Curriculum Vitae

Nikolaos V. Sahinidis

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A. BIOGRAPHICAL SKETCH

Nick Sahinidis was born in Greece in 1963. He received his Diploma in Chemical Engineering from the Aristotle University of Thessaloniki, Greece in 1986 and his Ph.D. in Chemical Engineering from Carnegie Mellon University, Pittsburgh, Pennsylvania in 1990.

Between 1991 and 2007, he served on the faculty of the University of Illinois at Urbana, initially as an Assistant Professor and Associate Professor of Mechanical and Industrial Engineering and later as an Associate Professor and Professor of Chemical and Biomolecular Engineering. In 2007, he moved to Carnegie Mellon University, where he is now the John E. Swearingen Professor of Chemical Engineering and Director of the Center for Advanced Process Decision-making.

Professor Sahinidis's current research interests are at the interface between computer science and operations research, with applications in a variety of engineering and scientific areas:

- Global optimization of mixed-integer nonlinear programs: theory, algorithms, and software.
- Informatics problems in chemistry and biology.
- Process and energy systems engineering.

His research work has resulted in: (a) the global optimization software BARON that has changed the way optimization is practiced by scientists, engineers, and managers; (b) novel algorithms and software for cheminformatics and bioinformatics, including GPU-BLAST, the first implementation of NCBI/BLAST on graphics processing units; and (c) the first analytical results for complexity and heuristics in chemical process synthesis and operations.

He has served on the editorial boards of many journals, including *AIChE Journal*, *Computational Management Science*, *Industrial & Engineering Chemistry Research, Journal of Global Optimization*, *Mathematical Programming Computation*, *Optimization and Engineering*, *Optimization Letters*, and *Optimization Methods and Software.* He has served on numerous positions within AIChE (American Institute of Chemical Engineers), including as Chair of the CAST division of AIChE. He has served on numerous positions within INFORMS (Institute for Operations Research and the Management Sciences), including as Chair of the INFORMS Optimization Society.

Nick Sahinidis's research activities have been recognized by a National Science Foundation CAREER award in 1995, the INFORMS Computing Society Prize in 2004, the Beale-Orchard-Hays Prize from the Mathematical Programming Society in 2006, the Computing in Chemical Engineering Award in 2010, the Constantin Carathéodory Prize in 2015, and the National Award and Gold Medal from the Hellenic Operational Research Society in 2016. Professor Sahinidis is a fellow of AIChE and INFORMS.

Some of his graduate advisees went on to become members of the faculty at major research universities, including Georgia Institute of Technology, Purdue University, and the University of Texas at Austin. Others joined leading industrial enterprises, including 3M, American Airlines, Bloomberg LP, BPAmoco, Expedia, Google, The Dow Chemical Company, ExxonMobil, Merck, Rockwell Automation, and Microsoft Research.

B. PROFESSIONAL EXPERIENCE

Academic positions

- Carnegie Mellon University, August 2007–date:
  John E. Swearingen Professor of Chemical Engineering, January 2008–
  Director of Center for Advanced Process Decision-making (CAPD), July 2015–
  Affiliate appointments in:
    Computational Biology Department, September 2007–date
    Joint CMU-Pitt Ph.D. Program in Computational Biology, October 2007–date
- Department of Energy, National Energy Technology Laboratory, January 2008–date:
  Faculty Research Fellow, Institute for Advanced Engineering Solutions
- University of Illinois at Urbana-Champaign, August 1991–2007:
  Professor of Chemical and Biomolecular Engineering, August 2002–2007
  Associate Professor of Chemical Engineering, December 1997–August 2002
  Associate Professor of Mechanical and Industrial Engineering, August 1997–December 1997
  Assistant Professor of Mechanical and Industrial Engineering, August 1991–August 1997
  Affiliate appointments (1991-2007) in:
    Applied Mathematics Program
    Computational Science and Engineering Program
    Department of Bioengineering
    Department of Computer Science
    Department of Industrial and Enterprise Systems Engineering
    Department of Mechanical Science and Engineering
    Institute for Genomic Biology
- New York University, August 1999–May 2000:
  Visiting Associate Professor, Leonard N. Stern School of Business, Operations Management
- Carnegie Mellon University, September 1986–August 1991:
  Lecturer/Researcher: Department of Chemical Engineering and Engineering Design Research Center, June 1990-August 1991
  Graduate Fellow: Department of Chemical Engineering, September 1986-May 1990.

Other professional employment

- Summer Internship: Esso Chemical Complex, Thessaloniki, Greece, Summer 1985.

C. HONORS AND AWARDS

- AIChE Fellow, 2017
- R&D 100 award, R&D Magazine, 2016
- National Award and Gold Medal, Hellenic Operational Research Society, 2016
- Constantin Carathéodory Prize, 2015 (jointly with Chris Floudas and Ignacio Grossmann)
- INFORMS Fellow, 2014
- Steven J. Fenves Award, Carnegie Mellon University, 2012
- Computing in Chemical Engineering Award, CAST Division of the AIChE, 2010

- John E. Swearingen Chair, Carnegie Mellon University, 2008
- Beale-Orchard-Hays Prize, Mathematical Optimization Society, 2006 (jointly with Mohit Tawarmalani)
- Marie Curie Excellence Chair, European Commission, declined, 2006
- Bayer Lectureship, Carnegie Mellon University, 2006
- University Scholar, University of Illinois, 2005-2007
- Center for Advanced Study Associate, University of Illinois, 2005
- INFORMS Computing Society Prize, 2004 (jointly with Mohit Tawarmalani)
- AIChE CAST Director's Award, 1999
- NSF/Lucent Technologies Industrial Ecology Fellowship, 1998
- NSF CAREER Award, 1995
- Listed in the *Daily Illini* "List of Teachers Ranked as Excellent by their Students" for S93, S96, F96, S99

Awards to doctoral students for research work under my supervision

- Ken Meyer Research Award, Alison Cozad, 2014
- INFORMS Interactive Session Winner, Apurva Samudra, 2011
- IUCr Poster Prize, Alex Smith, 2006
- INFORMS Dantzig Dissertation Award, Shabbir Ahmed, 2000

D. PUBLICATIONS

1. Kiparissides, C., E. Sidiropoulou, S. Voutetakis, and N. V. Sahinidis, A comparative study of LQC, DMC and extended STR control strategies, Proceedings of 10th IFAC World Congress on Automatic Control, 6 pages, 1987.
2. Sahinidis, N. V., I. E. Grossmann, R. E. Fornari, and M. Chathrathi, Optimization model for long range planning in the chemical industry, Computers & Chemical Engineering, 13, 1049-1063, 1989.
3. Sahinidis, N. V., *Mixed-Integer Nonlinear Programming Approaches to Planning and Scheduling Problems in the Chemical Process Industries*, PhD Thesis, Carnegie Mellon University, Pittsburgh, PA, 301 pages, 1990.
4. Sahinidis, N. V. and I. E. Grossmann, Multiperiod investment decision model for processing networks with dedicated and flexible plants, Industrial & Engineering Chemistry Research, 30, 1165-1171, 1991.
5. Sahinidis, N. V. and I. E. Grossmann, MINLP model for cyclic multiproduct scheduling on continuous parallel lines, Computers & Chemical Engineering, 15, 85-103, 1991.
6. Sahinidis, N. V. and I. E. Grossmann, Reformulation of multiperiod MILP models for planning and scheduling of chemical processes, Computers & Chemical Engineering, 15, 255-272, 1991.
7. Sahinidis, N. V. and I. E. Grossmann, Convergence properties of generalized Benders decomposition, Computers & Chemical Engineering, 15, 481-491, 1991.
8. Sahinidis, N. V. and I. E. Grossmann, Transshipment LP model for minimizing the utility cost in a heat exchanger network, in I. E. Grossmann (ed.): CACHE Design Case Study

Volume 6: Chemical Engineering Optimization Models with GAMS, CACHE Corporation, Austin, TX, 1991.

9. Sahinidis, N. V. and I. E. Grossmann, Design of a chemical complex, in I. E. Grossmann (ed.): CACHE Design Case Study Volume 6: Chemical Engineering Optimization Models with GAMS, CACHE Corporation, Austin, TX, 1991.
10. Sahinidis, N. V. and I. E. Grossmann, Multiperiod MILP model for planning chemical processes, in I. E. Grossmann (ed.): CACHE Design Case Study Volume 6: Chemical Engineering Optimization Models with GAMS, CACHE Corporation, Austin, TX, 1991.
11. Sahinidis, N. V. and I. E. Grossmann, Multiperiod capacity expansion for optimal design of industrial complexes, in H. Bradley (ed.), Operations Research '90, Pergamon Press, London, 549-563, 1991.
12. Sahinidis, N. V. and I. E. Grossmann, Reformulation of the multiperiod MILP model for capacity expansion of chemical processes, Operations Research, 40, S127-S144, 1992.
13. Sahinidis, N. V., Molecular structure prediction by global minimization of molecular mechanics formulations, University of Illinois at Urbana-Champaign, Department of Mechanical and Industrial Engineering, UILU ENG 92-4020, Aug. 1992.
14. Sahinidis, N. V. and I. E. Grossmann, Theoretical and computational issues in generalized Benders decomposition and extensions, University of Illinois at Urbana-Champaign, Department of Mechanical and Industrial Engineering, UILU ENG 92-4023, Sept. 1992.
15. Ryoo, H. S. and N. V. Sahinidis, Global optimization of nonconvex NLPs and MINLPs with applications in process design, Computers & Chemical Engineering, 19, 551-566, 1995.
16. Liu, M. L. and N. V. Sahinidis, Computational trends and effects of approximations on MILP model for process planning, Industrial & Engineering Chemistry Research, 34, 1662-1673, 1995.
17. Vander Wiel, R. J. and N. V. Sahinidis, Heuristic bounds and test problem generation for the time-dependent traveling salesman problem, Transportation Science, 29, 167-183, 1995.
18. Dorneich, M. C. and N. V. Sahinidis, Global optimization algorithms for chip layout and compaction, Engineering Optimization, 25, 131-154, 1995.
19. Sahinidis, N. V., "G. Infanger, Planning Under Uncertainty. Solving Large-Scale Stochastic Linear Programs," Interfaces, 25, 215-217, Sept.-October 1995.
20. Sahinidis, N. V., "M. S. Bazaraa, H. D. Sherali and C. M. Shetty, Nonlinear Programming. Theory and Algorithms. 2nd ed.," Interfaces, 26, 141-144, Jan.-Feb. 1996.
21. Sahinidis, N. V., "C. A. Floudas and P. M. Pardalos (eds.) State of the Art in Global Optimization. Computational methods and Applications," Optima, 52, 12-13, Dec. 1996.
22. Shectman, J. P. and N. V. Sahinidis, A finite algorithm for global minimization of separable concave programs, in C. A. Floudas and P. M. Pardalos (eds.), State of the Art in Global Optimization: Computational Methods and Applications, Kluwer Academic Publishers, Dordrecht, MA, pp. 303-340, 1996. (reviewed; an earlier version of the paper with the same title that was subsequently published after significant improvements of the methodology in the Journal of Global Optimization)
23. Liu, M. L., N. V. Sahinidis, and J. P. Shectman, Planning of chemical process networks via global concave minimization, Chapter 7, pp. 195-230, in I. E. Grossmann (ed.), Global Optimization in Engineering Design, Kluwer Academic Publishers, Dordrecht, MA, 1996.

24. Liu, M. L. and N. V. Sahinidis, Long range planning in the process industries: A projection approach, Computers & Operations Research, 23, 237-253, 1996.
25. Gutierrez, R. A. and N. V. Sahinidis, A branch-and-bound approach for machine selection in just-in-time manufacturing systems, International Journal of Production Research, 34, 797-818, 1996.
26. Ryoo, H. S. and N. V. Sahinidis, A branch-and-reduce approach to global optimization, Journal of Global Optimization, 8, 107-139, 1996.
27. Sahinidis, N. V., BARON: A general purpose global optimization software package, Journal of Global Optimization, 8, 201-205, 1996.
28. Vander Wiel, R. J. and N. V. Sahinidis, An exact solution approach for the time-dependent traveling salesman problem, Naval Research Logistics, 43, 797-820, 1996.
29. Liu, M. L. and N. V. Sahinidis, Optimization in process planning under uncertainty, Industrial & Engineering Chemistry Research, 35, 4154-4165, 1996.
30. Van Antwerp, J. G., R. D. Braatz, and N. V. Sahinidis, Globally optimal robust control for systems with nonlinear time-varying perturbations, Computers & Chemical Engineering, 21, S125-S130, 1997 (Proceedings of the 1997 *European Symposium on Computer Aided Process Engineering*).
31. Liu, M. L. and N. V. Sahinidis, Process planning in a fuzzy environment, European Journal of Operational Research, 100, 142-169, 1997.
32. Vander Wiel, R. J. and N. V. Sahinidis, The assignment problem with external interactions, Networks, 30, 171-185, 1997.
33. Liu, M. L. and N. V. Sahinidis, Bridging the gap between heuristics and optimization: The capacity expansion case, AIChE Journal, 43, 2289-2299, 1997.
34. Shectman, J. P. and N. V. Sahinidis, A finite algorithm for global minimization of separable concave programs, Journal of Global Optimization, 12, 1-36, 1998.
35. Ahmed, S. and N. V. Sahinidis, Robust process planning under uncertainty, Industrial & Engineering Chemistry Research, 37, 1883-1892, 1998.
36. Ahmed, S. and N. V. Sahinidis, Techniques in long range planning in chemical manufacturing systems, in C. T. Leondes (ed.), Computer Aided and Integrated Manufacturing Systems Techniques and Applications, Gordon and Breach International Series in Engineering, Technology and Applied Sciences, 1998.
37. VanAntwerp, J. G., R. D. Braatz, and N. V. Sahinidis, Globally optimal robust control, Journal of Process Control, 9, 375-383, 1999.
38. Adhya, N., M. Tawarmalani, and N. V. Sahinidis, A Lagrangian approach to the pooling problem, Industrial & Engineering Chemistry Research, 38, 1956-1972, 1999.
39. Ahmed, S., N. V. Sahinidis, and E. N. Pistikopoulos, An improved decomposition algorithm for process planning under uncertainty, Computers & Chemical Engineering, 23, 1589-1604, 2000.
40. Ahmed, S. and N. V. Sahinidis, Analytical investigations of the process planning problem, Computers & Chemical Engineering, 23, 1605-1621, 2000.
41. Sahinidis, N. V. and M. Tawarmalani, Applications of global optimization to process and molecular design, Computers & Chemical Engineering, 24, 2157-2169, 2000.
42. Sahinidis, N. V., BARON: *Branch-And-Reduce Optimization Navigator. User's Manual. Version 4.0*, University of Illinois at Urbana-Champaign, Department of Chemical and Biomolecular Engineering, 100 pages, 2000.

