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The Multivariate Algorithmic Revolution and Beyond

Essays Dedicated to Michael R. Fellows
on the Occasion of His 60th Birthday

Springer

Volume Editors

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Michael R. Fellows

Preface

A Festschrift allows the scientific community to acknowledge the contributions of a scientist turning 60. In the case of Mike Fellows, we have much to acknowledge. Mike has made crucial contributions involving fundamental paradigm shifts in computer science and in mathematics/computing education.

Many researchers can make a technical contribution to science, but only a few can change the way we understand the world. Quite aside from the intrinsic difficulty of being able to visualize such a change in our thinking, when a paradigm shift is involved, there is often strong resistance to the new ideas. The initiators need vision and a strength of will to carry the program through.

Building upon early work with Mike Langston, Mike Fellows and Rod Downey founded the field of parameterized complexity. This is an approach toward understanding the complexity of computations which occur in practice. It seeks to use a multivariate approach to understand the exact contribution of each part of a problem in its computational complexity.

This is now a thriving field in computational complexity. Sensitizing algorithm designers to this paradigm has allowed for a distinctive set of tools to be developed. These tools allow for a systematic and extended dialog with a problem. This is a field consciously trying to tie together theoretical computer science and applications in a meaningful way, and has grown exponentially in the last 15 or so years.

The majority of contributions in this volume are in the area of parameterized complexity, with surveys from leading experts, including a basic guide to the area, and personal memories by those involved in the development.

It is very unusual for a world-class researcher in science to *also* be involved in education, and this seems especially true of *computer* science. With Nancy Casey, Tim Bell, Neil Koblitz and others, Mike began the remarkable project that became *Computer Science Unplugged*. This was another paradigm shift, this time the initiative was in computing and mathematics education. The idea was to involve young children with insights from advanced computer science. One of the excellent contributions to this volume is the article describing what this is all about, how it came to be, and the trials and tribulations of getting the ideas to be accepted.

Mike Fellows is a remarkable scientist. Not only has he made deep and lasting contributions to human knowledge, he has been instrumental in the creation of connected research communities throughout the world. He lectures, goes to primary schools, interacts everywhere and is extremely generous with his ideas. This theme comes through in the reminiscences in the present volume.

Turning 60 was traditionally a time when people slowed down, perhaps looking back fondly on their lives and preparing for retirement. Nothing seems further from the truth in Mike's case. Mike and Fran now spend their days in hectic

trans-world trips from Australia to India to Europe and the US. Mike is now involved in more papers per year than when he was in his twenties, and keeps a schedule that would pole-axe most people. To which we say: long may it last.

We thank a number of people that made this volume possible: Alex Downey for artwork, all authors, all anonymous referees and proofreaders, Saket Saurabh for the initial idea for the Festschrift, Fran Rosamond for help in many ways, and Anna Kramer, Ronen Nugent and the other people at Springer for helping make this possible and being enthusiastic about the project. This Festschrift contains some superb surveys and fascinating insights into a prominent scientist. Enjoy.

April 2012   Hans Bodlaender
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Curriculum Vitae Michael R. Fellows

Current position

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Personal information

Born: June 15, 1952, in Upland, California
Married: to Frances Rosamond (Professor, Charles Darwin University)
Two children

Education

Ph.D., Computer Science, University of California, San Diego, 1985
M.A., Mathematics, University of California, San Diego, 1982
B.A., Mathematics, Sonoma State University, California, 1980

Experience

2010–present: Professor, Charles Darwin University, Australia
2001–2010: Professor of Computer Science, University of Newcastle,
    Australia
1999–2001: Reader of Theoretical Computer Science, Victoria University,
    New Zealand
1995–2001: Professor of Computer Science, University of Victoria, Canada
1990–1995: Associate Professor, University of Victoria, Canada
1987–1990: Associate Professor, University of Idaho, USA
1986–1987: Assistant Professor, University of New Mexico, USA
1985–1986: Assistant Professor, Washington State University, USA

