September, 2005, with B. Zhang, N. C. VerBerkmoes, R. L. Hettich and N. F. Samatova.
330. "Fixed-Parameter Tractability: Background, Recent Progress and Applications in Computational Biology," *AMS Southeast Meeting Session on Discrete Models in Biology*, Johnson City, Tennessee, October, 2005. **Invited.**
331. "Graph Applications in Systems Genetics," *AMS Southeast Meeting Session on Discrete Models in Biology*, Johnson City, Tennessee, October, 2005, with E. J. Chesler. **Invited.**
332. "Systems Genetics of Central Nervous System from Genes to Phenotypes," *Society for Neuroscience Annual Meeting*, Washington, DC, November, 2005, with E. J. Chesler, L. Lu, K. F. Manly, S. M. Pitts, J. A. Scharff, J. Wang and R. W. Williams.
333. "A Graph Theoretical Approach to Systems Genetic Analysis of Gene Transcription and Complex Phenotypes across Biological Scale," *International Mouse Genome Conference*, Strasbourg, France, November, 2005, with E. J. Chesler, L. Lu, K. F. Manly, S. M. Pitts, J. A. Scharff, J. Wang and R. W. Williams.
334. "Scalable Graph-Theoretical Approaches to Biological Network Analysis," *SIAM Conference on Parallel Processing for Scientific Computing*, San Francisco, California, February, 2006, with F. N. Abu-Khzam, N. F. Samatova, W. H. Suters and Y. Zhang. **Invited.**
335. "Gene-Centric Combinatorial Approaches for Discovery of Phenotype Ontology," *EUMOR-PHIA Annual Meeting, Understanding Human Disease through Mouse Genetics*, Barcelona, Spain, February, 2006, with E. J. Baker, E. J. Chesler, R. Kirova, Z. Li and A. D. Perkins.
336. "Risk Assessment and HRT Effects in Menopause: the Use of Mass Spectrometry to Study Urinary Proteomics," *Society of Gynecologic Investigation Annual Scientific Meeting*, Toronto, Ontario, Canada, March, 2006, with A. Fadiel, F. Naftolin, X. Peng, A. D. Perkins, D. Phil, H. S. Taylor, O. Tuncalp and D. Vitello.
337. "Combinatorial Methods for Systems Genetics Analysis," *Meeting on Systems Biology: Global Regulation of Gene Expression*, Cold Spring Harbor, New York, March, 2006, with E. J. Chesler, R. Kirova, A. D. Perkins and J. A. Scharff.

338. "Discovering Regulating Loci using Graph Theory Coupled with Principal Component and Factor Analysis," *Meeting on Systems Biology: Global Regulation of Gene Expression*, Cold Spring Harbor, New York, March, 2006, with E. J. Chesler, R. Kirova and A. D. Perkins.
339. "Clustering Algorithms for the Analysis of Type 1 Diabetes Data," *DIMACS Workshop on Clustering Problems in Biological Networks*, Rutgers University, New Brunswick, New Jersey, May, 2006, with J. D. Eblen, I. C. Gerling, A. M. Saxton and J. R. Snoddy.
340. "Gene to Phenotype Network Applications and the Eight-Way Collaborative Cross: Progress and Future Potential," *Meeting of the Complex Trait Consortium*, Chapel Hill, North Carolina, May, 2006, with E. J. Chesler, R. Kirova, A. D. Perkins, B. H. Voy and Y. Zhang.
341. "Examination of Genetic Networks that Regulate Gene Expression in Liver using Complex Trait Analysis," *Meeting of the Complex Trait Consortium*, Chapel Hill, North Carolina, May, 2006, with E. J. Chesler, D. Gatti, R. Kirova, L. Lu, A. Maki, A. D. Perkins, Y. Qu, I. Rusyn, D. W. Threadgill, J. Wang and R. W. Williams.
342. "Statistical Tools are Needed for Microarray Expression and Co-expression Information," *Joint Research Conference on Statistics in Quality, Industry and Technology*, Knoxville, Tennessee, June, 2006, with A. M. Saxton and B. H. Voy. **Invited.**
343. "Can We Get a Grip on Complexity in Allergy Research?," *Congress of the European Academy of Allergology and Clinical Immunology*, Vienna, Austria, June, 2006, with L. O. Cardell. **Invited.**
344. "Innovative Combinatorial Tools for the Analysis of Allergy Co-Expression Data," *Congress of the European Academy of Allergology and Clinical Immunology*, Vienna, Austria, June, 2006, with A. D. Perkins and M. Benson.
345. "Mapping the Ethanol-Related Phenome Space Using Gene-Centric Combinatorial Methods," *Scientific Meeting of the Research Society on Alcoholism*, Baltimore, Maryland, June, 2006, with E. J. Baker, E. J. Chesler, R. Kirova, Z. Li, A. D. Perkins and S. M. Pitts.
346. "High Performance Graph Algorithms for Regulatory Network Discovery," *SIAM Conference on Discrete Mathematics*, Victoria, British Columbia, Canada, June, 2006. **Invited.**
347. "Scalable Computational Methods for Analysis of the Low Dose Radiation Transcriptome," *DOE Low Dose Radiation Research Workshop*, Washington, DC, July, 2006.
348. "Genomic Analysis of Temporal Pattern Effects of Pax6 Mutation on Cerebellar Gene Expression," *Society for Neuroscience Annual Meeting*, Atlanta, Georgia, October, 2006, with E. J. Chesler, B. Ford, D. A. Goldowitz, R. Homayouni, R. Kirova, A. D. Perkins and D. J. Swanson.
349. "Demands and Solutions for Genome-Scale Combinatorial Analysis," *Conference on Computational Science at the Petascale*, Fall Creek Falls, Tennessee, October, 2006, with E. J. Chesler, J. D. Eblen, L. J. Hauser, R. L. Hettich, P. F. LoCascio, A. D. Perkins, A. M. Saxton,