43. Ghildyal, V. and N. V. Sahinidis, Solving global optimization problems with BARON, in A. Migdalas, P. Pardalos and P. Varbrand (eds.), From Local to Global Optimization. A Workshop on the Occasion of the 70th Birthday of Professor Hoang Tuy, Chapter 10, pp. 205-230, Kluwer Academic Publishers, Dordrecht, 2001.
44. Ryoo, H. S. and N. V. Sahinidis, Analysis of bounds for multilinear functions, Journal of Global Optimization, 19, 403-424, 2001.
45. Tawarmalani, M. and N. V. Sahinidis, Semidefinite relaxations of fractional programs via novel convexification techniques, Journal of Global Optimization, 20, 137-158, 2001.
46. Furman, K. C. and N. V. Sahinidis, Computational complexity of heat exchanger network synthesis, Computers & Chemical Engineering, 25, 1371-1390, 2001.
47. Ahmed, S. and N. V. Sahinidis, Chemical process planning, in C. A. Floudas and P. M. Pardalos (eds.), Encyclopedia of Optimization, Vol. 1, 246-252, Kluwer Academic Publishers, Dordrecht, 2001.
48. Tawarmalani, M. and N. V. Sahinidis, The time-dependent traveling salesman problem, in C. A. Floudas and P. M. Pardalos (eds.), Encyclopedia of Optimization, Vol. 5, 445-450, Kluwer Academic Publishers, Dordrecht, 2001.
49. Tawarmalani, M. and N. V. Sahinidis, Exact algorithms for global optimization of mixed-integer nonlinear programs, in H. E. Romeijn and P. M. Pardalos (eds.), Handbook of Global Optimization, Vol. 2, pp. 65-85, Kluwer Academic Publishers, Dordrecht, MA, 2002.
50. Tawarmalani, M. and N. V. Sahinidis, Convex extensions and envelopes of lower semi-continuous functions, Mathematical Programming, 93, 247-263, 2002.
51. Sahinidis, N. V., "S. Axsater, Inventory Control," Interfaces, 32, 91-92, 2002.
52. Furman, K. C. and N. V. Sahinidis, A critical review and annotated bibliography for heat exchanger network synthesis in the 20th century, Industrial & Engineering Chemistry Research, 41(10), 2335-2370, 2002.
53. Tawarmalani, M., S. Ahmed, and N. V. Sahinidis, Global optimization of 0-1 hyperbolic programs, Journal of Global Optimization, 24, 385-417, 2002.
54. Tawarmalani, M., S. Ahmed, and N. V. Sahinidis, Product disaggregation and relaxations of mixed-integer rational programs, Optimization and Engineering, 3, 281-303, 2002.
55. Tawarmalani, M. and N. V. Sahinidis, *Convexification and Global Optimization in Continuous and Mixed-Integer Nonlinear Programming: Theory, Algorithms, Software, and Applications*, Vol. 65, *Nonconvex Optimization And Its Applications* series, Kluwer Academic Publishers, Dordrecht, 504 pages, 2002.
56. Grossmann, I. E. and N. V. Sahinidis (eds.), "Special issue on mixed-integer programming and its applications to engineering. Part I," Optimization and Engineering, 3(4), 2002.
57. Grossmann, I. E. and N. V. Sahinidis (eds.), "Special issue on mixed-integer programming and its applications to engineering. Part II," Optimization and Engineering, 4(1-2), 2003.
58. Sahinidis, N. V., Global optimization and constraint satisfaction: The branch-and-reduce approach, pp. 1-16 in C. Bliek, C. Jermann, and A. Neumaier (eds.), *Global Optimization and Constraint Satisfaction*, Lecture Notes in Computer Science, Vol. 2861, Springer, Berlin, 2003.
59. Ahmed, S. and N. V. Sahinidis, An approximation scheme for stochastic integer programs arising in capacity expansion, Operations Research, 51, 461-471, 2003.

60. Vaia, A. and N. V. Sahinidis, Simultaneous parameter estimation and model structure determination in FTIR spectroscopy by global MINLP optimization, Computers & Chemical Engineering, 27, 763-779, 2003.
61. Ryoo, H. S. and N. V. Sahinidis, Global optimization of multiplicative programs, Journal of Global Optimization, 26, 387-418, 2003.
62. Sahinidis, N. V., M. Tawarmalani, and M. Yu, Design of alternative refrigerants via global optimization, AIChE Journal, 49, 1761-1775, 2003.
63. Vaia, A. and N. V. Sahinidis, An integer programming approach to the phase problem for centrosymmetric structures, Acta Crystallographica A, 59, 452-458, 2003.
64. Sahinidis, N. V. and M. Tawarmalani, GAMS/BARON 5.0: *Global Optimization of Mixed-Integer Nonlinear Programs*, University of Illinois at Urbana-Champaign, Department of Chemical and Biomolecular Engineering, 48 pages, 2003.
65. Furman, K. C. and N. V. Sahinidis, Approximation algorithms for the minimum number of matches problem in HENS, Industrial & Engineering Chemistry Research, 43, 3554-3565, 2004.
66. Sahinidis, N. V., Optimization under uncertainty: State-of-the-art and opportunities, Computers & Chemical Engineering, 28, 971-983, 2004.
67. Ahmed, S., M. Tawarmalani, and N. V. Sahinidis, A finite branch-and-bound algorithm for two-stage stochastic integer programming, Mathematical Programming, 100, 355-377, 2004.
68. Tawarmalani, M. and N. V. Sahinidis, Global optimization of mixed-integer nonlinear programs: A theoretical and computational study, Mathematical Programming, 99, 563-591, 2004.
69. Chang, Y. and N. V. Sahinidis, Optimization of metabolic pathways under stability considerations, Computers & Chemical Engineering, Special Issue on Systems Engineering Challenges and Opportunities in Systems Biology, 29, 467-479, 2005.
70. Tawarmalani, M. and N. V. Sahinidis, A polyhedral branch-and-cut approach to global optimization, Mathematical Programming, 103, 225-249, 2005.
71. Vaia, A. and N. V. Sahinidis, Polynomial-time algorithms for the integer minimal principle for centrosymmetric structures, Acta Crystallographica A, 61, 445-452, 2005.
72. Sahinidis, N. V. and M. Tawarmalani, Accelerating branch-and-bound through a modeling language construct for relaxation-specific constraints, Journal of Global Optimization, 32, 259-280, 2005.
73. Sahinidis, N. V., M. T. Harandi, M. T. Heath, L. Murphy, M. Snir, R. P. Wheeler, and C. F. Zukoski, Establishing a Master's degree program in bioinformatics: Challenges and opportunities, IEE Proceedings Systems Biology, 152, 269-275, 2005.
74. Xie, W. and N. V. Sahinidis, Residue-rotamer-reduction algorithm for the protein side-chain conformation problem, Bioinformatics, 22, 188-194, 2006.
75. Xie, W. and N. V. Sahinidis, A Branch-and-reduce algorithm for the contact map overlap problem, Proceedings of RECOMB 2006 (Research in Computational Molecular Biology), Lecture Notes in Bioinformatics, Vol. 3909, 516-529, Springer, 2006 (the acceptance rate at RECOMB 2006 was 18.5%).
76. Chang, Y. and N. V. Sahinidis, Global optimization in stabilizing controller design, Journal of Global Optimization, 38, 509-526, 2007.
77. Xie, W. and N. V. Sahinidis, A reduction-based exact algorithm for the contact map overlap problem, Journal of Computational Biology, 14, 637-654, 2007.

78. Naraharisetti, P. K., B. Y. S. Ong, J. W. Xie, T. K. Y. Lee, C.-H. Wang, and N. V. Sahinidis, *In vivo* performance of implantable biodegradable preparations delivering Paclitaxel and Etanidazole for the treatment of glioma, Biomaterials, 28, 886-894, 2007.
79. Smith, A. B., H. Xu and N. V. Sahinidis, An integer minimal principle and triplet sieve method for phasing centrosymmetric structures, Acta Crystallographica A, 63, 164-171, 2007.
80. Ahmed, S. and N. V. Sahinidis, Selection, acquisition, and allocation of manufacturing technology in a multi-product environment, European Journal of Operational Research, 189, 807-821, 2008.
81. Xie, W. and N. V. Sahinidis, A branch-and-bound algorithm for the continuous facility layout problem, Computers & Chemical Engineering, 32, 1016-1028, 2008.
82. Xu, H., A. B. Smith, N. V. Sahinidis, and C. M. Weeks, SnB version 2.3: Triplet sieve phasing for centrosymmetric structures, Journal of Applied Crystallography, 41, 644-646, 2008.
83. Sahinidis, N. V., "A. Törn and J. Žilinskas, Models and Algorithms for Global Optimization," Interfaces, 38, 155-157, 2008.
84. Ong, B. Y. S., S. H. Ranganath, L. Y. Lee, F. Lu, H.-S. Lee, N. V. Sahinidis, and C.-H. Wang, Paclitaxel delivery from PLGA foams for controlled release in post-surgical chemotherapy against glioblastoma multiforme, Biomaterials, 30, 3189-3196, 2009.
85. Bao, X., N. V. Sahinidis, and M. Tawarmalani, Multiterm polyhedral relaxations for nonconvex, quadratically-constrained quadratic programs, Optimization Methods and Software, 24, 485-504, 2009.
86. Sahinidis, N. V., Foreword: Global optimization, Optimization Methods and Software, 24, 479-482, 2009.
87. Sahinidis, N. V., Optimization techniques in molecular structure and function elucidation, Computers and Chemical Engineering, 33, 2055-2062, 2009.
88. Samudra, A. and N. V. Sahinidis, Design of secondary refrigerants: A combined optimization-enumeration approach, in M. M. El-Halwagi and A. A. Linninger (eds.): Proceedings of the 7th International Conference on the Foundations of Computer-Aided Process Design, CRC Press, pp. 879-886, 2009.
89. Bao, X. and N. V. Sahinidis, Finite algorithms for global minimization of separable concave programs, in T. Coleman and P. Pardalos (eds.), Workshop on Global Optimization, Fields Institute Communications, Vol. 55, American Mathematical Society, pp. 17-30, 2009.
90. Ahmed, S. and N. V. Sahinidis, Chemical process planning, in C. A. Floudas and P. M. Pardalos (eds.), Encyclopedia of Optimization, 2nd edition, Springer, pp. 369-374, 2009.
91. Xie, W. and N. V. Sahinidis, Contact map overlap maximization problem, in C. A. Floudas and P. M. Pardalos (eds.), Encyclopedia of Optimization, 2nd edition, Springer, pp. 470-475, 2009.
92. Smith, A. B. and N. V. Sahinidis, Optimization techniques for phase retrieval based on single-crystal X-ray diffraction data, in C. A. Floudas and P. M. Pardalos (eds.), Encyclopedia of Optimization, 2nd edition, Springer, pp. 2858-2863, 2009.
93. Tawarmalani, M. and N. V. Sahinidis, The time-dependent traveling salesman problem, in C. A. Floudas and P. M. Pardalos (eds.), Encyclopedia of Optimization, 2nd edition, Springer, pp. 3902-3908, 2009.

94. Sahinidis, N. V. (ed.), Special issue on global optimization, Optimization Methods and Software, 24(4-5), 2009.
95. Elble, J. M., N. V. Sahinidis, and P. Vouzis, GPU computing with Kaczmarz's and other iterative algorithms for linear systems, Parallel Computing, 36, 215-231, 2010.
96. Rios, L. M. and N. V. Sahinidis, Portfolio optimization for wealth-dependent risk preferences, Annals of Operations Research, 177, 63-90, 2010.
97. Elble, J. M. and N. V. Sahinidis, Matrix binormalization on a GPU, Lecture Notes in Computer Science, accepted.
98. Elble, J. M. and N. V. Sahinidis, Scaling linear programs prior to application of the simplex method, Computational Optimization and Applications, 52, 345-371, 2012.
99. Bao, X., N. V. Sahinidis and M. Tawarmalani, Semidefinite relaxations for quadratically constrained quadratic programming: A review and comparisons, Mathematical Programming, 129:129-157, 2011.
100. Vouzis, P. and N. V. Sahinidis, GPU-BLAST: Using graphics processors to accelerate protein sequence alignment, Bioinformatics, 27, 182-188, 2011. **This is one of the top-ten highest downloaded articles published in Bioinformatics in 2011.**
101. Elble, J. M. and N. V. Sahinidis, A review of LU factorization in the simplex algorithm, International Journal of Mathematics in Operational Research, 4, 319-365, 2012.
102. Elble, J. M. and N. V. Sahinidis, A review of the LU update in the simplex algorithm, International Journal of Mathematics in Operational Research, 4, 366-399, 2012.
103. Khajavirad, A., J. J. Michalek and N. V. Sahinidis, Relaxations of factorable functions with convex-transformable intermediates, Mathematical Programming, 144, 107-140, 2014.
104. Chang, Y. and N. V. Sahinidis, Steady-state process optimization with guaranteed robust stability under parametric uncertainty, AIChE Journal, 57, 3395-3407, 2011.
105. Zhang, Y., P. Vouzis and N. V. Sahinidis, GPU simulations for risk assessment in CO_2 geologic sequestration, Computers and Chemical Engineering, 35, 1631-1644, 2011.
106. Khajavirad, A. and N. V. Sahinidis, Convex envelopes generated from finitely many compact convex sets, Mathematical Programming, 137, 371-408, 2013.
107. Khajavirad, A. and N. V. Sahinidis, Convex envelopes of products of convex and component-wise concave functions, Journal of Global Optimization, 52, 391-409, 2012.
108. Amaran, S. and N. V. Sahinidis, Global optimization of nonlinear least-squares problems by branch-and-bound and optimality constraints, Top, 20, 154-172, 2012.
109. Chang, Y. and N. V. Sahinidis, An integer programming approach to DNA sequence assembly, Computational Biology and Chemistry, 35, 251-258, 2011.
110. Shah, S. B. and N. V. Sahinidis, SAS-Pro: Simultaneous residue assignment and structure superposition for protein structure alignment, PLoS ONE, 7:e37493, 2012.
111. Rios, L. M. and N. V. Sahinidis, Derivative-free optimization: A review of algorithms and comparison of software implementations, Journal of Global Optimization, 56, 1247-1293, 2013.
112. Zhang, Y. and N. V. Sahinidis, Uncertainty quantification in CO2 sequestration using surrogate models from polynomial chaos expansion, Industrial & Engineering Chemistry Research, 52, 3121-3132, 2013.
113. Pinto, J. M. and N. V. Sahinidis (eds.), "Special issue on FOCAPO 2012," Computers and Chemical Engineering, 47, 1-268, 2012.
114. Samudra, A. and N. V. Sahinidis, Optimization-based framework for computer-aided molecular design, AIChE Journal, 59, 3686-3701, 2013.