Professional Interests

Computational Complexity Theory, Combinatorial Algorithms,
Computational Biology, Mathematical Sciences Communication

Refereed Journal Publications

1. "A Topological Parameterization and Hard Graph Problems," *Congressus Numerantium* 59 (1987), 69–78, with F. Hickling and M. Syslo.
2. "Computational Complexity of Integrity," *Journal of Combinatorial Mathematics and Combinatorial Computing* 2 (1987), 179–191, with L. H. Clark and R. C. Entringer.
3. "Nonconstructive Proofs of Polynomial-Time Complexity," *Information Processing Letters* 26(1987/88), 157–162, with M. A. Langston.
4. "Processor Utilization in a Linearly Connected Parallel Processing System," *IEEE Transactions on Computers* 37 (1988), 594–603, with M. A. Langston.
5. "On Finding Optimal and Near-Optimal Lineal Spanning Trees," *Algorithmica* 3 (1988), 549–560, with D. K. Friesen and M. A. Langston.
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8. "Radius and Diameter in Manhattan Lattices," *Discrete Mathematics* 73 (1989), 119–125, with D. J. Kleitman.
9. "Polynomial-Time Self-Reducibility: Theoretical Motivations and Practical Results," *International Journal of Computer Mathematics* 31 (1989), 1–9, with D. J. Brown and M. A. Langston.
10. "The Robertson-Seymour Theorems: A Survey of Applications," *Contemporary Mathematics* 89 (1989), 1–18.
11. "Counting Spanning Trees in Directed Regular Multigraphs," *Journal of the Franklin Institute* 326 (1989), 889-896, with J. M. Wojciechowski.
12. "The Immersion Order, Forbidden Subgraphs and the Complexity of Network Integrity," *Journal of Combinatorial Mathematics and Combinatorial Computing* 6 (1989), 23-32, with S. Stueckle.
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15. "Perfect Domination," *Australasian J. Combinatorics* 3 (1991), 141-150, with M. Hoover.
16. "Fast Search Algorithms for Graph Layout Permutation Problems," *Integration, the VLSI Journal* 12 (1991), 321-337, with M. A. Langston.
17. "Cycles of Length 0 Modulo 3 in Graphs," *Annals of Discrete Math.* (1991), 87-101, with C. A. Barefoot, L. H. Clark, J. Douthett and R. C. Entringer.
18. "Constructive Complexity," *Discrete Applied Math.* 34 (1991), 3-16, with K. Abrahamson, M. A. Langston and B. Moret. (Also published in the book series *Annals of Discrete Mathematics*, in: *Combinatorics and Theoretical Computer Science*, R. Simion, ed., North-Holland, 1992, pp. 3–16.)

19. "On the Complexity and Combinatorics of Covering Finite Complexes," *Australasian J. Combinatorics* 4 (1991), 103-112, with J. Abello and J. Stillwell.

20. "On Well-Partial-Order Theory and Its Application to Combinatorial Problems of VLSI Design," *SIAM J. Discrete Math.* 5 (1992), 117-126, with M. A. Langston.

21. "Small Diameter Symmetric Networks From Linear Groups," *IEEE Transactions on Computers* 40 (1992), 218-220, with L. Campbell, G. E. Carlsson, M. J. Dinneen, V. Faber, M. A. Langston, J. W. Moore, A. P. Mullhaupt and H. B. Sexton.

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23. "Self-Witnessing Polynomial-Time Complexity and Certificates for Primality," *Designs, Codes and Cryptography* 2 (1992), 231-235, with N. Koblitz.

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30. "Fixed-Parameter Tractability and Completeness II: Completeness for W[1]," *Theoretical Computer Science A* 141 (1995), 109–131, with R. Downey.

31. "Fixed Parameter Tractability and Completeness IV: On Completeness for W[P] and PSPACE Analogs," *Annals of Pure and Applied Logic* 73 (1995), 235–276, with K. Abrahamson and R. Downey.