- D. L. Tabb, D. K. Thompson, N. C. VerBerkmoes, B. H. Voy, R. Yordanova, B. Zhang and Y. Zhang.
350. "Integrated Genomic Analysis of Genetic Effects on Cerebellar Gene Expression," *Cerebellar Development Bench to Bedside Conference*, Washington, DC, November, 2006, with E. J. Chesler, H. R. Glenn, D. A. Goldowitz, R. Homayouni, R. Kirova, A. D. Perkins and D. J. Swanson.
 351. "Comparison of the Genetic Structure of Mouse Populations by Combinatorial Analysis of Long-Range Linkage Disequilibrium Networks," *International Mammalian Genome Conference*, Charleston, SC, November, 2006, with E. J. Chesler, G. A. Churchill, R. Kirova and Y. Zhang.
 352. "Mapping the Phenome Space Using Combinatorial Analysis of the Empirical Associations of Genes and Phenotypes," *International Mammalian Genome Conference*, Charleston, SC, November, 2006, with E. J. Baker, E. J. Chesler, R. Kirova, Z. Li and A. D. Perkins.
 353. "Systems Genetics for Systems Biology," *Symposium on the Interface: Computing Science and Statistics*, Philadelphia, Pennsylvania, May, 2007, with E. J. Chesler, R. Kirova, X. Peng, and A. D. Perkins. **Invited.**
 354. "The Ontological Discovery Environment: A Web-based Tool for Mapping the Behavioral Phenome," *International Behavioural and Neural Genetics Society Annual Meeting*, Doorwerth, The Netherlands, May, 2007, with E. J. Baker, E. J. Chesler, J. Jay, R. Kirova, V. Philip and Y. Zhang.
 355. "Correlational and Novel Computational Analyses of High-Throughput Biological Data," *Bertinoro Systems Biology Workshop*, Bertinoro, Italy, May, 2007. **Invited.**
 356. "Using Genetics and Genomics to Understand Relationships among Anxiety-like Behaviors and Other Traits," *International Behavioral Neuroscience Society Meeting*, Rio de Janeiro, Brazil, June, 2007, with E. J. Baker, E. J. Chesler, R. Kirova, Z. Li, V. Philip and Y. Zhang.
 357. "Advances in the High-Throughput Analysis of Allergic Disease," *Congress of the European Academy of Allergology and Clinical Immunology*, Göteborg, Sweden, June, 2007. **Invited.**
 358. "FPT and Computational Biology: A Medley of Recent Algorithmic Applications," *International Workshop on Structure Theory and FPT Algorithmics for Graphs, Digraphs and Hypergraphs*, Schloss Dagstuhl, Germany, July, 2007. **Invited.**
 359. "Ontological Discovery Environment: A Web-Based Tool for Integrating Gene-Centered Alcohol Research Across Multiple Species," *Scientific Meeting of the Research Society on Alcoholism*, Chicago, Illinois, July, 2007, with E. J. Baker, E. J. Chesler, R. Kirova, Z. Li, V. Philip and Y. Zhang.
 360. "High Throughput Analysis of the Low Dose Radiation Transcriptome," *DOE EPSCoR Program Review Workshop*, Golden, Colorado, July, 2007, with E. J. Chesler and B. H. Voy. **Invited.**

361. “Real-Time Analysis and Visualization of Complex Marine Ecosystem Relationships: A Case Study Using North Sea Historical Data,” *International Council for the Exploration of the Sea Annual Science Conference*, Helsinki, Finland, September, 2007, with D. J. Beare, K. Brander, A. Kellermann, A. J. Kenny, A. D. Perkins and G. L. Rogers.
362. “OntologicalDiscovery.org: A Web Resource for the Empirical Discovery of Phenotypic Relations across Species and Experimental Systems,” *International Mammalian Genome Conference*, Kyoto, Japan, October, 2007, with E. J. Baker, E. J. Chesler, J. Jay, Z. Li, V. Philip and Y. Zhang.
363. “Mathematical Challenges for Quantitative Biological Data Analysis (Plenary Lecture),” *NSF Workshop on Quantitative Omics and Applications*, Murfreesboro, Tennessee, November, 2007. **Invited.**
364. “GRiTS: A Bioinformatic Toolset for Exploring Gene Regulation in Time and Space,” *Society for Neuroscience Annual Meeting*, San Diego, California, November, 2007, with E. J. Chesler, Y. Cui, H. R. Glenn, D. A. Goldowitz, R. Homayouni, R. Kirova, C. A. Phillips and D. J. Swanson.
365. “The Ontological Discovery Environment: An Internet Resource for Integration of Phenomic Information through Gene-Centric Analyses,” *Society for Neuroscience Annual Meeting*, San Diego, California, November, 2007, with E. J. Baker, E. J. Chesler, H. R. Glenn, D. A. Goldowitz, J. P. Hulvey, J. Jay, R. Kirova, Z. Li, V. Philip, D. J. Swanson and Y. Zhang.
366. “An Integrated Assessment of the North Sea,” *International Council for the Exploration of the Sea Symposium on Environmental Indicators: Utility in Meeting Regulatory Needs*, London, United Kingdom, November, 2007, with D. J. Beare, M. Devlin, A. Gallego, R. W. Gauldie, C. Haughton, A. J. Kenny, P. J. Kershaw, P. Licandro, A. D. Perkins, J. Reid, H. R. Skjoldal and K. Winpenny.
367. “Extracting Putative Gene Networks for Low Dose Radiation with Graph Theoretical Algorithms,” *DOE Low Dose Radiation Research Investigators’ Workshop*, Washington, DC, January, 2008, with E. J. Chesler and B. H. Voy.
368. “Molecular Pathways that Mediate Genetic Susceptibility to Low Dose Ionizing Radiation,” *DOE Low Dose Radiation Research Investigators’ Workshop*, Washington, DC, January, 2008, with J. S. Bogard, K. Cheng, E. J. Chesler, S. Kania, R. M. Lynch, D. R. Miller, S. Naswa, G. Shaw, D. Trent and B. H. Voy.
369. “The Collaborative Cross at ORNL: Building a Better Mouse Population for the Systems Genetic Analysis of Low Dose Radiation Exposure,” *DOE Low Dose Radiation Research Investigators’ Workshop*, Washington, DC, January, 2008, with E. J. Chesler, C. Cuiat, K. Manly, D. R. Miller, V. Philip, B. H. Voy, Y. Wang and Y. Zhang.
370. “Analysis of High-Throughput Biological Data Part I: Scalable High Performance Algorithms and Implementations,” *NZIMA Napier Algorithmics Meeting*, Napier, New Zealand, February, 2008. **Invited.**