115. Zorn, K. and N. V. Sahinidis, Global optimization of general nonconvex problems with intermediate bilinear substructures, Optimization Methods and Software, 29, 442-462, 2013.
116. Zorn, K. and N. V. Sahinidis, Computational experience with applications of bilinear cutting planes, Industrial & Engineering Chemistry Research, 52, 7514-7525, 2013.
117. Bao, X., A. Khajavirad, N. V. Sahinidis, and M. Tawarmalani, Global optimization of nonconvex problems with multilinear intermediates, Mathematical Programming Computation, 7, 1-37, 2015.
118. Samudra, A. and N. V. Sahinidis, Design of heat transfer media components for retail food refrigeration, Industrial & Engineering Chemistry Research, 52, 8518-8526, 2013.
119. Miller, D. C., N. V. Sahinidis, A. Cozad, A. Lee, H. Kim, J. Morinelly, J. Eslick, Z. Yuan, "Computational Tools for Accelerating Carbon Capture Process Development". In Proceedings of The 38th International Technical Conference on Clean Coal & Fuel Systems, Clearwater, FL, USA. June 2 to 6, 2013.
120. Khajavirad, A. and N. V. Sahinidis, A hybrid LP/NLP paradigm for global optimization relaxations, Mathematical Programming Computation, under revision.
121. Miller, D. C., M. Syamlal, D. S. Mebane, C. B. Storlie, D. Bhattacharyya, N. V. Sahinidis, D. Agarwal, C. Tong, S. E. Zitney, A. Sarkar, X. Sun, S. Sundaresan, E. M. Ryan, D. Engel and C. Dale, Carbon capture simulation initiative: A case study in multi-scale modeling and new challenges, Annual Reviews of Chemical and Biomolecular Engineering, 5, 301-323, 2014.
122. He, Y., Y. Zhang, Z.-F. Ma, N. V. Sahinidis, R. R. Tan, and D. C. Y. Foo, Optimal source-sink matching in carbon capture and storage systems under uncertainty, Industrial & Engineering Chemistry Research, 53, 778-785, 2013.
123. Cozad, A., N. V. Sahinidis and D. C. Miller, Learning surrogate models for simulation-based optimization, AIChE Journal, 60, 2211-2227, 2014.
124. Zorn, K. and N. V. Sahinidis, Global optimization of general nonconvex problems with intermediate polynomial substructures, Journal of Global Optimization, 59, 673-693, 2014.
125. Zhang, Y. and N. V. Sahinidis, Global optimization of mathematical programs with complementarity constraints and application to clean energy deployment, Optimization Letters, 10, 325-340, 2016.
126. Amaran, S., N. V. Sahinidis, B. Sharda and S. J. Bury, Simulation optimization: A review of algorithms and applications, 4OR - A Quarterly Journal of Operations Research, 12, 301-333, 2014.
127. Prokopyev, O. A. and N. V. Sahinidis (eds.), "Special issue: Honoring the 60th birthday of Panos M. Pardalos," Journal of Global Optimization, 3(4), 2014.
128. Amaran, S., N. V. Sahinidis, B. Sharda, M. Morrison, S. J. Bury, S. Miller and J. M. Wassick, Long-term turnaround planning for integrated chemical sites, Computers and Chemical Engineering, 72, 145-158, 2015.
129. Cozad, A., N. V. Sahinidis and D. C. Miller, A combined first-principles and data-driven approach to model building, Computers and Chemical Engineering, 73, 116 - 127, 2015.
130. Eslick, J. C., B. Ng, Q. Gao, Ch. H. Tong, N. V. Sahinidis and D. C. Miller, A framework for optimization and quantification of uncertainty and sensitivity for developing carbon capture systems, Energy Procedia, 63, 1055-1063, 2014.

131. G. S.Bromhal, J. Birkholzer, S. D. Mohaghegh, N. Sahinidis, H. Wainwright, Y. Zhang, S. Amini, V. Gholami, Yan Zhang, A. Shahkarami, Evaluation of rapid performance reservoir models for quantitative risk assessment, Energy Procedia, 63, 3425-3431, 2014
132. Kourpas, E. and N. V. Sahinidis, Efficient electronic procurement using mathematical optimization in an electronic marketplace, U.S. patent 20150120482 A1, Apr. 30, 2015.
133. Amaran, S., N. V. Sahinidis, B. Sharda and S. J. Bury, Simulation optimization: A review of algorithms and applications, Annals of Operational Research, 240, 351-380, 2016. (This is an editor-invited revised version of Publication 126.)
134. Amaran, S., T. Zhang, N. V. Sahinidis, B. Sharda and S. J. Bury, Medium-term maintenance turnaround planning under uncertainty for integrated chemical sites, Computers and Chemical Engineering, 84, 422-433, 2016.
135. Austin, N., A. Samudra, N. V. Sahinidis and D. W. Trahan, Mixture design using derivative-free optimization in the space of individual component properties, AIChE Journal, 62, 1514-1530, 2016.
136. Austin, N., N. V. Sahinidis and D. W. Trahan, A COSMO-based approach to computer-aided mixture design, Chemical Engineering Science, 159, 93-105, 2017.
137. Puranik, Y., M. Kılınç, N. V. Sahinidis, T. Li, A. Gopalakrishnan, B. Besancon and Th. Roba, Global optimization of an industrial gas network operation, AIChE Journal, 62, 3215-3224, 2016.
138. Miller, D. C., D. Agarwal, D. Bhattacharyya, J. Boverhof, Y.-W. Cheah, Y. Chen, J. Eslick, J. Leek, J. Mae, P. Mahapatra, B. Ng, N. V. Sahinidis, C. Tong, S. E. Zitney, Innovative computational tools and models for the design, optimization and control of carbon capture processes, Computer Aided Chemical Engineering, 38, 2391-2396, 2016.
139. Rajagopalan, S. and N. V. Sahinidis, The pooling problem, in T. Terlaky, M. Anjos and S. Ahmed (eds.), Advances and Trends in Optimization with Engineering Applications, MOS-SIAM Book Series on Optimization, SIAM, Philadelphia, 2017, pp. 207-218.
140. Kılınç, M. and N. V. Sahinidis, State-of-the-art in mixed-integer nonlinear programming, in T. Terlaky, M. Anjos and S. Ahmed (eds.), Advances and Trends in Optimization with Engineering Applications, MOS-SIAM Book Series on Optimization, SIAM, Philadelphia, 2017, pp. 273-292.
141. Puranik, Y. and N. V. Sahinidis, Deletion presolve for accelerating infeasibility diagnosis in optimization models, INFORMS Journal on Computing, accepted, 2017.
142. Puranik, Y. and N. V. Sahinidis, Domain reduction techniques for global NLP and MINLP optimization, Constraints, 22(3), 338-376, 2017.
143. Puranik, Y. and N. V. Sahinidis, Bounds tightening based on optimality conditions for nonconvex box-constrained optimization, Journal of Global Optimization, 67, 59-77, 2017.
144. Austin, N., N. V. Sahinidis and D. W. Trahan, Computer-aided molecular design: An introduction and review of tools, applications, and solution techniques, Chemical Engineering Research and Design, 116, 2-26, 2016.
145. Wilson, Z. T and N. V. Sahinidis, The ALAMO approach to machine learning, Computers and Chemical Engineering, accepted, 2017, DOI 10.1016/j.compchemeng.2017.02.010.
146. Rajagopalan, S., N. V. Sahinidis, S. Amaran, A. Agarwal, S. J. Bury, B. Sharda and J. M. Wassic, Risk analysis of turnaround reschedule planning in integrated chemical sites, Computers and Chemical Engineering, accepted, 2017.
147. Miller, D. C., D. A. Agarwal, D. Bhattacharyya, J. Boverhof, Y. Chen, J. C. Eslick, J. Leek, J. Ma, B. Ng, N. V. Sahinidis, C. Tong and S. E. Zitney, Innovative computational tools

and models for the design, optimization and control of carbon capture processes, In A. I. Papadopoulos and P. Seferlis (eds.): Materials and Process Systems for CO2 Capture: Modelling, Design, Control and Integration, Wiley, 2017.

148. Zhou, K., M. Kılınç and N. V. Sahinidis, An efficient strategy for the activation of MIP relaxations in a multicore global MINLP solver, Journal of Global Optimization, accepted, 2017.
149. Ploskas, N., N. V. Sahinidis and N. Samaras, A triangulation and fill-reducing initialization procedure for the simplex algorithm, Mathematical Programming Computation, submitted, 2016.
150. Kılınç, M. and N. V. Sahinidis, Exploiting integrality in the global optimization of mixed-integer nonlinear programming problems in BARON, Optimization Methods and Software, accepted, 2017.
151. Austin, N., N. V. Sahinidis, I. Konstantinov and D. W. Trahan, COSMO-based computer-aided molecular/mixture design: A focus on reaction solvents, AIChE Journal, DOI: 10.1002/aic.15871, 2017.
152. Ploskas, N., C. Laughman, A. U. Raghunathan, and N. V. Sahinidis, Optimization of circuitry arrangements for heat exchangers using derivative-free optimization, Chemical Engineering Research and Design, accepted, 2017.
153. Nohra, C. J. and N. V. Sahinidis, Global optimization of nonconvex problems with convex-transformable intermediates, Journal of Global Optimization, submitted, 2017.
154. Liu, J., N. Ploskas, and N. V. Sahinidis, Tuning BARON using derivative-free optimization algorithms, Journal of Global Optimization, submitted, 2017.
155. Biegler, L. T., I. E. Grossmann, and N. V. Sahinidis, The Center for Advanced Process Decision-making at Carnegie Mellon, Chemical Engineering Education, accepted, 2017.
156. Agent-based modeling and simulation for an order-to-cash process, J. Villarraga, K. M. Carley, N. V. Sahinidis and J. M. Wassick, IEEE Transactions on Systems, Man and Cybernetics: Systems, submitted, 2017.
157. Sauk, B., N. Ploskas and N. V. Sahinidis, GPU parameter tuning for dense linear least squares problems, Optimization Methods and Software, submitted, 2017.
158. Y. Puranik, A. Samudra, N. V. Sahinidis, A. B. Smith, and B. Sayyar-Rodsari, Infeasibility resolution for multi-purpose batch process scheduling, Computers and Chemical Engineering, submitted, 2017.

E. LECTURES AND PRESENTATIONS

Plenary addresses and major invited talks

1. "Global optimization and constraint satisfaction: The branch-and-reduce approach," *First International Workshop on Global Optimization and Constraint Satisfaction,* Valbonne—Sophia Antipolis, France, October 2002.
2. "Challenges in informatics: Optimization in computational biology, chemistry, and medicine," CAST Plenary, *AIChE Annual Meeting*, Indianapolis, Indiana, November 2002.
3. "Optimization under uncertainty: State-of-the-art and opportunities," Invited talk at *Foundations of Computer-Aided Process Operations 2003 (FOCAPO 2003),* Coral Spring, Florida, January 2003.

4. "Stochastic integer programming: Algorithms and applications," Plenary at *The Tenth International Conference on Stochastic Programming (SPX),* Tucson, Arizona, October 2004.
5. "Global optimization with branch-and-reduce," Invited at *5th Annual MOPTA Conference, Modeling and Optimization: Theory and Applications,* Windsor, Canada, July 2005.
6. "Establishing a Master's degree program in bioinformatics: Challenges and opportunities," Invited plenary at *Foundations of Systems Biology and Engineering 2005 (FOSBE 2005),* Santa Barbara, California, August 2005.
7. "Global optimization with branch-and-reduce," Invited at *Workshop on Discrete-Continuous Optimization and Optimal Control,* Darmstadt, Germany, December 2005.
8. "Optimization in the new Biology," Semi-plenary talk at *2nd Mathematical Programming Society International Conference on Continuous Optimization (ICCOPT'07) and 7th Modeling and Optimization: Theory and Applications Conference (MOPTA'07),* McMaster University, Hamilton, Canada, August 2007.
9. "Global optimization with branch-and-reduce," Plenary talk at the *5th International Conference on Computational Management Science,* Imperial College, London, United Kingdom, March 2008.
10. "Optimization techniques in molecular structure and function elucidation," Invited talk at *Foundations of Computer-Aided Process Operations 2008 (FOCAPO 2008),* Cambridge, Massachusetts, July 2008.
11. "Challenges in biological informatics," Plenary talk at the *100th Annual Meeting of the American Institute of Chemical Engineers,* Philadelphia, Pennsylvania, November 2008.
12. "Computing in Chemical Engineering: Three decades in the development of algorithms and software," *Computing in Chemical Engineering Award Lecture,* CAST Division of AIChE, Salt Lake City, Utah, November 2010.
13. "Multi-Variate, Multi-Term, and Multi-Constraint Relaxations for Global Optimization of Nonconvex NLPs and MINLPs with BARON," Plenary talk at *Optimization 2011,* Lisbon, Portugal, July 2011.
14. "ALAMO: Automated Learning of Algebraic Models for Optimization," Invited tutorial at *LION8,* Gainesville, Florida, February 2014.
15. "Constraint programming for infeasibility diagnosis with BARON," Invited talk at *12th International Conference on Integration of AI and OR Techniques in Constrained Programming (CPAIOR 2015),* Barcelona, Spain, May 2015.
16. "Global optimization of algebraic and black-box models," plenary talk at *American-Russian Chemical Engineering Scientific School (ARChESS-2016),* Kazan National Research Technological University, May 2016.
17. "The ALAMO approach to machine learning," plenary talk at the *5th International Symposium and 27th National Conference of the Hellenic Operational Research Society (HELORS),* Athens, Greece, June 2016.
18. "The ALAMO approach to machine learning," plenary talk at the *2016 European Symposium on Computer Aided Process Engineering (ESCAPE26),* Portorož, Slovenia, June 2016.
19. "Machine learning, ALAMO and constrained regression," plenary talk at *FOCAPO/CPC 2017,* Tucson, Arizona, January 2017.
20. "The ALAMO approach to machine learning: Best subset selection, adaptive sampling, and constrained regression," Plenary talk at *Modeling and Optimization: Theory and*

Applications Conference (MOPTA'17), Lehigh University, Bethlehem, Pennsylvania, August 2017.

Invited seminars—Partial list

1. AMOCO Research Center, Naperville, Illinois, March 1990.
2. EXXON Research and Engineering, Annandale, New Jersey, May 1990.
3. University of Illinois at Urbana-Champaign, Department of Mechanical and Industrial Engineering, January 1991.
4. University of Minnesota, Minneapolis, Minnesota, Department of Chemical Engineering and Materials Science, February 1991.
5. Illinois Institute of Technology, Chicago, Illinois, Department of Chemical Engineering, March 1991.
6. University of California at Los Angeles, Department of Chemical Engineering, May 1991.
7. AMOCO Research Center, Naperville, Illinois, December 1993.
8. University of Illinois at Urbana-Champaign, Department of Mechanical and Industrial Engineering, April 1995.
9. University of California at Los Angeles, Department of Chemical Engineering, April 1996.
10. Sabre Decision Technologies/American Airlines, Dallas/Fort Worth, Texas, September 1996.
11. University of California at Santa Barbara, Department of Chemical Engineering, February 1997.
12. University of Houston, Houston, Texas, Department of Chemical Engineering, March 1997.
13. University of Illinois at Urbana-Champaign, Department of Chemical Engineering, April 1997.
14. University of Wisconsin-Madison, Department of Chemical Engineering, September 1997.
15. Mobil Technology Center, Houston, Texas, February 1998.
16. University of Illinois at Chicago, Department of Chemical Engineering, April 1999.
17. IBM, T. J. Watson Research Laboratory, Yorktown Heights, New York, November 1999.
18. Carnegie Mellon University, Pittsburgh, Pennsylvania, Department of Chemical Engineering, January 2000.
19. New York University, New York, New York, Department of Operations Management, January 2000.
20. National Taiwan University, Taipei, Taiwan, Department of Chemical Engineering, March 2000.
21. National Chengchi University, Taipei, Taiwan, Department of Mathematical Sciences, March 2000.
22. National Taiwan University of Science and Technology, Taipei, Taiwan, Department of Chemical Engineering, March 2000.
23. Columbia University, New York, New York, Department of Industrial Engineering and Operations Research, April 2000.
24. Delft University of Technology, Netherlands, Department of Statistics, Probability, and Operations Research, May 2000.
25. Massachusetts Institute of Technology, Cambridge, Massachusetts, Department of Chemical Engineering, October 2000.