32. "The Parameterized Complexity of the Longest Common Subsequence Problem," *Theoretical Computer Science A* 147 (1995), 31–54, with H. Bodlaender, R. Downey and H.T. Wareham.

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42. "A Note on the Computability of Obstruction Sets for Monadic Second Order Ideals," *Journal of Universal Computer Science* 3 (1997), 1194–1198, with B. Courcelle and R. Downey.
43. "Parameterized Circuit Complexity and the W Hierarchy," *Theoretical Computer Science A* 191 (1998), 97–115, with R. G. Downey and K. W. Regan.
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45. "Constructions of Dense Planar Networks," *Networks* 32 (1998), 275-281, with P. Hell and K. Seyffarth.
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63. "On the Parameterized Intractability of Motif Search Problems," *Combinatorica* 26 (2006), 141–167, with J. Gramm and R. Niedermeier.

64. "A Fixed-Parameter Approach to Two-Layer Planarization," *Algorithmica* 45 (2006), 159–182, with V. Dujmovic, M. Hallett, M. Kitching, G. Liotta, C. McCartin, N. Nishimura, P. Ragde, F. Rosamond, M. Suderman, S. Whitesides and D. R. Wood.

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66. "Crown Structures for Vertex Cover Kernelization," *Theory of Computing Systems* 41 (2007), 411–431, with F. Abu-Khzam, M. Langston and W. Suters.

67. "On the Efficiency of Polynomial Time Approximation," *Theory of Computing Systems* 41 (2007), 459–477, with L. Cai, D. Juedes and F. Rosamond.

68. "On the Complexity of Lobbying in Multiple Referenda," *Review of Economic Design* 11 (2007), 217–224, with R. Christian, F. Rosamond and A. Slinko.

69. "Parameterized Approximation for Dominating Set Problems," *Information Processing Letters* 109 (2008), 68–70, with R. Downey, C. McCartin and F. Rosamond.

70. "On the Parameterized Complexity of Layered Graph Drawing," *Algorithmica* 52 (2008), 267–292, with V. Dujmovic, M. Kitching, G. Liotta, C. McCartin, N. Nishimura, P. Ragde, F. Rosamond, M. Suderman, S. Whitesides and D. R. Wood.

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75. "The Complexity Ecology of Parameters: An Illustration Using Bounded Max Leaf Number," *Theory of Computing Systems* 45 (2009), 822–848, with D. Lokshtanov, N. Misra, M. Mnich, F. Rosamond and S. Saurabh.

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80. "W-Hierarchies Defined by Symmetric Gates," *Theory of Computing Systems* 46 (2010), 311–339, with J. Flum, D. Hermelin, M. Mueller and F. Rosamond.

81. "The Parameterized Complexity of Some Minimum Label Problems," *Journal of Computer and System Sciences* 76 (2010), 727–740, with J. Guo and I. Kanj.

82. "Graph-Based Data Clustering with Overlaps," *Discrete Optimization* 8 (2011), 2–17, with J. Guo, C. Komusiewicz, R. Niedermeier and J. Uhlmann.

83. "On the Complexity of Some Colorful Problems Parameterized by Treewidth," *Information and Computation* 209 (2011), 143–153, with F. Fomin, D. Lokshtanov, F. Rosamond, S. Saurabh, S. Szeider and C. Thomassen.

84. "Facility Location Problems: A Parameterized View," *Discrete Applied Mathematics* 159 (2011), 1118–1130, with H. Fernau.

85. "Preface: Special Issue on Parameterized Complexity of Discrete Optimization," *Discrete Optimization* 8 (2011), 1, with F. Fomin and G. Gutin.

86. "A Generalization of Nemhauser and Trotter's Local Optimization Theorem," *Journal of Computer and System Sciences* 77 (2011), 1141–1158, with J. Guo, H. Moser and R. Niedermeier.

87. "Parameterized Algorithmics for Finding Connected Motifs in Biological Networks," *IEEE/ACM Transactions on Computational Biology and Bioinformatics* 8 (2011), 1296–1308, with N. Betzler, R. van Bevern, C. Komusiewicz and R. Niedermeier.