371. "Analysis of High-Throughput Biological Data Part II: Computational Bottlenecks and Novel Applications," *NZIMA Napier Algorithmics Meeting*, Napier, New Zealand, February, 2008. **Invited.**
372. "Computational Challenges in High-Throughput Studies," *Workshop on Functional Genomics and Proteomics in Allergy Research*, Aspenäs, Sweden, May, 2008. **Invited.**
373. "OntologicalDiscovery.org: A Web Resource for the Empirical Discovery of Phenotypic Relations across Species and Experimental Systems," *Annual Meeting of the Complex Trait Consortium*, Montreal, Canada, May, 2008, with E. J. Baker, E. J. Chesler, J. Jay, R. Kirova, Z. Li, V. M. Philip and Y. Zhang.
374. "Comparison of Linkage Disequilibrium Networks in Genetic Reference Populations," *Annual Meeting of the Complex Trait Consortium*, Montreal, Canada, May, 2008, with E. J. Chesler, G. A. Churchill, C. T. Cuiat, J. Huang, R. Kirova, J. R. New, V. M. Philip and Y. Zhang.
375. "FPT Meets Genome-Scale Biological Data," *International Summer School on Fixed-Parameter Tractability*, Shanghai, China, June, 2008. **Invited.**
376. "A Survey of FPT Applications," *International Conference on Algorithmic Aspects in Information and Management*, Shanghai, China, June, 2008. **Invited.**
377. "The Ontological Discovery Environment: an Internet Resource for Integration of Phenomic Information through Gene-Centric Analyses," *Research Society on Alcoholism and International Society for Biomedical Research on Alcoholism Joint Scientific Meeting*, Washington, DC, June, 2008, with E. J. Baker, E. J. Chesler, J. Jay, V. Philip and Y. Zhang.
378. "Design and Implementation Issues for Genome-Scale Optimization," *Winter School in Mathematics and Computational Biology*, University of Newcastle, Newcastle, Australia, July, 2008. **Invited.**
379. "Novel Algorithmic Tools for Biological Network Analysis," *Winter School in Mathematics and Computational Biology*, University of Newcastle, Newcastle, Australia, July, 2008. **Invited.**
380. "High Throughput Analysis of the Low Dose Radiation Transcriptome," *DOE EPSCoR Program Review Workshop*, Oak Ridge National Laboratory, Oak Ridge, Tennessee, 2008, with B. Borate, E. J. Chesler, J. D. Eblen, R. M. Lynch, S. Naswa, A. D. Perkins, C. A. Phillips, G. L. Rogers, A. M. Saxton, B. H. Voy and Y. Zhang. **Invited.**
381. "The Role of Computation in Unraveling Molecular Mechanisms of Allergic Disease," *International Conference on Systems Biology*, Göteborg, Sweden, August, 2008. **Invited.**
382. "The Phenome Interdependency and Similarity Hierarchy: A Tool for Genome-Scale Phenotypic Analysis," *International Mammalian Genome Conference*, Prague, Czech Republic, November, 2008, with E. J. Baker, E. J. Chesler, J. Jay, V. M. Philip and Y. Zhang.

383. "Consistency of Linkage Disequilibrium across Mouse Populations," *International Mammalian Genome Conference*, Prague, Czech Republic, November, 2008, with E. J. Chesler, G. A. Churchill, C. T. Cuiat, V. M. Philip and Y. Zhang.
384. "Combinatorial Analysis of High-Throughput Transcriptomic Biological Data (Keynote Lecture)," *International Conference for Young Computer Scientists*, Zhang Jia Jie, China, November, 2008. **Invited.**
385. "Graph-Theoretical Algorithmic Analysis of Microarray Data for Identification of Murine Brain Ethanol-Regulated Gene Networks," *Society for Neuroscience Annual Meeting*, Washington, DC, November, 2008, with E. J. Chesler, M. F. Miles, A. D. Perkins, C. A. Phillips and A. R. Wolen.
386. "Gene Regulation in Time and Space (GRiTS): Molecular Signatures of Cerebellar Development," *Society for Neuroscience Annual Meeting*, Washington, DC, November, 2008, with E. Brauer, E. J. Chesler, Y. Cui, S. Duvvuru, H. R. Glenn, D. A. Goldowitz, T. J. Ha, K. Hamre, R. Homayouni, C. A. Phillips, J. Song, D. J. Swanson and E. Yjioe.
387. "Temporal Genetic Analysis of Cerebellar Gene Expression in BXD RI Lines in Early Development," *Society for Neuroscience Annual Meeting*, Washington, DC, November, 2008, with E. J. Chesler, S. Duvvuru, H. R. Glenn, D. A. Goldowitz, J. Huang, J. R. New, C. A. Phillips and D. J. Swanson.
388. "From Genome to Systems Genetics: The Collaborative Cross Mouse Genetic Reference Population," *Annual Meeting of the Society for Integrative and Comparative Biology*, Boston, Massachusetts, January 2009, with E. J. Chesler, G. A. Churchill, C. T. Cuiat, K. F. Manly, V. M. Philip, B. H. Voy and Y. Zhang.
389. "The Ontological Discovery Environment: Integrating Gene-Centered Data Across Diverse Experiments," *UT-ORNL-KBRIN Bioinformatics Summit*, Fall Creek Falls, Tennessee, March, 2009, with E. J. Baker, E. J. Chesler, J. J. Jay, R. Kirova, V. M. Philip and Y. Zhang.
390. "GrAPPA: Graph Algorithms Pipeline for Pathway Analysis," *UT-ORNL-KBRIN Bioinformatics Summit*, Fall Creek Falls, Tennessee, March, 2009, with E. J. Chesler, J. D. Eblen, J. J. Jay, J. P. Lefebvre, S. Naswa, C. A. Phillips, G. L. Rogers and B. Voy.
391. "Identifying Ethanol-Regulated Gene Networks in the Mouse Brain using Graph Algorithms," *UT-ORNL-KBRIN Bioinformatics Summit*, Fall Creek Falls, Tennessee, March, 2009, with E. J. Chesler, M. F. Miles, A. D. Perkins, C. A. Phillips and A. R. Wolen.
392. "Advances in Scalable Computation for High-Throughput Data Analysis," *Bertinoro Systems Biology Workshop*, Bertinoro, Italy, March, 2009. **Invited.**
393. "Combinatorial Tools for Unraveling the Low Dose Radiation Response," *DOE Low Dose Radiation Research Investigators' Workshop*, Washington, DC, April, 2009, with E. J. Chesler, R. M. Lynch, S. Naswa, G. L. Rogers and B. H. Voy.