26. University of Oklahoma, Norman, Oklahoma, Schools of Chemical Engineering and Industrial Engineering, October 2001.
27. ExxonMobil Upstream Research Center, Houston, Texas, December 2002.
28. Aristotle University of Thessaloniki, Thessaloniki, Greece, Department of Chemical Engineering, March 2003.
29. Hauptman-Woodward Institute, Buffalo, New York, May 2003.
30. Aristotle University of Thessaloniki, Thessaloniki, Greece, Department of Mechanical Engineering, May 2003.
31. Global Optimization Theory Institute, Argonne National Laboratory, Argonne, Illinois, September 2003.
32. ExxonMobil Upstream Research Center, Houston, Texas, December 2003.
33. ExxonMobil Research and Engineering Company, Clinton, NJ, May 2004.
34. University of Texas at Austin, Austin, Texas, Department of Chemical Engineering, March 2005.
35. Otto-von-Guericke Universität Magdeburg, Magdeburg, Germany, Faculty of Mathematics, March 2006.
36. RWTH Aachen University, Aachen, Germany, Process Systems Engineering, March 2006.
37. University of Western Macedonia, Kozani, Greece, Department of Informatics Engineering and Telecommunications Engineering, April 2006.
38. Carnegie Mellon University, Pittsburgh, Pennsylvania, Department of Chemical Engineering, May 2006.
39. Swiss Federal Institute of Technology (ETH), Zurich, Switzerland, Optimization and Applications joint seminar series between ETH Zurich and University of Zurich, May 2006.
40. Massachusetts Institute of Technology, Cambridge, Massachusetts, Department of Mathematics, Applied Mathematics Colloquium, October 2007.
41. Carnegie Mellon University, Pittsburgh, Pennsylvania, Enterprise-Wide Optimization Seminar Series, October 2007.
42. University of Pittsburgh, Pittsburgh, Pennsylvania, Department of Industrial Engineering, October 2007.
43. Georgia Institute of Technology, Atlanta, Georgia, School of Industrial & Systems Engineering and Center for the Study of Systems Biology, Distinguished Lecture Series in Systems Biology, April 2008.
44. University of Pittsburgh Medical School, Pittsburgh, Pennsylvania, Department of Computational Biology, April 2008.
45. Carnegie Mellon University, Tepper School of Business, Pittsburgh, Pennsylvania, April 2008.
46. University of Wisconsin, Madison, Wisconsin, Department of Chemical and Biological Engineering, April 2008.
47. Carnegie Mellon University, Pittsburgh, Pennsylvania, Enterprise-Wide Optimization Seminar Series, January 2010.
48. University of Rhode Island, Kingston, Rhode Island, Department of Chemical Engineering, March 2010.
49. Carnegie Mellon University, Pittsburgh, Pennsylvania, Department of Computational Biology, May 2010.
50. Fields Institute, University of Toronto, Toronto, Canada, March 2011.

51. GERAD, Montreal, Canada, March 2011.
52. Rutgers Business School, Newark, New Jersey, November 2011.
53. COPPE, Federal University Rio de Janeiro, Brazil, March 2012.
54. Lindsay Lecturer, Texas A&M University, College Station, Texas, Department of Chemical Engineering, April 2013.
55. D. B. Robinson distinguished speaker, University of Alberta, Department of Chemical & Materials Engineering, April 2013.
56. ExxonMobil Research and Engineering Company, Clinton, NJ, August 2013.
57. Imperial College, London, United Kingdom, January 2014.
58. University of Michigan, Ann Arbor, Michigan, Department of Industrial & Operations Engineering, October 2014.
59. Boeing Multidisciplinary Design Optimization community webinar, April 2015.
60. Eastman Chemical, Kingsport, TN, September 2015.
61. Carnegie Mellon University, Pittsburgh, Pennsylvania, Enterprise-Wide Optimization Seminar Series, October 2015.
62. Dow Chemical Company, Freeport, TX, May 2016.
63. Virginia Tech, Grado Department of Industrial and Systems Engineering, January 2017.
64. Procter & Gamble, Cincinnati, OH, April 2017.
65. University of Connecticut, UTC Institute for Advanced Systems Engineering, April 2017.

Invited conference presentations

1. Sahinidis, N. V. Accelerating branch-and-bound in continuous global optimization, *ORSA/TIMS Annual Meeting*, Phoenix, Arizona, November 1993.
2. Sahinidis, N. V., Global optimization, *AIChE, New Jersey Section, 34th Annual Spring Symposium*, May 1994.
3. Sahinidis, N. V. and J. P. Shectman, A finite algorithm for concave minimization over polytopes, *Conference on the State of the Art in Global Optimization,* Princeton University, New Jersey, April 1995.
4. Sahinidis, N. V. and R. J. Vander Wiel, Heuristic and exact approaches to the time-dependent traveling salesman problem, *INFORMS Annual Meeting,* New Orleans, Louisiana, October 1995.
5. Sahinidis, N. V. and H. S. Ryoo, A branch-and-reduce approach to global optimization, *IFORS Fourth Specialized Conference: Operations Research and Engineering Design*, St. Louis, Montana, October 1995.
6. Shectman, J. P., M. L. Liu, and N. V. Sahinidis, Chemical process planning via global concave minimization, *IFORS Fourth Specialized Conference: Operations Research and Engineering Design*, St. Louis, Montana, October 1995.
7. Gutierrez, R. A. and N. V. Sahinidis, A branch-and-bound approach to the design of just-in-time manufacturing systems, *IFORS Fourth Specialized Conference: Operations Research and Engineering Design*, St. Louis, Montana, October 1995.
8. Ryoo, H. S. and N. V. Sahinidis, Global optimization of convex multiplicative programming problems, *INFORMS Annual Meeting,* Atlanta, Georgia, November 1996.
9. Ahmed, S., M. L. Liu, and N. V. Sahinidis, Optimization in process planning under uncertainty, *INFORMS Annual Meeting,* Atlanta, Georgia, November 1996.
10. Shectman, J. P. and N. V. Sahinidis, Branch-and-bound algorithms for continuous global optimization problems, *INFORMS Annual Meeting,* Atlanta, Georgia, November 1996.

11. Shectman, J. P. and N. V. Sahinidis, Finiteness issues in global optimization, *INFORMS Annual Meeting*, Dallas, Texas, October 1997.
12. Ryoo, H. S. and N. V. Sahinidis, Applications of generalized multiplicative programming and its variants, *INFORMS Annual Meeting*, Dallas, Texas, October 1997.
13. Ahmed, S. and N. V. Sahinidis, Complexity and probabilistic analysis for chemical process planning, *INFORMS Annual Meeting*, Dallas, Texas, October 1997.
14. Liu, M. L. and N. V. Sahinidis, Worst case and probabilistic analysis for a class of multiperiod MILPs, *INFORMS Annual Meeting*, San Diego, California, May 1997.
15. Adhya, N. and N. V. Sahinidis, Global optimization of blending and pooling problems, *INFORMS Annual Meeting*, San Diego, California, May 1997.
16. Ryoo, H. S. and N. V. Sahinidis, Applications of linear multiplicative programming in decision making, *INFORMS Annual Meeting*, San Diego, California, May 1997.
17. Sahinidis, N. V. Solving global optimization problems with BARON, *From Local to Global Optimization, A Workshop on the Occasion of the 70th Birthday of Professor Hoang Tuy*, Linköping Institute of Technology, Sweden, August 1997.
18. Sahinidis, N. V. Computing global solutions of nonconvex NLPs, *INFORMS Annual Meeting*, Dallas, Texas, October 1997.
19. Sahinidis, N. V. Solving large-scale global optimization problems, *Aspen World 97*, Boston, Massachusetts, October 1997.
20. Tawarmalani, M., N. Adhya, and N. V. Sahinidis, Global optimization of the pooling problem, The 2nd Engineering Design Automation Conference, Maui, Hawaii, August 1998.
21. Tawarmalani, M., N. Adhya, and N. V. Sahinidis, Global optimization of the pooling problem, *INFORMS Annual Meeting*, Seattle, Washington, October 1998.
22. Tawarmalani, M., S. Ahmed, and N. V. Sahinidis, Convexification of fractional 0-1 programs, *INFORMS Annual Meeting*, Seattle, Washington, October 1998.
23. Shectman, J. P. and N. V. Sahinidis, Finiteness issues in global optimization, *INFORMS Annual Meeting*, Seattle, Washington, October 1998.
24. Ahmed, S. and N. V. Sahinidis, An asymptotically optimal heuristic for a multi-stage stochastic integer program, *INFORMS Annual Meeting*, Seattle, Washington, October 1998.
25. Sahinidis, N. V., Global optimization: A primer and discussion of its potential benefits, AIChE Spring National Meeting, Houston, Texas (invited tutorial), March 1999.
26. Ryoo, H. S. and N. V. Sahinidis, Generalized linear multiplicative programs and their applications, *INFORMS Annual Meeting*, Cincinnati, Ohio, May 1999.
27. Ahmed, S. and N. V. Sahinidis, An asymptotically optimal heuristic for a multi-period integer program, *INFORMS Annual Meeting*, Cincinnati, Ohio, May 1999.
28. Ahmed, S., M. Tawarmalani, and N. V. Sahinidis, A finite branch-and-bound scheme for two-stage stochastic integer programs, *INFORMS Annual Meeting*, Cincinnati, Ohio, May 1999.
29. Sahinidis, N. V., Foundations of Computer Aided Process Design, Invited Panelist: Optimization Section, Breckenridge, Colorado, July 1999.
30. Sahinidis, N. V., Global optimization: Algorithms, software, and applications, Second Pan American Workshop on Process Systems Engineering, Santa Fe, Argentina, September 1999.

31. Sahinidis, N. V., Tutorial: Deterministic global optimization: Algorithms and applications, *INFORMS Annual Meeting*, Philadelphia, Pennsylvania, November 1999.
32. Tawarmalani, M., and N. V. Sahinidis, Convexification tools in integer programming, *INFORMS Annual Meeting*, Philadelphia, Pennsylvania, November 1999.
33. Shectman, J. P., and N. V. Sahinidis, Portfolio optimization via global nonconvex quadratic programming, *INFORMS Annual Meeting*, Philadelphia, Pennsylvania, November 1999.
34. Ahmed, S., M. Tawarmalani, and N. V. Sahinidis, Global optimization of two-stage stochastic mixed-integer programs, *INFORMS Annual Meeting*, Philadelphia, Pennsylvania, November 1999.
35. Ahmed, S. and N. V. Sahinidis, Asymptotically optimal technology selection under uncertainty, *INFORMS Annual Meeting*, Salt Lake City, Utah, May 2000.
36. Ahmed, S., M. Tawarmalani, and N. V. Sahinidis, Global optimization of two-stage stochastic programs, *INFORMS Annual Meeting*, Salt Lake City, Utah, May 2000.
37. Tawarmalani, M., S. Ahmed, and N. V. Sahinidis, 0-1 hyperbolic programming, *INFORMS Annual Meeting*, Salt Lake City, Utah, May 2000.
38. Ahmed, S., M. Tawarmalani, and N. V. Sahinidis, Global optimization in stochastic integer programming, *International Conference on Advances in Convex Analysis and Global Optimization Honoring the Memory of C. Carathéodory*, Samos, Greece, June 2000.
39. Tawarmalani, M. and N. V. Sahinidis, Semidefinite relaxations of fractional programs via novel techniques for constructing convex envelopes of nonlinear functions, *International Conference on Advances in Convex Analysis and Global Optimization Honoring the Memory of C. Carathéodory*, Samos, Greece, June 2000.
40. Ahmed, S., M. Tawarmalani, and N. V. Sahinidis, Global optimization in stochastic integer programming, *International Symposium on Mathematical Programming*, Atlanta, Georgia, August 2000.
41. Tawarmalani, M. and N. V. Sahinidis, Semidefinite relaxations of fractional programs via novel techniques for constructing convex envelopes of nonlinear functions, *International Symposium on Mathematical Programming*, Atlanta, Georgia, August 2000.
42. Tawarmalani, M. and N. V. Sahinidis, Global optimization of mixed-integer nonlinear programs, *International Symposium on Mathematical Programming*, Atlanta, Georgia, August 2000.
43. Ahmed, S., and N. V. Sahinidis, An asymptotically optimal heuristic for capacity expansion under uncertainty, *INFORMS Annual Meeting*, San Antonio, Texas, November 2000.
44. Tawarmalani, M. and N. V. Sahinidis, Global optimization of mixed integer nonlinear programs, *INFORMS Annual Meeting*, San Antonio, Texas, November 2000.
45. Tawarmalani, M. and N. V. Sahinidis, Convexification strategies in global optimization, *INFORMS Annual Meeting*, San Antonio, Texas, November 2000.
46. Ahmed, S., M. Tawarmalani, and N. V. Sahinidis, Global optimization of two-stage stochastic integer programs, *INFORMS Annual Meeting*, San Antonio, Texas, November 2000.
47. Sahinidis, N. V., Global optimization: Algorithms and applications, Gordon Research Conference on Modern Developments in Thermodynamics, Ventura, California, March 2001.
48. Sahinidis, N. V. and S. Ahmed, Supply chain design and operations under uncertainty, *AIChE Annual Meeting*, Houston, Texas, April 2001.

49. Tawarmalani, M. and N. V. Sahinidis, Domain reduction in global optimization of mixed-integer nonlinear programs, *INFORMS Annual Meeting*, Miami Beach, Florida, November 2001.
50. Tawarmalani, M. and N. V. Sahinidis, Global optimization of mixed-integer nonlinear programs, *INFORMS Annual Meeting*, Miami Beach, Florida, November 2001.
51. Tawarmalani, M. and N. V. Sahinidis, Convex envelopes of nonlinear functions, *INFORMS Annual Meeting*, Miami Beach, Florida, November 2001.
52. Sahinidis, N. V. and M. Tawarmalani, Global optimization with BARON, *INFORMS Annual Meeting*, San Jose, California, November 2002.
53. Sahinidis, N. V., Optimization under uncertainty: State-of-the-art and opportunities, Foundations of Computer Aided Process Operations Meeting, Coral Springs, Florida, January 2003.
54. Sahinidis, N. V., Global optimization in informatics, *4th International Conference on Frontiers in Global Optimization*, Santorini, Greece, June 2003.
55. Bussieck, M., L. Lasdon, N. V. Sahinidis, and J. Pintér, Global optimization with GAMS—Applications and performance, *Annual International Conference of the German Operations Research Society (OR 2003)*, Heidelberg, Germany, September 2003.
56. Xie, W. and N. V. Sahinidis, Facility layout and sizing under uncertainty, *INFORMS Annual Meeting*, Atlanta, Georgia, October 2003.
57. Sahinidis, N. V. and M. Tawarmalani, A two-step procedure for convexification of lower semi-continuous functions, *INFORMS Annual Meeting*, Atlanta, Georgia, October 2003.
58. Sahinidis, N. V. and M. Tawarmalani, Global optimization with GAMS/BARON, *INFORMS Annual Meeting*, Atlanta, Georgia, October 2003.
59. Sahinidis, N. V., NSF symposium on supply chain management in process industries, Invited panelist: Research challenges and opportunities in supply chain management, University of Minnesota, Minneapolis, May 2004.
60. Sahinidis, N. V. and M. Tawarmalani, A polyhedral branch-and-cut algorithm for global optimization, *INFORMS Annual Meeting*, Denver, Colorado, October 2004.
61. Ryoo, H. and N. V. Sahinidis, Wisconsin breast cancer diagnosis via global optimization, *INFORMS Annual Meeting*, Denver, Colorado, October 2004.
62. Sahinidis, N. V., Global optimization in supply chain management, NSF Symposium on Supply Chain Management in Process Industries, University of Minnesota, Minneapolis, May 2004.
63. Sahinidis, N. V. and Y. Chang, Optimization of biochemical networks for desired dynamic characteristics, *INFORMS Annual Meeting*, Denver, Colorado, October 2004.
64. Furman, K. C., J. Wei, M. Duran, M. Tawarmalani and N. V. Sahinidis, "Global optimization for nonconvex stochastic mixed-integer nonlinear programs, *IFORS Triennial Meeting*, Honolulu, Hawaii, July 2005.
65. Sahinidis, N. V. and M. Tawarmalani, Global optimization with branch-and-reduce, *INFORMS Annual Meeting*, San Francisco, California, November 2005.
66. Xie, W. and N. V. Sahinidis, Heuristic and exact algorithms for packing discs in a minimal container circle, *INFORMS Annual Meeting*, Pittsburgh, Pennsylvania, November 2006.
67. Sahinidis, N. V. and A. B. Smith, A review of optimization techniques for phase retrieval based on single-crystal X-ray diffraction data, *2nd International Conference on Complementarity, Duality and Global Optimization in Science and Engineering*, Gainesville, Florida, March 2007.