88. "Quadratic Kernelization for Convex Recoloring of Trees," *Algorithmica* 61 (2011), 362–378, with H. Bodlaender, M. Langston, M. Ragan, F. Rosamond and M. Weyer.

89. "Upper and Lower Bounds for Finding Connected Motifs in Vertex-Colored Graphs," (conference version presented at ICALP 2007), *Journal of Computer and System Sciences* 77 (2011), 799–811, with G. Fertin, D. Hermelin and S. Vialette.

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91. "A Complexity Dichotomy for Finding Disjoint Solutions of Vertex Deletion Problems," *ACM Transactions on Computation Theory* 2 (2011), 5–25, with J. Guo, H. Moser and R. Niedermeier.

92. "Parameterizing by the Number of Numbers," *Theory of Computing Systems* 50 (2012), 675–693, with S. Gaspers and F. Rosamond.

93. "Local Search: Is brute-force avoidable?" *Journal of Computer and System Sciences* 78 (2012), 707–719, with F. Fomin, D. Lokshtanov, F. Rosamond, S. Saurabh and Y. Villanger.

94. "The Parameterized Complexity of Stabbing Rectangles," *Algorithmica* 62 (2012), 564–594, with M. Dom, F. Rosamond and S. Sikdar.

95. "Well-Quasi-Orders in Subclasses of Bounded Treewidth Graphs and their Algorithmic Applications," *Algorithmica*, to appear, with D. Hermelin and F. Rosamond.

96. "On the Parameterized Complexity of the Discrete Milling Problem with Turn Costs," *Journal of Discrete Algorithms*, to appear, with P. Giannopoulos, C. Knauer, C. Paul, F. Rosamond, S. Whitesides and N. Yu.

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Book Contributions

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38. "Explaining Cryptographic Systems to the General Public," *Proc. First IFIP World Conference on Information Security Education (WISE)*, L. Yngstgröm and S. Fischer-Hübner (eds.), Stockholm University Report Series 99-008 (1999), 221-233, with T. Bell, I. Witten and N. Koblitz.

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43. "On the Parameterized Complexity of Layered Graph Drawing," *Proc. 9th Annual European Symposium on Algorithms (ESA 2001)*, Springer-Verlag, *Lecture Notes in Computer Science* 2161 (2001), 488–499, with V. Dujmovic, M. Hallett, M. Kitching, G. Liotta, C. McCartin, N. Nishimura, P. Ragde, F. Rosamond, M. Suderman, S. Whitesides and D. Wood.

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53. "An FPT Algorithm for Set Splitting," *Proceedings WG 2003*, Springer-Verlag, *Lecture Notes in Computer Science* 2880 (2003), 180–191, with F. Dehne and F. Rosamond.

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58. "Greedy Localization, Iterative Compression and Modeled Crown Reductions: New FPT Techniques, an Improved FPT Algorithm for Set Splitting, and a Novel $2k$ Kernelization for Vertex Cover," *Proceedings of the First International Workshop on Parameterized and Exact Computation* (IWPEC 2004), Springer-Verlag, *Lecture Notes in Computer Science* 3162 (2004), 271–282, with F. Dehne, F. Rosamond and P. Shaw.

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60. "On Finding Short Resolution Refutations and Small Unsatisfiable Subsets," *Proceedings of the First International Workshop on Parameterized and Exact Computation* (IWPEC 2004), Springer-Verlag, *Lecture Notes in Computer Science* 3162 (2004), 223–234, with S. Szeider and G. Wrightson.

61. "Faster Fixed-Parameter Tractable Algorithms for Matching and Packing Problems," *Proceedings ESA 2004*, Springer-Verlag, *Lecture Notes in Computer Science* 3221 (2004), 311–322, with C. Knauer, N. Nishimura, P. Ragde, F. Rosamond, U. Stege, D. Thilikos and S. Whitesides.