394. "Characterizing the Gut Microbiome in Relation to Host Intestinal mRNA in Collaborative Cross Progenitors," *Complex Trait Community Annual Meeting*, Manchester, United Kingdom, May, 2009, with E. J. Chesler, C. T. Culiati, S. Duvvuru, C. Foster, A. V. Palumbo and M. Podar.
395. "Extracting and Validating Gene-Phenotype Association Networks Using the Ontological Discovery Environment," *Complex Trait Community Annual Meeting*, Manchester, United Kingdom, May, 2009, with E. J. Baker, E. J. Chesler, B. Gomero, J. J. Jay, V. M. Philip and Y. Zhang.
396. "High-Throughput Computation Can Help Identify Key Molecular Response Networks in Allergic Disease," *Congress of the European Academy of Allergology and Clinical Immunology*, Warsaw, Poland, June, 2009. **Invited.**
397. "Generating Exact Solutions to Difficult Combinatorial Problems on Extremely Large Graphs Using Out-of-Core Techniques," *TeraGrid 09*, Arlington, Virginia, June, 2009, with G. L. Rogers, C. A. Phillips, J. D. Eblen, A. D. Perkins and F. N. Abu-Khzam.
398. "Scalable Computational Methods for the Analysis of High-Throughput Biological Data," *DOE EPSCoR Program Review Workshop*, Brookhaven National Laboratory, Upton, New York, July, 2009. **Invited.**
399. "Parameterized Algorithms for String Correction Problems," *International Workshop on Parameterized Complexity and Approximation Algorithms*, Schloss Dagstuhl, Germany, December, 2009, with F. N. Abu-Khzam, F. Dehne, H. Fernau, S. Lee-Cultura and U. Stege. **Invited.**
400. "Scalable High Performance Algorithms and Implementations, with Application to the Analysis of High-Throughput Biological Data," *Institute of Biological Engineering Annual Conference*, Cambridge, Massachusetts, March, 2010. **Invited.**
401. "Graph Algorithms for Machine Learning: a Case-Control Study Based on Prostate Cancer Populations and High Throughput Transcriptomic Data," *UT-ORNL-KBRIN Bioinformatics Summit*, Cadiz, Kentucky, March, 2010, with P. Moscato and G. L. Rogers.
402. "Inferring Gene Coexpression Networks for Low Dose Ionizing Radiation using Graph Theoretical Algorithms and Systems Genetics," *UT-ORNL-KBRIN Bioinformatics Summit*, Cadiz, Kentucky, March, 2010, with E. J. Chesler, S. Das, S. A. Kania, R. M. Lynch, S. Naswa, G. L. Rogers, A. M. Saxton and B. H. Voy.
403. "Serendipitous Discoveries in Microarray Analysis," *UT-ORNL-KBRIN Bioinformatics Summit*, Cadiz, Kentucky, March, 2010, with S. R. Ellingson, H. R. Glenn, D. A. Goldowitz, T. Ha, C. A. Phillips and D. J. Swanson.
404. "The End to the Keller Conjecture," *Southeastern International Conference on Combinatorics, Graph Theory and Computing*, Boca Raton, Florida, March, 2010, with J. Debroni, J. D. Eblen, W. J. Myrvold, P. W. Shor and D. P. Weerapurage.