68. Sahinidis, N. V., Global optimization with branch-and-reduce—Algorithms, Software, and Applications, *Workshop on Global Optimization*, Fields Institute, University of Toronto, Toronto, Canada, May 2007.
69. Sahinidis, N. V., Global optimization—Algorithms, Software, and Applications, *INFORMS Conference on O.R. Practice*, Vancouver, Canada, May 2007.
70. Smith, A. B. and N. V. Sahinidis, Optimization techniques for phase retrieval based on single-crystal X-ray diffraction data, *2nd International Conference on Continuous Optimization (ICCOPT'07)*, McMaster University, Hamilton, Canada, August 2007.
71. Bao, X. and N. V. Sahinidis, Automatic convexity detection for global optimization, *2nd International Conference on Continuous Optimization (ICCOPT'07)*, McMaster University, Hamilton, Canada, August 2007.
72. Smith, A. B. and N. V. Sahinidis, Optimization techniques for phase retrieval based on single-crystal X-ray diffraction data, *INFORMS Optimization Society Conference*, Atlanta, Georgia, March 2008.
73. Bao, X. and N. V. Sahinidis, Global optimization of nonconvex, quadratically-constrained quadratic programs, *INFORMS Optimization Society Conference*, Atlanta, Georgia, March 2008.
74. Rios, L. M. and N. V. Sahinidis, Algorithms and software for derivative-free optimization, *INFORMS Optimization Society Conference*, Atlanta, Georgia, March 2008.
75. Sahinidis, N. V. and M. Tawarmalani, Computational solution of MINLPs with BARON, *INFORMS Annual Meeting*, Washington, DC, October 2008.
76. Sahinidis, N. V. and M. Tawarmalani, A unifying framework for domain reduction, *INFORMS Annual Meeting*, Washington, DC, October 2008.
77. Xie, W. and N. V. Sahinidis, Protein structure alignment via contact map overlap maximization, *INFORMS Annual Meeting*, Washington, DC, October 2008.
78. Sahinidis, N. V. and L. M. Rios, Derivative-free optimization: A review, comparison of software, and two new algorithms, *Computational Management Science*, Geneva, Switzerland, May 2009.
79. Sahinidis, N. V. and M. Tawarmalani, Global optimization of MINLPs with BARON, *International Symposium on Mathematical Programming*, Chicago, Illinois, August 2009.
80. Bao, X., N. V. Sahinidis and M. Tawarmalani, Multi-term, polyhedral, relaxations of nonconvex, quadratically-constrained quadratic programs, *International Symposium on Mathematical Programming*, Chicago, Illinois, August 2009.
81. Khajavirad, A., J. Michalek, and N. V. Sahinidis, Relaxations for convex-transformable functions, *International Symposium on Mathematical Programming*, Chicago, Illinois, August 2009.
82. Zorn, K. and N. V. Sahinidis, Reformulation linearization techniques: An application to quantum chemical calculations, *International Symposium on Mathematical Programming*, Chicago, Illinois, August 2009.
83. Elble, J. and N. V. Sahinidis, The computation and distribution of reduced costs in random linear programs, *INFORMS Annual Meeting*, San Diego, California, October 2009.
84. Sahinidis, N. V. and M. Tawarmalani, Global optimization of MINLPs with BARON, *INFORMS Annual Meeting*, San Diego, California, October 2009.
85. Tawarmalani, M. and N. V. Sahinidis, Exploiting multilinearity in global optimization relaxations, *INFORMS Annual Meeting*, San Diego, California, October 2009.

86. Sahinidis, N. V. and L. M. Rios, Model-and-search—A local derivative-free algorithm, *Computational Management Science 2010*, Vienna, Austria, July 2010.
87. Sahinidis, N. V. and J. Elble, The simplex algorithm—Techniques revisited and explored, *Computational Management Science 2010*, Vienna, Austria, July 2010.
88. Khajavirad, A., J. Michalek and N. V. Sahinidis, Relaxations of factorable functions with convex-transformable intermediates, *INFORMS Annual Meeting,* Austin, Texas, November 2010.
89. Khajavirad, A. and N. V. Sahinidis, Convex envelopes of lower semi-continuous functions generated by finite number of compact convex sets, *INFORMS Annual Meeting,* Austin, Texas, November 2010.
90. Elble, J., N. V. Sahinidis and P. Vouzis, GPU computing with Kaczmarz's and other iterative algorithms for linear systems, *INFORMS Annual Meeting,* Austin, Texas, November 2010.
91. Vouzis, P. and N. V. Sahinidis, A GPU implementation of BLAST, *INFORMS Annual Meeting,* Austin, Texas, November 2010.
92. Cozad, A. and N. V. Sahinidis, Using derivative-free algorithms to identify surrogate models of energy systems, SIAM Conference on Computational Science and Engineering (CSE11), Reno, Nevada, March, 2011.
93. Khajavirad, A. and N. V. Sahinidis, Convexity exploitation in global optimization, *INFORMS Annual Meeting*, Charlotte, North Carolina, November 2011.
94. Cozad, A. and N. V. Sahinidis, Derivative-free optimization enhanced-surrogate models for energy systems optimization, *INFORMS Annual Meeting,* Charlotte, North Carolina, November 2011.
95. Sahinidis, N. V., M. Tawarmalani, X. Bao, A. Khajavirad, and K. Zorn, Multi-variate, multi-term, and multi-constraint relaxations for global optimization with BARON, *INFORMS Annual Meeting*, Charlotte, North Carolina, November 2011.
96. Sahinidis, N. V. and L. M. Rios, A comparison of software implementations of derivative-free optimization algorithms, *INFORMS Annual Meeting,* Charlotte, North Carolina, November 2011.
97. Amaran, S. and N. V. Sahinidis, Global optimization of surrogate approximations in derivative-free optimization, *INFORMS Annual Meeting*, Charlotte, North Carolina, November 2011.
98. Zorn, K. and N. V. Sahinidis, Reformulation-linearization techniques: Enhancing BARON's relaxations for polynomial programs, *INFORMS Annual Meeting,* Charlotte, North Carolina, November 2011.
99. Sahinidis, N. V., A. Cozad, and D. C. Miller, Derivative-Free Optimization Enhanced-Surrogate Models for Energy Systems Optimization, 9th International Conference on Computational Management Science (CMS 2012), Imperial College, London, U.K., 19-20 April 2012.
100. Sahinidis, N. V., Applications of optimization to industrial problems, *2nd Annual Energy & Innovation Conference*, Pittsburgh, Pennsylvania, November 2012.
101. Puranik, Y. and N. V. Sahinidis, Stronger relaxations using optimality constraints for global optimization of unconstrained NLPs, *INFORMS Annual Meeting,* Phoenix, Arizona, October 2012.

102. Khajavirad, A., X. Bao, N. V. Sahinidis and M. Tawarmalani, Global optimization of nonconvex problems with multilinear intermediates, *INFORMS Annual Meeting,* Phoenix, Arizona, October 2012.
103. Khajavirad, A. and N. V. Sahinidis, Exploiting convexity in global optimization, *INFORMS Annual Meeting,* Phoenix, Arizona, October 2012.
104. Sahinidis, N. V., Solving nonconvex NLPs and MINLPs with BARON, *INFORMS Annual Meeting,* Phoenix, Arizona, October 2012.
105. Sahinidis, N. V., A. Cozad, and D. C. Miller, Derivative-free optimization enhanced-surrogate model development for optimization, *INFORMS Annual Meeting,* Phoenix, Arizona, October 2012.
106. Sahinidis, N. V., Large-scale simulation-optimization with ALAMO and BARON, MINLP Workshop, Paris, France, September 2013.
107. Cozad, A., N. V. Sahinidis and D. C. Miller, Automated Learning of Algebraic Models for Optimization, *INFORMS Annual Meeting,* Minneapolis, Minnesota, October 2013.
108. Rajagopalan, S., A. Khajavirad and N. V. Sahinidis, Global optimization with non-polyhedral convex envelopes, *INFORMS Annual Meeting,* Minneapolis, Minnesota, October 2013.
109. Puranik, Y., A. Khajavirad and N. V. Sahinidis, Global optimization of problems with edge-concave intermediates, *INFORMS Annual Meeting,* Minneapolis, Minnesota, October 2013.
110. Sahinidis, N. V., and A. Khajavirad, A hybrid LP/NLP paradigm for global optimization relaxations, *INFORMS Annual Meeting,* Minneapolis, Minnesota, October 2013.
111. Sahinidis, N. V., What's in the box? Systematic approaches for inferring algebraic models from experimental data or simulations, *AIChE Annual Meeting,* San Francisco, California, November 2013.
112. Sahinidis, N. V. and M. V. Kothare, Overview of CAST activities and programming, *AIChE Annual Meeting,* San Francisco, California, November 2013.
113. Sahinidis, N. V., A. Cozad, and D. C. Miller, Extending the scope of mixed-integer nonlinear programming techniques to black-box systems, *AIChE Annual Meeting,* Atlanta, Georgia, November 2014. In honor of Ignacio Grossmann's 65th birthday.
114. Ierapetritou, M. and N. V. Sahinidis, Overview of CAST activities and programming, *AIChE Annual Meeting,* Atlanta, Georgia, November 2014.
115. Kılınç, M. and N. V. Sahinidis, Global Optimization of Mixed-integer Nonlinear Optimization Problems in BARON, *INFORMS Annual Meeting,* San Francisco, California, November 2014.
116. Puranik, Y. and N. V. Sahinidis, Systematic Diagnosis of Infeasible NLP and MINLP Models, *INFORMS Annual Meeting,* San Francisco, California, November 2014.
117. Sahinidis, N. V., A. Cozad, and D. C. Miller, Extending the scope of mixed-integer nonlinear programming techniques to black-box systems, *INFORMS Annual Meeting,* San Francisco, California, November 2014.
118. Sahinidis, N. V., and R. Adomaitis, Overview of CAST activities and programming, *AIChE Annual Meeting,* Salt Lake City, Utah, November 2015.
119. Sahinidis, N. V., and K. Schnelle, Overview of CAST activities and programming, *AIChE Annual Meeting,* San Francisco, California, November 2016.

120. Nohra, C. and N. V. Sahinidis, Computational experimentation with cutting planes for convex-transformable functions, *INFORMS Annual Meeting,* Nashville, Tennessee, November 2016.
121. Ploskas, N., J. Liu and N. V. Sahinidis, Tuning BARON using derivative-free optimization algorithms, *INFORMS Annual Meeting,* Nashville, Tennessee, November 2016.
122. Kılınç, M. and N. V. Sahinidis, Recent advances in BARON, *INFORMS Annual Meeting,* Nashville, Tennessee, November 2016.
123. Ploskas, N., N. Samaras and N. V. Sahinidis, An advanced starting basis for the simplex algorithm, *INFORMS Annual Meeting,* Nashville, Tennessee, November 2016.
124. Sahinidis, N. V., ALAMO, *AIChE Spring National Meeting,* San Antonio, Texas, March 2017.
125. Schmal, P., A. Chowdhury, A. Lawal, M. Kılınç and N. V. Sahinidis, Model reduction for complex systems analysis, *AIChE Spring National Meeting,* San Antonio, Texas, March 2017.

Other conference paper presentations

1. Kiparissides, C., E. Sidiropoulou, S. Voutetakis, and N. V. Sahinidis, A comparative study of LQC, DMC and extended STR control strategies, *Tenth IFAC World Congress on Automatic Control*, Munich, Germany, July 1987.
2. Sahinidis, N. V., I. E. Grossmann, R. E. Fornari, and M. Chathrathi, Optimization model for long range planning in the chemical industry, *AIChE Annual Meeting*, New York, New York, November 1987.
3. Sahinidis, N. V. and I. E. Grossmann, Reformulation of multiperiod MILP models for capacity expansion in chemical processes, *ORSA/TIMS Annual Meeting*, New York, New York, October 1989.
4. Sahinidis, N. V. and I. E. Grossmann, The impact of reformulation on MILP models for multi-period design, *Tenth Chemical Engineering Graduate Student Symposium*, Carnegie Mellon University, Pittsburgh, Pennsylvania, October 1989.
5. Sahinidis, N. V. and I. E. Grossmann, Multiperiod scheduling on continuous parallel lines with sequence dependent changeovers, *TIMS/ORSA Annual Meeting*, Las Vegas, Nevada, May 1990.
6. Sahinidis, N. V. and I. E. Grossmann, Multiperiod capacity expansion for optimal design of industrial complexes, *12th Triennial Conference on Operations Research*, Athens, Greece, June 1990.
7. Sahinidis, N. V. and I. E. Grossmann, Alternative mixed integer optimization approaches for long range planning of chemical processes, *TIMS/ORSA Annual Meeting*, Philadelphia, October 1990.
8. Sahinidis, N. V. and I. E. Grossmann, Large-scale MINLP optimization by decomposition, *AIChE Annual Meeting*, Chicago, November 1990.
9. Sahinidis, N. V. and I. E. Grossmann, The impact of reformulation on multiperiod MILP models for planning and scheduling of chemical processes, *AIChE Annual Meeting*, Chicago, Illinois, November 1990.
10. Sahinidis, N. V., Global optimization of molecular mechanics formulations, *ACS Annual Meeting*, Washington, D.C., August 1992.
11. Sahinidis, N. V., Global minima of molecular mechanics formulations, *The Third Keck Symposium on Computational Biology*, Houston, Texas, November 1992.

12. Sahinidis, N. V., Branch-and-bound experiments in global optimization, *AIChE Annual Meeting*, Miami Beach, Florida, November 1992.
13. Sahinidis, N. V., Avoiding local minima in molecular mechanics simulations, *AIChE Annual Meeting,* Miami Beach, Florida, November 1992.
14. Vander Wiel, R. J. and N. V. Sahinidis, A primal dual algorithm for the set aside assignment problem, *TIMS/ORSA Annual Meeting*, Chicago, Illinois, May 1993.
15. Sahinidis, N. V., Deterministic global optimization and molecular mechanics, *ACS Annual Meeting*, Chicago, Illinois, August 1993.
16. Sahinidis, N. V. and H. S. Ryoo, A global optimization approach for engineering design problems, *AIChE Annual Meeting*, St. Louis, Montana, November 1993.
17. Sahinidis, N. V. and M.-L. Liu, A polyhedral approach to integrated plant design, *AIChE Annual Meeting*, St. Louis, Montana, November 1993.
18. Sahinidis, N. V. and H. S. Ryoo, Global optimization of products of convex functions over convex sets, *ORSA/TIMS Annual Meeting*, Boston, Massachusetts, April 1994.
19. Sahinidis, N. V. and M.-L. Liu, Mixed-integer planning models and polyhedral projection, *ORSA/TIMS Annual Meeting*, Boston, Massachusetts, April 1994.
20. Sahinidis, N. V. and H. S. Ryoo, Global optimization of products of convex functions over convex sets, *Mathematical Programming Symposium,* Ann Arbor, Michigan, August 1994.
21. Shectman, J. P. and N. V. Sahinidis, Separable concave minimization over polyhedral sets, *ORSA/TIMS Annual Meeting,* Detroit, Michigan, October 1994.
22. Liu, M. L. and N. V. Sahinidis, A branch-and-cut optimizer for process planning, *Annual ORSA/TIMS Meeting,* Detroit, Michigan, October 1994.
23. Sahinidis, N. V., Solving global optimization problems with branch-and-reduce, *INFORMS Annual Meeting,* New Orleans, Louisiana, October 1995.
24. Sahinidis, N. V., A global optimization approach to engineering design, *AIChE Meeting,* Miami Beach, Florida, November 1995.
25. Tawarmalani, M. and N. V. Sahinidis, Decomposition algorithms for the TDTSP and QAP, *INFORMS Annual Meeting*, Washington, D.C., May 1996.
26. Shectman, J. P. and N. V. Sahinidis, Global optimization of bilinear programs, *INFORMS Annual Meeting*, Washington, D.C., May 1996.
27. Sahinidis, N. V., Research in computational optimization algorithms and applications, 3rd Midwest Roundtable on Manufacturing and Logistics, University of Illinois, Urbana, Illinois, October 1996.
28. Sahinidis, N. V., J. P. Shectman, M. L. Liu, and E. Kourpas, Global optimization: Finiteness issues and applications in process operations, *AIChE Annual Meeting,* Chicago, Illinois, November 1996.
29. Liu, M. L. and N. V. Sahinidis, Bridging the gap between heuristics and optimization in process systems engineering via analytical investigations, *AIChE Annual Meeting,* Chicago, Illinois, November 1996.
30. Ahmed, S. and N. V. Sahinidis, New analytical results for chemical process planning, *AIChE Annual Meeting,* Los Angeles, California, November 1997.
31. Sahinidis, N. V. Computing global solutions of nonconvex NLPs via branch-and-reduce, *Mathematical Programming Symposium*, Lausanne, Switzerland, August 1997.
32. Sahinidis, N. V., M. Tawarmalani, and S. Ahmed, New results in 0-1 optimization, *AIChE Annual Meeting,* Miami Beach, Florida, November 1998.