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72. "On the Complexity of Lobbying in Multiple Referenda," *Proc. First International Workshop on Computational Social Choice*, pp. 87-96, (Amsterdam, Dec. 2006) with R. Christian, F. Rosamond and A. Slinko.

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84. "Parameterized Algorithms and Hardness Results for Some Graph Motif Problems," CPM 2008, *Lecture Notes in Computer Science* 5029 (2008), 31–43, with N. Betzler, C. Komusiewicz and R. Niedermeier.
85. "On Problems Without Polynomial Kernels," ICALP 2008, *Lecture Notes in Computer Science* 5125 (2008), 563–574, with H. Bodlaender, R. Downey and D. Hermelin.
86. "Clustering with Partial Information," MFCS 2008, *Lecture Notes in Computer Science* 5162 (2008), 144–155, with H.L. Bodlaender, P. Heggernes, F. Mancini, C. Papadopoulos and F. Rosamond.
87. "Computing Kemeny Rankings, Parameterized by the Average K-T Distance," COMSOC 2008, with N. Betzler, J. Guo, R. Niedermeier and F. Rosamond.
88. "Graph Layout Problems Parameterized by Vertex Cover," *International Symposium on Automata, Algorithms and Computation*, ISAAC 2008, *Lecture Notes in Computer Science* 5369 (2008), 294–305, with D. Lokshtanov, N. Misra, F. Rosamond and S. Saurabh.
89. "Leaf Powers and Their Properties: Using the Trees," ISAAC 2008, *Lecture Notes in Computer Science* 5369 (2008), 402–413. with D. Meister, F. Rosamond, R. Sritharan and J.A. Telle.
90. "Parameterized Complexity of Stabbing Rectangles and Squares in the Plane," Third Workshop on Algorithms and Computation, WALCOM 2009, *Lecture Notes in Computer Science* 5431 (2009), 298–309, with M. Dom and F. Rosamond.
91. "A Generalization of Nemhauser and Trotter's Local Optimization Algorithm," Proceedings STACS 2009, 409–420, with J. Guo, H. Moser and R. Niedermeier.
92. "How Similarity Helps to Efficiently Compute Kemeny Rankings," *Proceedings 8th International Conference on Autonomous Agents and Multiagent Systems* (AAMAS 2009), 657–664, with N. Betzler, J. Guo, R. Niedermeier and F. Rosamond.
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94. "Local Search: Is Brute Force Avoidable?" *Proceedings International Joint Conference on Artificial Intelligence*, IJCAI (2009), 486–491, with F. Fomin, D. Lokshtanov, F. Rosamond, S. Saurabh and Y. Villanger.
95. "Graph-Based Data Clustering with Overlaps," COCOON 2009, Springer-Verlag, *Lecture Notes in Computer Science* 5609 (2009), 516–526, with J. Guo, C. Komusiewicz, R. Niedermeier and J. Uhlmann.

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97. "The Parameterized Complexity of Some Minimum Label Problems," Proceedings WG 2009, Springer-Verlag, *Lecture Notes in Computer Science* 5911 (2009), 88–99, with J. Guo and I. Kanj.

98. "Well-Quasi-Ordering Bounded Treewidth Graphs," Proceedings IWPEC 2009, Springer-Verlag, *Lecture Notes in Computer Science* 5917 (2009), 149–160, with D. Hermelin and F. Rosamond.

99. "A Complexity Dichotomy for Finding Disjoint Solutions of Vertex Deletion Problems," Proceedings MFCS 2009, Springer-Verlag, *Lecture Notes in Computer Science* 5734 (2009), 319–330, with J. Guo, H. Moser and R. Niedermeier.

100. "What Makes Equitable Connected Partition Easy?" Proceedings IWPEC 2009, Springer-Verlag, *Lecture Notes in Computer Science* 5917 (2009), with R. Enciso, J. Guo, I. Kanj, F. Rosamond and A. Suchy.

101. "Towards Fully Multivariate Algorithmics: Some New Results and Directions in Parameter Ecology," Proceedings IWOCA 2009, Springer-Verlag, *Lecture Notes in Computer Science* 5874 (2009), 2–10.