405. "Extracting Putative Gene Coexpression Networks for Low Dose Ionizing Radiation using Combinatorial Algorithms," *DOE Low Dose Radiation Research Investigators' Workshop*, Washington, DC, April, 2010, with E. J. Chesler, S. Das, S. A. Kania, R. M. Lynch, S. Naswa, G. L. Rogers, A. M. Saxton and B. H. Voy.
406. "Systems Genetics Approach to Low Dose Radiation," *DOE Low Dose Radiation Research Investigators' Workshop*, Washington, DC, April, 2010, with E. J. Chesler, S. Das, S. A. Kania, R. M. Lynch, S. Naswa, G. L. Rogers, A. M. Saxton, and B. H. Voy.
407. "Novel Algorithmic Tools for Biological Network Analysis," *Annual Molecular Biology Conference*, Byblos, Lebanon, May, 2010. **Invited.**
408. "Graph Theoretic Analysis of BXD Mouse mRNA Expression Ethanol And Phenotype Data," *Scientific Meeting of the Research Society on Alcoholism*, San Antonio, Texas, June, 2010, with M. F. Miles, C. A. Phillips and A. R. Wolen.
409. "Elucidation of Ethanol Responsive Gene Networks in BXD Recombinant Inbred Strains," *Scientific Meeting of the Research Society on Alcoholism*, San Antonio, Texas, June, 2010, with L. Lu, M. F. Miles, C. A. Phillips, A. H. Putman, R. W. Williams and A. R. Wolen.
410. "The Ontological Discovery Environment: A Web-based Software System for Combinatorial Cross-Species Functional Genomic Data Integration," *International Conference on Intelligent Systems for Molecular Biology*, Boston, Massachusetts, July, 2010, with E. J. Baker, E. J. Chesler and J. J. Jay.
411. "Computation for Large Systems I: Algorithms and Implementations," *Winter School in Mathematics and Computational Biology*, University of Queensland, Brisbane, Australia, July, 2010. **Invited.**
412. "Computation for Large Systems II: Applications and Analysis," *Winter School in Mathematics and Computational Biology*, University of Queensland, Brisbane, Australia, July, 2010. **Invited.**
413. "High and Dry in a Sea of Genes: Highlighting Drug Abuse and Alcoholism Relationships with the Ontological Discovery Environment," *Society for Neuroscience Annual Meeting*, San Diego, California, November, 2010, with E. J. Baker, E. J. Chesler and J. J. Jay.
414. "Integrating Convergent Evidence across Species to Find QTL Candidate Genes using the Ontological Discovery Environment," *Society for Neuroscience Annual Meeting*, San Diego, California, November, 2010, with E. J. Baker, E. J. Chesler, J. J. Jay and V. M. Philip.
415. "Analysis of Cerebellar Development Across Time and Space using Web-Based Bioinformatic and Visualization Resources," *Society for Neuroscience Annual Meeting*, San Diego, California, November, 2010, with E. J. Chesler, H. R. Glenn, D. A. Goldowitz, T. J. Ha, K. Hamre, M. Larouche, Z. O'Young, C. A. Phillips, C. R. Phillips, J. Song and D. J. Swanson.
416. "The Role of Supercomputing in Biomarker Discovery," *Inaugural Biomarker Discovery Conference*, Shoal Bay, Australia, December, 2010. **Invited.**

417. “Computational Advances in High-Throughput Biological Data Analysis,” *Inaugural Biomarker Discovery Conference*, Shoal Bay, Australia, December, 2010. **Invited.**
418. “A Graph Theoretical and Systems Genetics Approach to Investigate the Impact of Genetic Variation on the Low Dose Ionizing Radiation Response,” *UT-ORNL-KBRIN Bioinformatics Summit*, Memphis, Tennessee, April, 2011, with E. J. Chesler, S. Das, S. A. Kania, R. M. Lynch, S. Naswa, G. L. Rogers, A. M. Saxton and B. H. Voy.
419. “Identifying Putative Biomarkers in Complex Disease,” *UT-ORNL-KBRIN Bioinformatics Summit*, Memphis, Tennessee, April, 2011, with F. Barrenäs, M. Benson and G. L. Rogers.
420. “A Systems Genetics Approach to Low Dose Radiation,” *DOE Low Dose Radiation Research Investigators’ Workshop*, Bethesda, MD, May, 2011, with S. Das, S. A. Kania, R. M. Lynch, S. Naswa, G. Pighetti, G. L. Rogers, A. M. Saxton, N. Siriwardhana and B. H. Voy. **Invited.**
421. “Biomarkers and Diagnostic Tools: Computational Advances in Omics Data Mining,” *INFORMS Healthcare Conference*, Montreal, Quebec, Canada, June, 2011. **Invited.**
422. “Integrative Genomics of Alcohol Use and Alcohol Response: Finding Convergent Evidence Across Species And Experimental Systems,” *Scientific Meeting of the Research Society on Alcoholism*, Atlanta, GA, June, 2011, with E. J. Baker, J. Bubier, E. J. Chesler, J. J. Jay and V. M. Philip.
423. “Intra- And Interregional Ethanol Responsive Gene Networks of the Mesolimbocortical Dopamine System,” *Scientific Meeting of the Research Society on Alcoholism*, Atlanta, GA, June, 2011, with N. A. Bruce, L. Lu, M. F. Miles, C. A. Phillips, A. H. Putnam, P. J. Vorster, R. W. Williams and A. R. Wolen.
424. “Practical Applications of FPT in High-Throughput Biological Data Analysis,” *Workshop on Parameterized Complexity: Not-About-Graphs*, Darwin, Australia, August, 2011. **Invited.**
425. “Combinatorial Algorithms and Graph Analysis to Process High-Throughput Biological Data to Form Network Models that Describe Emerging Modules for Seasonal Allergic Rhinitis” *Workshop on Systems Biology to Personalize Medication and Find Novel Drug Candidates*, Heidelberg, Germany, September, 2011. **Invited.**
426. “Multivariate Analysis and Applications, A Tutorial” *Workshop on Fixed Parameter Tractability, held in conjunction with Computing: the Australasian Theory Symposium (CATS)*, Melbourne, Australia, February, 2012. **Invited.**
427. “On Finding Overlapping Graph Complexes, with Applications to PPI Network Analysis,” *UT-ORNL-KBRIN Bioinformatics Summit*, Louisville, Kentucky, April, 2012, with M. D. Alamgir, F. Barrenäs, M. Benson, F. Dehne, A. Golshani, J. R. Green, Y. Gui, M. Hooshyar, K. Omid, C. A. Phillips, S. Pitre, B. Samanfar, A. Schoenrock, and H. Wang.