33. Sahinidis, N. V. and S. Ahmed, A robust optimization approach to process planning under uncertainty, *AIChE Annual Meeting*, Miami Beach, Florida, November 1998.
34. Ahmed, S. and N. V. Sahinidis, An asymptotically optimal heuristic for a multi-stage stochastic integer program, The VII International Conference on Stochastic Programming, The University of British Columbia, Vancouver, Canada, August 1998.
35. Ahmed, S. and N. V. Sahinidis, Analytical investigations for synthesis of supply chain management systems under multiperiod uncertainty, *AIChE Annual Meeting, Dallas*, Texas, October 1999.
36. Sahinidis, N. V., M. Tawarmalani, and M. Yu, Novel molecular designs via global optimization, *AIChE Annual Meeting, Dallas*, Texas, October 1999.
37. Voudouris, Y. and N. V. Sahinidis, Process synthesis, design and operations via globally optimal neural network computing, *AIChE Annual Meeting, Dallas*, Texas, October 1999.
38. Furman, K. C. and N. V. Sahinidis, Analytical investigations for heat exchanger network synthesis: Complexity and analysis of heuristics, *AIChE Annual Meeting, Dallas*, Texas, October 1999.
39. Vaia, A. and N. V. Sahinidis, A global optimization approach to the quantitative assessment of a chemical mixture, *AIChE Annual Meeting*, Los Angeles, California, November 2000.
40. Furman, K. C. and N. V. Sahinidis, Heat exchanger network synthesis: Complexity, approximation, and analysis of heuristics, *AIChE Annual Meeting*, Los Angeles, California, November 2000.
41. Sahinidis, N. V. and M. Tawarmalani, A linear programming approach to the global optimization of mixed-integer differential-algebraic systems, *AIChE Annual Meeting*, Los Angeles, California, November 2000.
42. Sahinidis, N. V., M. Tawarmalani, and M. Yu, Novel molecular designs via global optimization, *AIChE Annual Meeting*, Los Angeles, California, November 2000.
43. Vaia, A. and N. V. Sahinidis, A global optimization algorithm for crystal structure determination in X-ray crystallography, *AIChE Annual Meeting*, Reno, Nevada, November 2001.
44. Furman, K. C. and N. V. Sahinidis, Approximation algorithms in process synthesis: Heuristics with guaranteed performance, *AIChE Annual Meeting*, Reno, Nevada, November 2001.
45. Tawarmalani, M. and N. V. Sahinidis, Global optimization of mixed-integer nonlinear programs, *AIChE Annual Meeting*, Reno, Nevada, November 2001.
46. Sahinidis, N. V., G. Nanda, M. Tawarmalani and M. Yu, A novel MINLP approach to molecular design, *AIChE Annual Meeting*, Reno, Nevada, November 2001.
47. Vaia, A. and N. V. Sahinidis, A global optimization method for the phase problem in X-ray crystallography, *ACA Annual Meeting*, San Antonio, Texas, May 2002.
48. Sahinidis, N. V. and M. Tawarmalani, Finiteness and convexification issues in mixed-integer nonlinear programming, Integer Programming Conference in Honor of Egon Balas' 80th Birthday, Carnegie Mellon University, Pittsburgh, Pennsylvania, June 2002.
49. Chang, Y. and N. V. Sahinidis, Optimization of metabolic networks under stability considerations, 4th Biopathways Consortium Meeting during the 10th International Conference on Intelligent Systems for Molecular Biology, Edmonton, Canada, August 2002.

50. Chang, Y. and N. V. Sahinidis, Optimization of metabolic networks under stability considerations, *AIChE Annual Meeting*, Indianapolis, Indiana, November 2002.
51. Xie, W. and N. V. Sahinidis, Towards the exact solution of the multistage stochastic optimization model for design and planning under uncertainty in the chemical process industries, *AIChE Annual Meeting*, Indianapolis, Indiana, November 2002.
52. Sahinidis, N. V. and C. F. Zukoski, Establishing a graduate degree program in Bioinformatics: Challenges and opportunities, *AIChE Annual Meeting*, Indianapolis, Indiana, November 2002.
53. Furman, K. C. and N. V. Sahinidis, Novel approaches to hard combinatorial optimization problems, *AIChE Annual Meeting*, Indianapolis, Indiana, November 2002.
54. Sahinidis, N. V., Global optimization in informatics problems in biology, chemistry, and physics, *18th International Symposium on Mathematical Programming*, Copenhagen, Denmark, August 2003.
55. Bussieck, M., L. Lasdon, J. Pintér, and N. V. Sahinidis, Global optimization with GAMS—Applications and performance, *18th International Symposium on Mathematical Programming*, Copenhagen, Denmark, August 2003.
56. Bussieck, M., L. Lasdon, J. Pintér, and N. V. Sahinidis, Global optimization with GAMS—Applications and performance, *Annual International Conference of the German Operations Research Society (OR 2003)*, Heidelberg, Germany, September 3-5, 2003.
57. Rios, L. M. and N. V. Sahinidis, Portfolio optimization for wealth-dependent risk preferences, *INFORMS Annual Meeting*, Atlanta, Georgia, October 2003.
58. Sahinidis, N. V. and A. Vaia, Novel algorithms for molecular structure determination via X-ray crystallography, *AIChE Annual Meeting*, San Francisco, California, November 2003.
59. Chang, Y. and N. V. Sahinidis, Optimization of metabolic networks under stability considerations, *AIChE Annual Meeting*, San Francisco, California, November 2003.
60. Sahinidis, N. V. and H. Ryoo, Breast cancer diagnosis via global optimization, *AIChE Annual Meeting*, San Francisco, California, November 2003.
61. Sahinidis, N. V. and G. Nanda, Design of efficient secondary refrigerants, *AIChE Annual Meeting*, San Francisco, California, November 2003.
62. Chang, Y. and N. V. Sahinidis, Optimization of biochemical networks for desired dynamic characteristics, *International Conference for Mathematics in Biology and Medicine, Annual Meeting for the Society for Mathematical Biology*, Ann Arbor, Michigan, July 2004.
63. Sahinidis, N. V. and A. Vaia, Combinatorial optimization algorithms for the phase problem in single-crystal X-ray diffraction, *ACA Annual Meeting*, Chicago, Illinois, July 2004.
64. Sahinidis, N. V. and A. Vaia, Combinatorial optimization algorithms for the phase problem in single-crystal X-ray diffraction, Gordon Research Conference on Diffraction Methods in Structural Biology, Lewiston, Maine, July 2004.
65. Sahinidis, N. V. and M. Tawarmalani, On strengthening polyhedral relaxations for nonconvex mathematical programs, *International Conference on Continuous Optimization (ICCOPT—I)*, Troy, New York, August 2004.
66. Xie, W. and N. V. Sahinidis, A novel method to predict side-chain conformation in sequence design and docking, *AIChE Annual Meeting*, Austin, Texas, November 2004.
67. Smith, A. B., A. Vaia, and N. V. Sahinidis, Combinatorial optimization algorithms for structure determination from single-crystal X-ray diffraction data, *AIChE Annual Meeting*, Austin, Texas, November 2004.

68. Sahinidis, N. V. and M. Tawarmalani, Strengthening polyhedral relaxations for global optimization problems, *AIChE Annual Meeting*, Austin, Texas, November 2004.
69. Chang, Y. and N. V. Sahinidis, Design of robust biochemical networks governed by power-law functions, *AIChE Annual Meeting*, Austin, Texas, November 2004.
70. Chang, Y. and N. V. Sahinidis, Robust design of dynamic processes, *AIChE Annual Meeting*, Austin, Texas, November 2004.
71. Tawarmalani, M. and N. V. Sahinidis, Solving nonlinear global optimization problems using BARON, *INFORMS Computing Society Conference*, Annapolis, MD, January 2005.
72. Sahinidis, N. V., Metabolism, global optimization, and the Belgian chocolate stabilization problem, *International Workshop on Multilevel Optimization Algorithms and Applications*, Chania, Crete, May 2005.
73. Smith, A. B. and N. V. Sahinidis, A deterministic algorithm for phasing using triplet and quartet invariants, *XX Congress of the International Union of Crystallography*, Florence, Italy, August 2005.
74. Chang, Y. and N. V. Sahinidis, DNA sequencing by hybridization with errors via integer programming, *AIChE Annual Meeting*, Cincinnati, Ohio, October 2005.
75. Chang, Y. and N. V. Sahinidis, A global optimization approach to the design of stabilizing controllers, *AIChE Annual Meeting*, Cincinnati, Ohio, October 2005.
76. Xie, W. and N. V. Sahinidis, Residue-rotamer-reduction for fast protein side-chain conformation prediction, *AIChE Annual Meeting*, Cincinnati, Ohio, October 2005.
77. Smith, A. B. and N. V. Sahinidis, Crystal structure determination from X-ray diffraction data using triplet and quartet invariants, *AIChE Annual Meeting*, Cincinnati, Ohio, October 2005.
78. Xie, W. and N. V. Sahinidis, A Branch-and-reduce algorithm for the contact map overlap problem, *RECOMB'06*, Venice, Italy, April 2006.
79. Sahinidis, N. V. and W. Xie, An exact algorithm for the contact map overlap problem in protein structural alignment, *International Symposium on Mathematical Programming*, Rio de Janeiro, Brazil, August 2006.
80. Smith, A. B. and N. V. Sahinidis, Degree-of-freedom-based methods for phasing centrosymmetric structures from X-ray diffraction data, *ACA Annual Meeting*, Honolulu, Hawaii, August 2006.
81. Elble, J. and N. V. Sahinidis, A comprehensive computational study of scaling techniques for linear programming, *INFORMS Annual Meeting*, Pittsburgh, Pennsylvania, November 2006.
82. Smith, A. B. and N. V. Sahinidis, Degree-of-freedom-based methods for phasing centrosymmetric structures from X-ray diffraction data, *AIChE Annual Meeting*, San Francisco, California, November 2006.
83. Xie, W. and N. V. Sahinidis, Optimal combinatorial library design from a computational complexity perspective, *AIChE Annual Meeting*, San Francisco, California, November 2006.
84. Xie, W. and N. V. Sahinidis, A branch-and-reduce algorithm for the contact overlap problem, *AIChE Annual Meeting*, San Francisco, California, November 2006.
85. Chang, Y. and N. V. Sahinidis, Steady-state optimization with guaranteed stability under parametric uncertainties, *AIChE Annual Meeting*, San Francisco, California, November 2006.

86. Ong, B. Y. S., P. K. Naraharisetti, J. Xie, C.-H. Wang, and N. V. Sahinidis, Biodegradable spray dried microspheres and discs delivering Paclitaxel and Etanidazole for the treatment of glioma: An in vivo subcutaneous study, *AIChE Annual Meeting*, San Francisco, California, November 2006.
87. Ong, B. Y. S., L. Y. Lee, J. Xie, K. A. Smith, C.-H. Wang, and N. V. Sahinidis, Controlled delivery of Paclitaxel from electrohydrodynamically atomized microparticles and from micro-porous foams for the post-surgical treatment of glioblastoma multiforme, *AIChE Annual Meeting*, San Francisco, California, November 2006.
88. Rios, L. M. and N. V. Sahinidis, Comparison of derivative-free optimization implementations of deterministic computer experiments, *2nd International Conference on Continuous Optimization (ICCOPT'07)*, McMaster University, Hamilton, Canada, August 2007.
89. Bao, X. and N. V. Sahinidis, Automatic convexity detection for global optimization, *AIChE Annual Meeting*, Salt Lake City, Utah, November 2007.
90. Smith, A. B. and N. V. Sahinidis, A novel integer minimal principle with atomicity constraints for phasing single-crystal X-ray diffraction data, *AIChE Annual Meeting*, Salt Lake City, Utah, November 2007.
91. Elble, J. and N. V. Sahinidis, Direct solution of systems of linear equations, *INFORMS Annual Meeting*, Seattle, Washington, November 2007.
92. Rios, L. M. and N. V. Sahinidis, A Quadratic-model-based convergent deterministic black-box optimization algorithm, *INFORMS Annual Meeting*, Washington, DC, October 2008.
93. Elble, J. and N. V. Sahinidis, Sparse matrix binormalization on a GPU, *9th International Workshop on State-of-the-Art in Scientific and Parallel Computing*, Trondheim, Norway, May 2008.
94. Elble, J., P. Vouzis and N. V. Sahinidis, GPU supercomputing case study: The Kaczmarz algorithm, *5th International Workshop on Parallel Matrix Algorithms and Applications (PMAA'08),* Neuchâtel, Switzerland, June 2008.
95. Shah, S. and N. V. Sahinidis, 3-dimensional protein structure alignment: A review, *Intelligent Systems for Molecular Biology*, Toronto, Canada, July 2008.
96. Smith, A. B. and N. V. Sahinidis, Direct space and simultaneous direct-reciprocal space optimization models for phasing structures, *XXI Congress of the International Union of Crystallography*, Osaka, Japan, August 2008.
97. Samudra, A. and N. V. Sahinidis, Design of secondary refrigerants, *AIChE Annual Meeting*, Philadelphia, Pennsylvania, November 2008.
98. Bao, X., M. Tawarmalani and N. V. Sahinidis, Polyhedral relaxation for nonconvex, quadratically-constrained quadratic programs, *AIChE Annual Meeting*, Philadelphia, Pennsylvania, November 2008.
99. Vouzis, P., J. Elble and N. V. Sahinidis, Graphics processing units for high-performance computing in bioinformatics, *AIChE Annual Meeting*, Philadelphia, Pennsylvania, November 2008.
100. Smith, A. B. and N. V. Sahinidis, Direct space and simultaneous direct-reciprocal space integer optimization models for phasing crystal structures, *Pittsburgh Diffraction Conference,* Pittsburgh, Pennsylvania, November 2008.
101. Grossmann, I. E., P. Belotti, L. T. Biegler, J. Lee, F. Margot, J. Ruiz, N. V. Sahinidis and A. Waechter, Cyber-MINLP: A virtual environment for problem formulations and

algorithmic developments, *11th INFORMS Computing Society Conference*, Charleston, North Carolina, January 2009.