102. "Fixed-Parameter Tractability, Relative Kernelization and the Effectivization of Structural Connections," CiE 2009, with J. Hromkovic, F. Rosamond and M. Steinova.

103. "Milling a Graph with Turn Costs: A Parameterized Complexity Perspective," Proceedings WG 2010, Springer-Verlag, *Lecture Notes in Computer Science* 6410 (2010), 123–134, with P. Giannopoulos, C. Knauer, C. Paul, F. Rosamond, S. Whitesides and N. Yu.

104. "A Linear Kernel for Co-Path/Cycle Packing," Proceedings of AAIM 2010, Springer-Verlag, *Lecture Notes in Computer Science* 6124 (2010), 90–102, with Z-Z. Chen, B. Fu, H. Jiang, Y. Liu, L. Wang and B. Zhu.

105. "Parameterized Control Complexity in Bucklin Voting and in Fallback Voting," Proceedings COMSOC 2010, with G. Erdelyi.

106. "Parameterized Hardness of Dodgson Score," Proceedings FST-TCS 2010, *Leibniz International Proceedings in Informatics* (2010), 459–468, with B. Jansen, D. Lokshtanov and S. Saurabh.

107. "Parameterizing by the Number of Numbers," Proceedings IPEC 2010, Springer-Verlag, *Lecture Notes in Computer Science* 6478 (2010), 123–134, with S. Gaspers and F. Rosamond.

108. "Recent Developments in the Theory of Pre-Processing," Proceedings FAW/AAIM 2011, Springer-Verlag, *Lecture Notes in Computer Science* 6681 (2011), 4–5.

109. "Constraint Satisfaction Problems: Convexity Makes AllDifferent Constraints Tractable," Proceedings IJCAI 2011: 522–527, with T. Friedrich, D. Hermelin, N. Narodytska and F. Rosamond.

110. "Parameterized Complexity of the Firefighter Problem," Proceedings ISAAC 2011, Springer-Verlag, *Lecture Notes in Computer Science* 7074 (2011), 643–652, with C. Bazgan, and M. Chopin.

111. "Simultaneously Satisfying Linear Equations Over $F[2]$: MaxLin2 and Max-r-Lin2 Parameterized Above Average," *Proceedings FST-TCS 2011* (Schloss Dagstuhl – Liebniz Centrum fuer Informatik): 229–240, with R. Crowston, G. Gutin, M. Jones, F. Rosamond, S. Thomasse and A. Yeo.
112. "Train Marshalling is Fixed Parameter Tractable," accepted to AAAC 2012, with no proceedings, and to FUN 2012, with proceedings, with L. Brueggeman,R. Fleischer, M. Lackner, C. Komusiewicz, Y. Koutis, A. Pfandler and F. Rosamond.
113. "The Parameterized Complexity of Abduction," to appear in Proceedings AAAI 2012, with A. Pfandler, F. Rosamond and S. Ruemmele.

Recent Invited Conference Presentations

– "Parameterized Complexity," New Zealand Mathematics Society Annual Summer Workshop, Featured Short Course, January 2000.
– "Parameterized Complexity," Twelfth International Symposium on Algorithms and Computation (ISAAC 2001), December 2001, Christchurch, New Zealand (Invited Plenary Lecture).
– "Parameterized Complexity and Its Applications," Invited Plenary Lecture at CATS 2002, Melbourne.
– Invited Plenary Lecture at WADS 2003.
– Invited Plenary Lecture at WG 2003.
– Invited Plenary Lecture at ESA 2004.
– Invited Plenary Lecture at the *Algorithms and Complexity in Durham* Workshop, July, 2005.
– Invited Special Lecture at the Third Dagstuhl Workshop on Parameterized Complexity, July, 2005.
– Inivited Plenary Lecture at IWPEC 2006, Zurich, September 2006.
– Special Opening Lecture at the Fourth Dagstuhl Workshop on Parameterized Complexity, July, 2007.
– Invited Plenary Lecture at ICYCS 2008, Yunan, China, November, 2008.
– Invited Special Lecture at the Dagstuhl Workshop on Communication of Computer Science ("The Brainware Crisis"), March, 2009.
– Invited Lecturer, AGAPE Summer School on Parameterized and Exact Algorithms, Corsica, May, 2009.
– Featured International Research Colloquium Speaker, Chinese University of Hong Kong, April, 2009.
– Invited Plenary Lecture at IWOCA 2009, Czech Republic, July, 2009.
– Invited Plenary Lecture at ACCMCC 2010, December, Canberra, Australia.
– Featured Invited Lecture, DIMAP, Warwick University, UK, April, 2011.
– Invited Plenary Speaker, FAW/AAIM 2011, Jinhua, China, May, 2011.
– Keynote Address, WORKER 2011, Vienna, Austria, September, 2011.