428. “Differential Shannon Entropy and Differential Coefficient of Variation: Alternatives to Differential Expression in the Search for Disease-Related Genes,” *UT-ORNL-KBRIN Bioinformatics Summit*, Louisville, Kentucky, April, 2012, with F. Barrenäs, M. Benson, C. A. Phillips, G. L. Rogers and K. Wang.
429. “Graph Theoretical Tools to Elucidate and Increase Our Understanding of Complex Relationships in Health Disparities Data,” *State of Environmental Justice in America Annual Conference*, Washington, DC, April, 2012. **Invited.**
430. “Environmental Health: An Introduction to Computational Analysis,” *Dr. M. Alfred Haynes Research Training Institute for Social Equity*, Nashville, Tennessee, May, 2012. **Invited.**
431. “A Prehistory of Fixed-Parameter Tractability,” *International Workshop on Data Reduction and Problem Kernels*, Schloss Dagstuhl, Germany, June, 2012. **Invited.**
432. “Uncovering Latent Relationships in High Dimensional Data with High Performance Parameterized Algorithms: A Smorgasbord of Applications,” *International Workshop on Applications of Parameterized Algorithms and Complexity*, Warwick, United Kingdom, July, 2012. **Invited.**
433. “Methylation Biomarkers: Algorithms and Applications,” *Biomarker Discovery Conference*, Shoal Bay, Australia, December, 2012. **Invited.**
434. “The Public Health Exposome Project,” *Summit on the Science of Eliminating Health Disparities*, National Harbor, Maryland, December, 2012, with M. Al-Hamdan, D. Hood, W. Im, P. Juarez, R. Levine, M. Lichtveld, P. Matthews-Juarez, P. Robinson and S. Wilson.
435. “Healthcare Systems, Socio-demographics and Regular Screening Mammography among Black Medicare Beneficiaries in Southern US Counties,” *Summit on the Science of Eliminating Health Disparities*, National Harbor, Maryland, December, 2012, with P. Juarez, B. J. Kilbourne, K. A. Kilbourne, R. S. Levine, G. L. Rogers and H. B. Zoorob.
436. “Computing Exact Solutions with Parameterized Algorithms: High Performance Implementations and Amenable Applications,” *Coast Combinatorics Conference*, Kailua-Kona, Hawaii, February, 2013. **Invited.**
437. “Graph Width Metrics, Well-Quasi Ordered Sets and Fixed Parameter Tractability: History, Applications and Scalable Implementations,” *SIAM Conference on Computational Science and Engineering*, Boston, Massachusetts, February, 2013. **Invited.**
438. “Genetics of Hippocampal Gene Expression in Diversity Outbred Mice,” *Complex Trait Community Annual Meeting*, Madison, Wisconsin, May, 2013, with E. J. Chesler, G. A. Churchill, D. M. Gatti, J. A. Graber, M. A. Hibbs, S. C. Munger, C. A. Phillips, N. Raghupathy and R. F. Robledo.
439. “Effect of Genetic Diversity of Collaborative Cross Mice on Intestinal Microbial Communities and their Association with Disease Related Traits in Mice,” *Complex Trait Community*

- Annual Meeting*, Madison, Wisconsin, May, 2013, with J. A. Bubier, J. Campbell, C. M. Foster, T. Vishnivetskaya, S. Duvvuru, V. M. Philip, C. A. Phillips, C. T. Culiati, A. V. Palumbo, M. Podar and E. J. Chesler.
440. "GeneWeaver: Building Context-Driven Similarity on Empirically-Defined Functional Genomics Relationships," *International Conference on Intelligent Systems for Molecular Biology*, Berlin, Germany, July, 2013, with E. J. Baker, J. A. Bubier, E. J. Chesler and J. J. Jay.
 441. "Biomedical Informatics for Health Disparities Research: Uncovering Latent Relationships in High Dimensional Heterogeneous Data," *Biomedical Informatics Distinguished Lecturer Series*, Memphis, Tennessee, December, 2013. **Invited.**
 442. "Conceptual Comparison through Integrative Functional Genomics in GeneWeaver.org," *Rocky Mountain Bioinformatics Conference*, Aspen, Colorado, December, 2013, with E. J. Baker, E. J. Chesler and C. A. Phillips.
 443. "Adipose Tissue DNA Methylation Markers Associated with Weight-Loss and Tissue Specificity," *Keystone Symposium on Epigenetic Programming and Inheritance*, Boston, Massachusetts, April, 2014, with M. Benton, R. D. Hagan, A. Johnstone, D. Macartney-Coxson and R. Stubbs.
 444. "A Tale of Two [Adipose] Tissues: DNA Methylation Markers Associated with Weight-Loss and Tissue Specificity," *Genemappers*, Barossa Valley, Australia, May, 2014, with M. Benton, R. D. Hagan, A. Johnstone, D. Macartney-Coxson and R. Stubbs.
 445. "Application and Validation of Cross Species Integration of Functional Genomics Studies in GeneWeaver," *Scientific Meeting of the Research Society on Alcoholism*, Bellevue, Washington, June, 2014, with E. J. Baker, J. A. Bubier, E. J. Chesler, and C. A. Phillips.
 446. "Cross-Species Integrative Functional Genomics using Geneweaver Reveals a Role for *Pafah1b1* in Alcohol Response and Preference," *Scientific Meeting of the Research Society on Alcoholism*, Bellevue, Washington, June, 2014, with E. J. Baker, J. A. Bubier, E. J. Chesler, J. J. Jay and T. Wilcox.
 447. "Combinatorial Network Analysis Reveals Novel Race Specific Molecular Activation in the Setting of Community-Acquired Pneumonia," *Annual Conference on Shock*, Charlotte, North Carolina, June, 2014, with G. Clermont, O. M. Palmer and G. L. Rogers.
 448. "A Data-Driven Approach to Mechanisms of Premature Birth in US Urban Counties," *Society for Epidemiologic Research Annual Meeting*, Seattle, Washington, June, 2014, with M. Alhamdan, S. H. Baktash, P. Juarez, A. Kershbaum, B. Kilbourne, R. L. Levine and G. L. Rogers.
 449. "Mammography Screening Rates and Breast Cancer Mortality using SEER-Medicare Data," *American Public Health Association Annual Meeting*, New Orleans, Louisiana, November, 2014, with M. Sanderson, R. S. Levine, M. Fadden, B. J. Kilbourne, G. L. Rogers, M. Pisu and R. Zoorob.