102. Samudra, A. and N. V. Sahinidis, Design of secondary refrigerants: A combined optimization-enumeration approach, *FOCAPD 2009*, Breckenridge, Colorado, June 2009.
103. Rios, L. M. and N. V. Sahinidis, Derivative-free optimization: A review of algorithms and comparison of software implementations, *AIChE Annual Meeting*, Nashville, Tennessee, November 2009.
104. Chang, Y. and N. V. Sahinidis, Process design with robust stability under parametric uncertainty, *AIChE Annual Meeting*, Nashville, Tennessee, November 2009.
105. Zorn, K. and N. V. Sahinidis, Reformulation linearization techniques: An application to Hartree-Fock calculations, *AIChE Annual Meeting*, Nashville, Tennessee, November 2009.
106. Vouzis, P., J. Elble, and N. V. Sahinidis, Iterative methods for solving PDEs on a graphics processing unit, *AIChE Annual Meeting*, Nashville, Tennessee, November 2009.
107. Samudra, A. and N. V. Sahinidis, Framework for computer-aided molecular design, *AIChE Annual Meeting*, Nashville, Tennessee, November 2009.
108. Shah, S. and N. V. Sahinidis, Secondary structure-aided protein structure alignment, *AIChE Annual Meeting*, Nashville, Tennessee, November 2009.
109. Zhang, Y., P. Vouzis, and N. V. Sahinidis, Risk assessment for CO2 geologic sequestration, *AIChE Annual Meeting*, Nashville, Tennessee, November 2009.
110. Zhang, Y., P. Vouzis, and N. V. Sahinidis, Risk assessment for CO2 geological sequestration, *Carbon Capture and Sequestration Conference*, Pittsburgh, Pennsylvania, May 2010.
111. Sahinidis, N. V. and A. Samudra, Chemical product design course at Carnegie Mellon University, *AIChE Annual Meeting*, Salt Lake City, Utah, November 2010.
112. Sahinidis, N. V. and A. Khahavirad, Novel relaxations for global optimization, *AIChE Annual Meeting*, Salt Lake City, Utah, November 2010.
113. Zorn, K. and N. V. Sahinidis, Hartree-Fock self-consistent calculations: Global optimization of electronic structure, *AIChE Annual Meeting*, Salt Lake City, Utah, November 2010.
114. Shah, S. and N. V. Sahinidis, Protein structure alignment by derivative-free optimization, *AIChE Annual Meeting*, Salt Lake City, Utah, November 2010.
115. Samudra, A. and N. V. Sahinidis, Design of base fluids for high-pressure/high-temperature drilling, *AIChE Annual Meeting*, Salt Lake City, Utah, November 2010.
116. Cozad, A., N. V. Sahinidis and D. Miller, Optimization of power plant simulations with integrated carbon capture systems using black-box algorithms, *AIChE Annual Meeting*, Salt Lake City, Utah, November 2010.
117. Zhang, Y., P. Vouzis, and N. V. Sahinidis, Risk assessment in CO2 sequestration, *AIChE Annual Meeting*, Salt Lake City, Utah, November 2010.
118. Grossmann, I. E., J. Lee, P. Belotti, L. T. Biegler, P. Castro, F. Margot, J. P. Ruiz, N. V. Sahinidis, and A. Waechter, Collaborative cyberinfrastructure site for mixed-integer nonlinear programming, *AIChE Annual Meeting*, Salt Lake City, Utah, November 2010.
119. Amaran, S. and N. V. Sahinidis, An algorithm for the global optimization of unconstrained parameter estimation problems, *AIChE Annual Meeting*, Salt Lake City, Utah, November 2010.

120. Vouzis, P. and N. V. Sahinidis, GPU computing in bioinformatics, linear algebra and Monte Carlo simulations, *INFORMS Annual Meeting,* Charlotte, North Carolina, November 2011.
121. Samudra, A. and N. V. Sahinidis, Optimization-based design of novel molecules with desired properties, *INFORMS Annual Meeting,* Charlotte, North Carolina, November 2011.
122. Samudra, A. and N. V. Sahinidis, Design of high pressure/high temperature drilling fluids, *AIChE Annual Meeting,* Minneapolis, Minnesota, October 2011.
123. Samudra, A. and N. V. Sahinidis, Comprehensive computer-aided molecular design framework for pure component design, *AIChE Annual Meeting,* Minneapolis, Minnesota, October 2011.
124. Sahinidis, N. V., A. Khahavirad, X. Bao, M. Tawarmalani, and K. Zorn, Multi-variate, multi-term, and multi-constraint relaxations for global optimization of nonconvex NLPs and MINLPs with BARON, *AIChE Annual Meeting,* Minneapolis, Minnesota, October 2011.
125. Amaran, S. and N. V. Sahinidis, Black-box optimization via global optimization of surrogate models, *AIChE Annual Meeting,* Minneapolis, Minnesota, October 2011.
126. Zorn, K. and N. V. Sahinidis, Optimal operation and design of pooling and other bilinear networks, *AIChE Annual Meeting,* Minneapolis, Minnesota, October 2011.
127. Vouzis, P. and N. V. Sahinidis, GPU-based acceleration in linear algebra, bioinformatics, and risk analysis, AIChE Annual Meeting, Minneapolis, Minnesota, October 2011.
128. Zhang, Y. and N. V. Sahinidis, A methodology for risk assessment of CO2 sequestration based on surrogate models of detailed simulations, AIChE Annual Meeting, Minneapolis, Minnesota, October 2011.
129. Cozad, A., Y. Chang, N. Sahinidis, and D. C. Miller, Optimization of carbon capture systems using surrogate models of simulated processes, *AIChE Annual Meeting,* Minneapolis, Minnesota, October 2011.
130. Miller, D. C., Y. Chang, A. Cozad, H. Kim, A. Lee, P. Vouzis, N. V. S. N. M. Konda, A. J. Simon, N. Sahinidis, L. Yang, and I. E. Grossmann, Synthesis of optimal adsorptive carbon capture processes, *AIChE Annual Meeting,* Minneapolis, Minnesota, October 2011.
131. Cozad, A., N. Sahinidis, and D. C. Miller, A computational methodology for learning low-complexity surrogate models of processes from experiments or simulations, *AIChE Annual Meeting,* Minneapolis, Minnesota, October 2011.
132. Chang, K.-F., N. V. Sahinidis, and J. Schneider, Modeling and optimization of polymerase chain reaction with derivative-free optimization, *FOCAPO 2012,* Savannah, Georgia, January, 2012.
133. Cozad, A., N. V. Sahinidis and D. C. Miller, Surrogate-based optimization of simulated energy systems, *AIChE Annual Meeting,* Pittsburgh, Pennsylvania, October 2012.
134. Zhang, Y. and N. V. Sahinidis, Estimation of permeability and porosity for CO2 sequestration in heterogeneous formations with derivative-free optimization based on observed data, *AIChE Annual Meeting,* Pittsburgh, Pennsylvania, October 2012.
135. Zhang, Y. and N. V. Sahinidis, Uncertainty quantification in CO2 sequestration using surrogate models from polynomial chaos expansion, *AIChE Annual Meeting,* Pittsburgh, Pennsylvania, October 2012.
136. Sahinidis, N. V., Third generation branch-and-reduce algorithms and software, *AIChE Annual Meeting,* Pittsburgh, Pennsylvania, October 2012.

137. Cozad, A., N. V. Sahinidis and D. C. Miller, Alamo: Automatic Learning of Algebraic Models for Optimization, *AIChE Annual Meeting,* Pittsburgh, Pennsylvania, October 2012.
138. Amaran, S. and N. V. Sahinidis, An Algorithm for bound-constrained problems in simulation optimization, *AIChE Annual Meeting,* Pittsburgh, Pennsylvania, October 2012.
139. Khajavirad, Al. and N. V. Sahinidis, Convex envelopes generated from finitely many compact convex sets, MOPTA 2012, Bethlehem, Pennsylvania, August 2012.
140. Yuan, Z., A. Cozad, N. V. Sahinidis, and D. C. Miller, Surrogate Model Based Optimal Synthesis of Solid Sorbent Carbon Capture Process, *AIChE Annual Meeting,* Pittsburgh, Pennsylvania, November 2012.
141. Khajavirad, A. and N. V. Sahinidis, Exploiting convexity in global optimization, *INFORMS Computing Society Annual Conference,* Santa Fe, New Mexico, January 2013.
142. Amaran, S., N. V. Sahinidis, S. J. Burry and B. Sharda, A trust region-based algorithm for continuous optimization via simulation, *INFORMS Annual Meeting,* Minneapolis, Minnesota, October 2013.
143. Chen, J., P. Vouzis and N. V. Sahinidis, Application of derivative-free optimization to influenza epidemic vaccination, *INFORMS Annual Meeting,* Minneapolis, Minnesota, October 2013.
144. Zhao, H., P. Vouzis and N. V. Sahinidis, Crystallization process optimization using derivative-free optimization algorithms, *AIChE Annual Meeting,* San Francisco, California, November 2013.
145. Sahinidis, N. V. and A. Samudra, Design of heat transfer media components for retail food refrigeration, *AIChE Annual Meeting,* San Francisco, California, November 2013.
146. Austin, N., A. Samudra, N. V. Sahinidis and D. W. Trahan, A computational methodology for designing mixtures, *AIChE Annual Meeting,* San Francisco, California, November 2013.
147. Puranik, Y. P., N. V. Sahinidis, T. Li, D. Feather and B. Besancon, Real time optimization of a complex industrial gas network, *AIChE Annual Meeting,* San Francisco, California, November 2013.
148. He, Y. and N. Sahinidis, A continuous-time MINLP model for optimal source-sink matching in carbon capture and storage systems under uncertainty, *AIChE Annual Meeting,* San Francisco, California, November 2013.
149. Yuan, Z., N. V. Sahinidis and D. C. Miller, Superstructure formulation and optimization for carbon capture process, *AIChE Annual Meeting,* San Francisco, California, November 2013.
150. Amaran, S., N. V. Sahinidis, B. Sharda and S. J. Bury, Turnaround optimization for continuous chemical plants, *AIChE Annual Meeting,* San Francisco, California, November 2013.
151. Sahinidis, N. V. and A. Khajavirad, A hybrid LP/NLP paradigm for global optimization relaxations, *AIChE Annual Meeting,* San Francisco, California, November 2013.
152. Cozad, A., N. V. Sahinidis and D. C. Miller, Alamo: Automatic learning of algebraic models for optimization, *AIChE Annual Meeting,* San Francisco, California, November 2013.
153. Wilson, Z. and N. V. Sahinidis, Subset selection in multiple linear regression, *AIChE Annual Meeting,* Atlanta, Georgia, November 2014.
154. Austin, N. N. V. Sahinidis and D. W. Trahan, Determining optimal groups for group contribution methods, *AIChE Annual Meeting,* Atlanta, Georgia, November 2014.

155. Puranik, Y., N. V. Sahinidis, T. Li, A. Gopalakrishnan and B. Besancon, Global optimization of real time operation of an industrial gas network, *AIChE Annual Meeting,* Atlanta, Georgia, November 2014.
156. Zhang, T., S. Amaran, N. V. Sahinidis, B. Sharda and S. J. Bury, Optimal short-term scheduling of turnarounds in an integrated site, *AIChE Annual Meeting,* Atlanta, Georgia, November 2014.
157. Sahinidis, N. V. and M. Kılınç, Global Optimization of mixed-integer nonlinear optimization problems, *AIChE Annual Meeting,* Atlanta, Georgia, November 2014.
158. Zheng, H., L. M. Rios and N. V. Sahinidis, Computational experience with the MAS algorithm for derivative-free optimization, *INFORMS Annual Meeting,* San Francisco, California, November 2014.
159. Sahinidis, N. V., Recent advances in the BARON project, World Congress on Global Optimization, Gainesville, Florida, February 2015.
160. Austin, N., N. V. Sahinidis, and D. W. Trahan, A DFO-based approach to computer-aided mixture design, *INFORMS Annual Meeting,* Philadelphia, Pennsylvania, November 2015.
161. Puranik, Y. and N. V. Sahinidis, Polyhedral cut generation for global optimization of problems with edge-concave intermediates, *INFORMS Annual Meeting,* Philadelphia, Pennsylvania, November 2015.
162. Kılınç, M. and N. V. Sahinidis, Recent developments in BARON for global optimization of NIPS and MINLPS, *INFORMS Annual Meeting,* Philadelphia, Pennsylvania, November 2015.
163. Bhosekar, A., N. V. Sahinidis, and L. M. Rios, Computational experience with the BAM global optimization algorithm for derivative-free optimization, *INFORMS Annual Meeting,* Philadelphia, Pennsylvania, November 2015.
164. Puranik, Y., N. V. Sahinidis, T. Li, A. Gopalakrishnan and B. Besancon, Efficient real-time operation of an industrial gas network through global optimization, *AIChE Annual Meeting,* Salt Lake City, Utah, November 2015.
165. Sahinidis, N. V., The ALAMO software for model building, constrained regression, and intelligent experimental design, *AIChE Annual Meeting,* Salt Lake City, Utah, November 2015.
166. Austin, N., N. V. Sahinidis, and D. W. Trahan, A COSMO-based approach to computer-aided mixture design, *AIChE Annual Meeting,* Salt Lake City, Utah, November 2015.
167. Wilson, Z., A. Cozad, Z. Yuan, N. V. Sahinidis, and D. C. Miller, A reduced-order building approach to simulation-based optimization of complex energy systems, *AIChE Annual Meeting,* Salt Lake City, Utah, November 2015.
168. Cozad, A., Z. Wilson, and N. V. Sahinidis, Learning models of unspecified functional form through symbolic regression, *AIChE Annual Meeting,* Salt Lake City, Utah, November 2015.
169. Sahinidis, N. V. and M. Kılınç, A new portfolio of relaxations for global optimization of NLPs and MINLPs, *AIChE Annual Meeting,* Salt Lake City, Utah, November 2015.
170. Bhosekar, A., N. V. Sahinidis, and L. M. Rios, Branch-And-Model: A model-based derivative-free global optimization algorithm, *AIChE Annual Meeting,* Salt Lake City, Utah, November 2015.
171. Rajagopalan, S., N. V. Sahinidis, B. Sharda, S. Amaran, and S. J. Bury, Flexible turnaround planning in integrated chemical site networks, *AIChE Annual Meeting,* Salt Lake City, Utah, November 2015.

172. Ploskas, N., N. Samaras and N. V. Sahinidis, Accelerating the simplex algorithm via novel crash procedures, *AIChE Annual Meeting,* San Francisco, California, November 2016.
173. Austin, N., N. V. Sahinidis and D. W. Traham, An extension of COSMO-based methodologies for computer-aided mixture design, *AIChE Annual Meeting,* San Francisco, California, November 2016.
174. Puranik, Y., M. Kılınç and N. V. Sahinidis, Recent advances in the BARON project, *AIChE Annual Meeting,* San Francisco, California, November 2016.
175. Wilson, Z. and N. V. Sahinidis, An optimization-based approach for learning simple parametric surrogate models, *AIChE Annual Meeting,* San Francisco, California, November 2016.
176. Wilson, Z. and N. V. Sahinidis, Simultaneous reaction identification and parameter estimation, *AIChE Annual Meeting,* San Francisco, California, November 2016.
177. Rajagopalan, S., S. Amaran, N. V. Sahinidis, S. J. Bury and J. M. Wassick, Financially risk-aware plant maintenance turnaround planning incorporating reliability in integrated chemical sites, *AIChE Annual Meeting,* San Francisco, California, November 2016.
178. Zamarripa, M., J. Eslick, A. Lee, O. Ajayi, Z. Wilson, N. V. Sahinidis and D. C. Miller, Optimal design and operation of hybrid CO2 capture systems, *AIChE Annual Meeting,* San Francisco, California, November 2016.
179. Liu, J., N. Ploskas, and N. V. Sahinidis, Tuning the global optimization solver BARON using derivative-free optimization algorithms, *Global Optimization Conference (GOC-2017),* College Station, Texas, March 2017.