Professional Service and Honors

– Associate Editor for the *Journal of Computer and Systems Sciences*.
– Associate Editor for the *ACM Transactions on Algorithms*.
– Guest Editor for a double special issue of *The Computer Journal* in 2008 (Numbers 1,3).
– Guest Editor for a special issue of *Discrete Optimization* 8 (2011).
– Member of the Steering Committee for the conference series *International Workshop on Parameterized and Exact Computation*, 2002–2012.
– Recipient of an Erskine Fellowship with the Department of Computer Science at the University of Canterbury, 1996.
– Recipient of a Fellowship to the Institute of Advanced Study, Durham University, January–March, 2007.
– Recipient of a Humboldt Research Award, 2007.
– Recipient of a Australian Professorial Fellowship, 2010–2014.
– Appointment with the title "Visiting Professor in Computer Science," to the Royal Holloway, University of London, 2009–2011.

Conference Organization

– First Idaho ONR Workshop on Software Research, June, 1989, Conference Chair.
– Second Idaho ONR Workshop on Software Research, June, 1990, Conference Chair.
– STOC '92 Conference Chair.
– Co-organizer, Dagstuhl Workshop on Parameterized Complexity, August 2001.
– Co-organizer, Workshop on Structural Aspects of Parameterized Complexity, in conjunction with FST-TCS 2002, Kanpur, India, December 2002.
– Co-organizer, Dagstuhl Workshop on Parameterized Algorithms, July 2003.
– Co-chair, First International Workshop on Parameterized and Exact Computation, Bergen, 2004.
– Co-organizer, Dagstuhl Workshop on Parameterized Complexity and Kernelization, June, 2012.

Program Committees

DMTCS 2002, FST-TCS 2002, COCOON 2003, WADS 2003, CATS 2003, ACSW 2003, CATS 2004, ACSW 2004, WG 2004, IWPEC 2004 (program co-chair), MFCS 2005, ACSW 2005, IWPEC 2006, WG 2008, COCOA 2008, FAW 2008, ICYCS 2008 (program co-chair), ALENEX 2009, IWPEC 2009, TAMC 2009, FAW 2009, COMSOC 2010, IWOCA 2010, LATA 2010, IPEC 2010, TAMC 2012, APEX 2012, MFCS 2012.

Graduate Student Supervision

- Mark Hoover, Ph.D., 1989.
- Yasu Koda, Ph.D., 1991.
- Xiuyan Liu, M.S., 1994.
- Michael Dinneen, Ph.D., 1996.
- Michael Hallett, Ph.D., 1996.
- Todd Wareham, Ph.D., 1997.
- Patricia Evans, Ph.D., 1999.
- Elena Prieto-Rodriguez, Ph.D., 2005.

Postdoctoral Student Supervision

- Ulrike Stege

Miscellaneous

- Google scholar citations for *Michael Fellows*: 11027
- Google scholar H-index for *Michael Fellows*: 50
- Erdös number of Mike Fellows: 2 (via N. Alon, L. Clark, R. Entringer, V. Faber, F. Harary, S. Hedetniemi, P. Hell, D. Kleitman, C. Thomassen)

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