450. "Screening Mammography Use among Medicare Beneficiaries Ages 65 to 74 Years in 2005 to 2008," *American Public Health Association Annual Meeting*, New Orleans, Louisiana, November, 2014, with R. S. Levine, B. J. Kilbourne, M. Pisu, M. Sanderson, V. Cain, M. Fadden, G. L. Rogers, B. Husaini and R. Zoorob.
451. "Racial Disparities in US Infant Mortality: Two Promising Perspectives on Hypothesis Generation," *American Public Health Association Annual Meeting*, New Orleans, Louisiana, November, 2014, with B. J. Kilbourne, G. L. Rogers, S. H. Baktash, A. Keshenbaum, B. Husaini, G. Ladson and R. S. Levine.
452. "Heart Disease Mortality, Fine Particulate Matter Air Pollution, and Heat in US Counties," *American Public Health Association Annual Meeting*, New Orleans, Louisiana, November, 2014, with W. Crosson, M. Al-Hamdan, B. J. Kilbourne, G. L. Rogers, A. Keshenbaum, K. Kilbourne, P. D. Juarez, S. H. Baktash and R. S. Levine.
453. "Pathways to Low Mortality among Young and Middle-Aged Black and African American Men," *American Public Health Association Annual Meeting*, New Orleans, Louisiana, November, 2014, with R. S. Levine, B. J. Kilbourne, G. L. Rogers, J. Ekundayo, B. Husaini, A. Keshenbaum, S. H. Baktash and R. Zoorob.
454. "An Automated Resource for Enhanced Differential Analysis," *UT-ORNL-KBRIN Bioinformatics Summit*, Paris Landing, Tennessee, March, 2015, with K. Wang, C. A. Phillips and A. M. Saxton.
455. "Multipartite Analysis of Cross-Species Genomics Data," *ACM International Workshop on Big Data in Life Sciences*, Atlanta, Georgia, September, 2015, with C. A. Phillips, K. Wang, J. Bubier, E. J. Baker and E. J. Chesler. **Invited.**
456. "The Effect of Social Support on Prematurity," *Prematurity Prevention Conference: Quality Improvement, Evidence and Practice*, Crystal City, Virginia, November, 2015, with L. Moses-Simmons, T. Franklin, P. Matthews-Juarez, P.D. Juarez, A. M. Saxton, G. L. Rogers and G. Mari.
457. "GeneWeaver: Finding Relations among Genes, Phenotypes and Diseases from Heterogeneous Functional Genomics Data," *Pacific Symposium on Biocomputing*, Big Island, Hawaii, January, 2016, with E. J. Baker and E. J. Chesler.
458. "Data-Driven Refinement of Complex Disease Classifications from Integration of Heterogeneous Functional Genomics Data In GeneWeaver," *Human Genome Meeting*, Houston, Texas, February, 2016, with E. J. Chesler, T. Reynolds, J. A. Bubier, C. A. Phillips and E. J. Baker.
459. "Computational Tools for the Analysis of DNA Methylation Data," *AMS Session on Bioinformatics and Molecular Biology: Dynamic Models, Structural Analysis and Computational Methods*, Athens, Georgia, March, 2016, with R. D. Hagan.

460. "Enrichment vs Robustness: A Comparison of Transcriptomic Data Clustering Metrics," *UT-KBRIN Bioinformatics Summit*, Cadiz, Kentucky, April, 2016, with Y. Lu and C. A. Phillips.
461. "Methylation Biomarker Discovery in Age-Related Diseases," *Keystone Symposium on Epigenetic and Metabolic Regulation of Aging and Aging-Related Diseases*, Santa Fe, New Mexico, May, 2016, with R. D. Hagan.
462. "Integrating the Epigenome with Functional Genomic Studies of Alcoholism and Addiction," *Scientific Meeting of the Research Society on Alcoholism*, New Orleans, Louisiana, June, 2016, with E. J. Baker, J. A. Bubier, E. J. Chesler and T. Reynolds.
463. "Integration of Heterogeneous Cross-Species Functional Genomics Data in GeneWeaver.org," *The Allied Genetics Conference*, Orlando, Florida, July, 2016, with J. A. Bubier, G. Sutphin, E. J. Baker and E. J. Chesler.
464. "GeneWeaver.org: A System for Cross-Species Heterogeneous Functional Genomic Data Integration," *International Conference on Intelligent Systems for Molecular Biology*, Orlando, Florida, July, 2016, with T. R. Reynolds, C. A. Phillips, E. J. Baker and E. J. Chesler.
465. "A Multifactorial Obesity Model Developed from Nationwide Public Health Exposome Data and Modern Computational Analyses," *American Public Health Association Annual Meeting*, Denver, Colorado, October, 2016, with L.S. Gittner, B. J. Kilbourne, R. Vadapalli and H. M. R. Khan.
466. "Health Disparities Research: The Role of Big Data and Scalable Methods in Latent Relationship Discovery," *Xavier University Health Disparities Conference*, New Orleans, Louisiana, March, 2017. **Invited.**
467. "Heterogeneous Functional Genomics Data Integration for Addiction Biology," *NIDA Genetic Consortium Meeting*, Rockville, MD, January, 2018, with E. J. Chesler, J. A. Bubier, D. Skelly, M. Bogue and E. J. Baker.
468. "Using the Exposome and a Graph Theoretical Toolchain to Analyze Disparities," *Annual Meeting of the Society of Toxicology*, San Antonio, Texas, March, 2018, with P. D. Juarez, D. B. Hood, G. L. Rogers, S. H. Baktash, A. M. Saxton, P. Matthews-Juarez, W. Im, M. P. Cifuentes, C. A. Phillips and M. Y. Lichtveld.
469. "Unraveling Health Disparities with Graph Theoretical Algorithms and the Public Health Exposome," *21st Century Cures: Southeast Conference*, Knoxville, Tennessee, March, 2018, with C. L. Jackson and C. A. Phillips.
470. "Post-Neonatal Infant Mortality and Firearm-Related Homicide: Correlated Indicators of Population Health," *Society of Teachers of Family Medicine Annual Conference*, Washington, DC, May, 2018, with M. C. Mejia de Grubb, R. S. Levine, J. L. Salemi, S. K. Wood, J. Brown, L. S. Gittner, B. Husaini, G. S. Rust and C. H. Hennekens.

471. "Finding Convergent Behavioral Features of Alcohol Use Disorder Through Functional Genomic Comparison Across Species," *Scientific Meeting of the Research Society on Alcoholism*, San Diego, California, June, 2018, with E. J. Chesler, T. Reynolds, J. A. Bubier, C. A. Phillips and E. J. Baker.
472. "Data-Driven Discovery of Convergent Model Organism Complex Traits and Characteristics of Human Behavior," *The American Society of Human Genetics Annual Meeting*, San Diego, California, October, 2018, with T. Reynolds, J. A. Bubier, C. A. Phillips, E. J. Baker and E. J. Chesler.
473. "Minimum Dominating Set: Empirical Comparisons of Graph Theoretical Algorithms vs Mathematical Programming Formulations," *INFORMS Computing Society Conference*, Knoxville, Tennessee, January, 2019, with S. Grady, A. Wyer, H. Shams, F. N. Abu-Khzam and C. A. Phillips.
474. "Metabolic Models for Escherichia coli Phylotypes," *21st Century Cures: Southeast Conference*, Knoxville, Tennessee, March, 2019, with C. Bleker, K. Abram, Z. Udaondo, V. Wanchai and D. W. Ussery.
475. "An Integrated Metagenomics/Metaproteomics Approach to Gut Microbiome Metabolic Networks for Preterm Infants with and without Necrotizing Enterocolitis," *21st Century Cures: Southeast Conference*, Knoxville, Tennessee, March, 2019, with S. Grady, C. Bleker, J. A. Blakeley-Ruiz and R. L. Hettich.
476. "The Structural and Social Determinants of Differences in Non-adherence to Antihypertensive Medications between Blacks and Whites," *American Heart Association Scientific Meeting*, Philadelphia, Pennsylvania, November, 2019, with M. M. Donneyong, T-J Chang, S. Sealy-Jefferson, J. Jackson, J. Ricks, P. D. Juarez, P. Salsberry, R. O. Valdez, B. Lu, W. Im, D. B. Hood and M. Fischer.
477. "Big Data Analytics for Disparate Health Sciences Data," *Society of Toxicology Annual Meeting*, Anaheim, California, March, 2020. **Invited.**
478. "BD2K Analytics Reveal the Zika Virus Epidemic as only One of Multiple Factors Contributing to a Year-Over-Year 28-Fold Increase in Microcephaly Incidence," *Society of Toxicology Annual Meeting*, Anaheim, California, March, 2020, with M. P. Cifuentes, C. M. Suarez, R. Cifuentes, N. Doogan, N. Malod-Dognin, S. Windels, J. F. Valderrama, P. D. Juarez, R. B. Valdez, C. Colen, C. A. Phillips, A. Ramesh, P. Matthews-Juarez, M. Y. Lichtveld, C. Mouton, N. Przulj and D. B. Hood. **Invited.**
479. "Combinatorial Methods for Health Disparities Analysis," *American Public Health Association Annual Meeting*, San Francisco, California, October, 2020. **Invited.**
480. "Challenges in the Analysis of Heterogeneous Health Sciences Data," *First Online Conference on Algorithms*, held online, October, 2021. **Invited.**

481. “Algorithms, Implementations, and Applications in Network Domination,” *IEEE Workshop on Combinatorial Enumeration, Cybersecurity, and Applications*, Prescott, Arizona, August, 2022. **Invited.**
482. “Overcoming Data Science Challenges in Health Disparities Research,” *Xavier University Health Disparities Conference*, New Orleans, Louisiana, February, 2023, with S. K. Grady, L. Dojcsak, E. W. Harville, M. E. Wallace, D. Vilda, M. M. Donneyong, D. B. Hood, R. B. Valdez, A. Ramesh, W. Im, P. Matthews-Juarez and P. D. Juarez.
483. “Early-Stage Characteristics and Potential Predictors of Chronic Kidney Disease among US Veterans,” *American Society of Nephrology Annual Kidney Week Meeting*, Philadelphia, Pennsylvania, November 2023, with L. Dojcsak, C. Chen, S. K. Grady, Y. Mallisetty, H. Niu, P. Shrestha, K. Sumida, F. Thomas, and C. P. Kovesdy.
484. “Circulating Mycobiota and Mortality Among Patients Undergoing Hemodialysis,” *American Society of Nephrology Annual Kidney Week Meeting*, San Diego, California, October, 2024, with C-Y Chiu, Z. Han, C. Chen, A. Bajwa, J. Seegmiller. A. B. Karger , S. Datta, C. P. Kovesdy.
485. “Potential Gut-Derived Circulating Mycobiota Signatures Among Patients Undergoing Hemodialysis,” *American Society of Nephrology Annual Kidney Week Meeting*, Houston, Texas, November, 2025, with Y. Mallisetty, Z. Han, H. Janjua, C-Y Chiu, C. Chen, M. Sumida, A. Bajwa, C. P. Kovesdy, J. F. Pierre and K. Sumida.

Recent Software Releases

486. CAMDA-Tools, a suite of programs that implement novel combinatorial and graph algorithms for carcinoma detection, prediction and screening
487. ClustalXP, a high-performance parallel version of the popular ClustalW package used for multiple sequence alignment on DNA and protein data
488. GeneWeaver, a curated repository of genomic experimental results with an accompanying tool set for dynamic integration
489. GrAPPA, a web portal designed to simplify the process of high throughput biological data analysis and to provide the lay user with access to highly parallel computational resources
490. Maximal Biclique Enumeration, a set of efficient, scalable and highly innovative improvements over previous efforts to enumerate maximal bicliques in bipartite graphs
491. EntropyExplorer, an R package to augment differential expression with differential Shannon entropy and differential coefficient of variation