F. CONFERENCES ORGANIZED AND CHAIRED

Conference organizer and chair

1. Conference Co-Chair, Foundations of Computer-Aided Process Operations 2012 (FOCAPO 2012), Savannah, Georgia, January 8-11, 2012.
2. Conference Co-Chair, Workshop on Mixed-Integer Nonlinear Programming (MINLP 2014), Pittsburgh, Pennsylvania, June 2-5, 2014.

Conference local organizing committees

1. 22nd International Symposium on Mathematical Programming (ISMP 2015), Pittsburgh, Pennsylvania, July 12-17, 2015.

Conference advisory committees

1. International Program Committee, International Workshop on Global Optimization, Firenze, Italy, September 1999.
2. Academic Advisory Committee, Foundations of Computer Aided Process Operations 2003 (FOCAPO 2003), Coral Springs, Florida, January 2003.
3. Organizing Committee, NSF Symposium on Supply Chain Management in Process Industries, University of Minnesota, Minneapolis, May 2004.
4. Scientific Committee, International Conference on Complementarity, Duality, and Global Optimization in Science and Engineering (CDGO-2005), Virginia Tech, Blacksburg, Virginia, August 2005.

5. Program Committee, Workshop on Interval Analysis and Constraint Propagation for Applications (IntCP 2006), Nantes, France, September 2006.
6. Program Committee, DIMACS and ExxonMobil Workshop on Computational Optimization and Logistics Challenges in the Enterprise (COLCE), Annandale, New Jersey, April 2006.
7. Program Committee, 2006 INFORMS Optimization Society Conference on Optimization and HealthCare, San Antonio, Texas, February 2006.
8. Program Committee, 5th International Workshop on Biological Data Management (BIDM'07), Regensburg, Germany, September 2007.
9. Program Committee, 2nd International Conference on Bioinformatics Research and Development (BIRD'08), Vienna, Austria, July 2008.
10. Computational Management Sciences, Imperial College, London, March 2008.
11. International Scientific Committee, International Conference on Engineering Optimization (EngOpt 2008), Rio de Janeiro, Brazil, June 2008.
12. Technical Advisory Committee, Foundations of Computer Aided Process Operations 2008 (FOCAPO 2008), Cambridge, Massachusetts, June-July 2008.
13. Program Committee, CPAIOR 2009: The 6th International Conference on Integration of AI and OR Techniques in Constraint Programming for Combinatorial Optimization Problems, Pittsburgh, PA, May 2009.
14. Scientific Program Committee, Computational Management Science, Geneva, Switzerland, May 2009.
15. International Program Committee, Foundations of Systems Biology in Engineering (FOSBE 2009), Denver, Colorado, August 2009.
16. Technical Advisory Committee, Foundations of Computer Aided Process Design 2009 (FOCAPD 2009), Breckenridge, Colorado, June 2009.
17. Program Committee, Workshop on Computational Optimization, Wisła, Poland, October 18-20, 2010.
18. International Scientific Committee, 2nd International Conference on Engineering Optimization (EngOpt 2010), Technical University of Lisbon, Portugal, 6-9 September 2010.
19. Program Committee, 1st International Conference on Information Technology in Bio- and Medical-Informatics (ITBAM 2010), Bilbao, Spain, Aug. 30-Sept. 3, 2010.
20. Scientific Program Committee, Computational Management Science, Vienna, Austria, July 2010.
21. Scientific Program Committee, 8th International Conference on Computational Management Science (CMS 2011), University of Neuchatel, Switzerland, 28-30 April 2011.
22. Program Committee, 2nd International Conference on Information Technology in Bio- and Medical-Informatics (ITBAM 2011), Toulouse, France, Aug. 29-Sept. 2, 2011.
23. International Program Committee, 21st European Conference on Process Systems Engineering (ESCAPE), Porto Carras Grand Resort, Chalkidiki, Greece, 29 May-1 June 2011.
24. Programming Committee, 2011 SIAM Optimization Meeting, Darmstadt, Germany, May 2011.
25. Program Committee, 3rd International Conference on Information Technology in Bio- and Medical-Informatics (ITBAM 2012), Vienna, Austria, Sep. 3-Sept. 7, 2012.

26. Advisory Committee, 2012 INFORMS Optimization Society Conference, Coral Gables, Florida, February 24-26, 2012.
27. Program Committee, Foundations of Systems Biology in Engineering (FOSBE 2012), Tsuruoka, Japan, October 21-25, 2012.
28. Scientific Program Committee, 9th International Conference on Computational Management Science (CMS 2012), Imperial College, London, U.K., 19-20 April 2012.
29. Program Committee, Fourth International Conference on Continuous Optimization (ICCOPT), Lisbon, July 29-Aug. 1, 2013.
30. International Symposium on Foundations and Applications of Big Data Analytics (FAB 2015), Paris, France, August 27-28, 2015.
31. International Workshop on Machine learning, Optimization and big Data (MOD 2015), Taormina (Sicily), Italy, July 21-24, 2015.
32. Second International Conference on "Energy, Sustainability and Climate Change" ESCC 2015, Crete, Greece, June 21-27, 2015.
33. Advisory Committee, World Congress on Global Optimization (WCGO 2015), Gainesville, Florida, February 22-25, 2015.
34. International Program Committee, PSE-2015/ESCAPE25, Copenhagen, Denmark, May 31-June 4, 2015.
35. Program Committee, International IEEE Symposium on Big Data Management and Analytics (BIDMA 2016), Calgary, Alberta, Canada, April 25-26, 2016.
36. Scientific Committee, 26th European Symposium on Computer Aided Process Engineering (ESCAPE 26), Portorož, Slovenia, June 12-15, 2016.
37. Program Committee, International Symposium on Foundations and Applications of Big Data Analytics (FAB 2016), UC Davis - Davis, California, August 20-21, 2016.
38. Program Committee, Machine learning, Optimization and big Data (MOD 2016), Volterra, Italy, August 26-29, 2016.
39. International Scientific Committee, XIII Global Optimization Workshop (GOW'16), Braga, Portugal, 4-8 September, 2016.
40. Technical Advisory Committee, Foundations of Computer Aided Process Operations 2017 (FOCAPO 2017), January 2017.
41. Program Committee, Global Optimization Conference (GOC-2017), Texas A&M University, March 30-April 1, 2017.
42. Program Committee, International IEEE Symposium on Big Data Management and Analytics (BIDMA 2017), Calgary, Alberta, Canada, April 17-18, 2017.
43. Program Committee, 17th Baikal International School-Seminar "Methods of optimization and their application", Melentiev Energy Systems Institute, Irkutsk, Russia, July 31-August 6, 2017.
44. Program Committee, International Symposium on Foundations and Applications of Big Data Analytics (FAB 2017), Sydney, Australia, August 1-3, 2017.
45. Program Committee, The 23rd International Conference on Principles and Practice of Constraint Programming (CP 2017), Melbourne, Australia, August 28 - September 1, 2017.
46. Program Committee, The 3rd International Workshop on Machine learning, Optimization and big Data (MOD 2017), Volterra (Pisa), Tuscany, Italy, September 17-21, 2017.
47. Program Committee, 4th International Conference on Optimization Methods and Software, December 16-20, 2017, Havana, Cuba.

48. International Program Committee, Process Systems Engineering (PSE-2018), San Diego, California, July 1-5, 2018.

Cluster organizer and chair

1. Six sessions, "Operations research and chemical engineering design," *International Federation of Operational Research Societies, Fourth Specialized Conference: Operations Research and Engineering Design*, St. Louis, Montana, October 1995.
2. Two sessions, "Stochastic integer programming," *INFORMS Annual Meeting,* Seattle, Washington, October 1998.
3. Six sessions, "Optimization section: Global optimization," *INFORMS Annual Meeting*, Philadelphia, Pennsylvania, November 1999.
4. Five sessions, "Optimization section: Global optimization," *INFORMS Annual Meeting*, Cincinnati, Ohio, May 1999.
5. Three sessions, "Computational global optimization," *INFORMS Annual Meeting*, San Francisco, California, November 2005.
6. Cluster on "Bioinformatics and systems biology" (five sessions), *INFORMS Annual Meeting*, Seattle, Washington, November 2007, co-organized with Allen Holder and Leo Lopes.
7. Stream on "Global optimization" (six sessions), *2nd International Conference on Continuous Optimization (ICCOPT II)*, Hamilton, Ontario, Canada, August 2007, co-organized with Mohit Tawarmalani.
8. Cluster on "Bioinformatics and systems biology" (five sessions), *INFORMS Annual Meeting*, Washington, DC, October 2008, co-organized with Leo Lopes.
9. Cluster on "Global optimization" (twenty sessions), *International Symposium on Mathematical Programming*, Chicago, Illinois, August 2009, co-organized with Chris Floudas.
10. Cluster on "Surrogate and derivative-free optimization" (five sessions), *INFORMS Annual Meeting*, Charlotte, North Carolina, November 2011, co-organized with Christine Shoemaker.
11. Mini-Cluster on "Surrogate and derivative-free optimization" (five talks), *INFORMS Annual Meeting*, Phoenix, Arizona, October 2012, co-organized with Christine Shoemaker.
12. Cluster on "Global optimization" (sixteen sessions), *International Symposium on Mathematical Programming*, Berlin, Germany, August 2012, co-organized with Chris Floudas.
13. Cluster on "Global optimization", *Fifth International Conference on Continuous Optimization (ICCOPT)*, Tokyo, Japan, August, 2016, co-organized with Chris Floudas.

Invited sessions organized and chaired

1. "Issues in global optimization," *ORSA/TIMS Annual Meeting*, Phoenix, Arizona, November 1993.
2. "Global optimization algorithms and applications—II," *INFORMS Annual Meeting*, Atlanta, Georgia, November 1996.
3. "Global optimization algorithms and applications—I," *INFORMS Annual Meeting*, Atlanta, Georgia, November 1996.

4. "Global optimization algorithms and applications," *INFORMS Annual Meeting*, Dallas, Texas, October 1997.
5. "Global optimization: Algorithmic and computational advances II," *Mathematical Programming Symposium*, Lausanne, Switzerland, August 1997.
6. "Global optimization: Algorithmic and computational advances I," *Mathematical Programming Symposium*, Lausanne, Switzerland, August 1997.
7. "Applications of global optimization," *INFORMS Annual Meeting*, San Diego, California, May 1997.
8. "Advances in global optimization," *INFORMS Annual Meeting*, Seattle, Washington, October 1998.
9. "Stochastic integer programming," *INFORMS Annual Meeting*, Seattle, Washington, October 1998.
10. "Advances in global optimization," *INFORMS Annual Meeting*, Philadelphia, Pennsylvania, November 1999.
11. "Solving hard combinatorial optimization problems," *INFORMS Annual Meeting*, Cincinnati, Ohio, May 1999.
12. "Advances in global optimization," *INFORMS Annual Meeting*, San Antonio, Texas, November 2000.
13. "Advances in stochastic integer programming," *INFORMS Annual Meeting*, San Antonio, Texas, November 2000.
14. "Advances in global optimization," *International Symposium on Mathematical Programming*, Atlanta, Georgia, August 2000.
15. "Recent advances in convexification," *INFORMS Annual Meeting*, Miami Beach, Florida, November 2001.
16. "Recent advances in global optimization," *INFORMS Annual Meeting*, Miami Beach, Florida, November 2001.
17. "Large-scale optimization," *INFORMS Annual Meeting*, Miami Beach, Florida, November 2001.
18. "Global optimization software," *INFORMS Annual Meeting*, San Jose, California, November 2002.
19. "Linear programming," *INFORMS Annual Meeting*, Denver, Colorado, October 2004.
20. "Algorithms and software for linear programming," *INFORMS Annual Meeting*, Denver, Colorado, October 2004.
21. "LP and SDP approaches to global optimization," *INFORMS Annual Meeting*, San Francisco, California, November 2005.
22. "Computational global optimization," *INFORMS Annual Meeting*, San Francisco, California, November 2005.
23. "Black-box optimization," *INFORMS Annual Meeting*, Pittsburgh, Pennsylvania, November 2006.
24. "Sphere packing," *INFORMS Annual Meeting*, Pittsburgh, Pennsylvania, November 2006.
25. "Nonconvex optimization," *INFORMS Optimization Society Meeting*, Atlanta, Georgia, March 2008.
26. "Global optimization," *International Symposium on Mathematical Programming*, Chicago, Illinois, August 2009, co-organized with Chris Floudas.
27. "Derivative-free optimization," *Computational Management Science*, Geneva, Switzerland, May 2009.

28. "Computing with GPUs," *INFORMS Annual Meeting,* Austin, Texas, November 2010.
29. "Optimization Society Prizes," *INFORMS Annual Meeting,* Austin, Texas, November 2010.
30. "Model-based integrated design of pharmaceutical drug product and processes," *AIChE Annual Meeting,* Salt Lake City, Utah, November 2010, co-chaired with Salvador Garcia-Munoz.
31. "Computational Aspects of Linear Optimization," *Computational Management Science 2010,* Vienna, Austria, July 2010.
32. "Computational Linear Programming," *INFORMS Annual Meeting,* San Diego, California, October 2010.
33. "Surrogate and derivative free optimization I," *INFORMS Annual Meeting,* Charlotte, North Carolina, November 13-16, 2011.
34. "Optimization with surrogates," *INFORMS Annual Meeting,* Phoenix Arizona, October 2012.
35. "Surrogate and Derivative-Free Optimization: Algorithms and Applications," 9th International Conference on Computational Management Science (CMS 2012), Imperial College, London, U.K., 19-20 April 2012.
36. "Computing Systems and Technology (CAST) Division Plenary," *AIChE Annual Meeting,* Pittsburgh, Pennsylvania, October 2012.
37. "Computing Systems and Technology (CAST) Division Plenary," *AIChE Annual Meeting,* Minneapolis, Minnesota, October 2013.
38. "Computing Systems and Technology (CAST) Division Plenary," *AIChE Annual Meeting,* Atlanta, Georgia, November 2014.
39. "Big Data Plenary I," *AIChE 2015 Spring Meeting and 11th Global Congress on Process Safety,* Austin, Texas, April 2015.
40. "Big Data Plenary II," *AIChE 2015 Spring Meeting and 11th Global Congress on Process Safety,* Austin, Texas, April 2015.
41. "Computing Systems and Technology (CAST) Division Plenary," *AIChE Annual Meeting,* Salt Lake City, Utah, November 2015.
42. "Computing Systems and Technology (CAST) Division Plenary," *AIChE Annual Meeting,* San Francisco, California, November 2016.

Invited sessions organized

1. "Advances in global optimization," *INFORMS Annual Meeting,* Washington, DC, October 2008.
2. "Derivative-free optimization," *Computational Management Science 2010,* Vienna, Austria, July 2010.
3. "Computational Aspects of the Simplex Algorithm," *Computational Management Science 2010,* Vienna, Austria, July 2010.

Invited sessions chaired

1. "Global optimization," *ORSA/TIMS Annual Meeting,* Boston, Massachusetts, April 1994.
2. "Computer-aided strategic decision making in the supply chain," *AIChE Annual Meeting,* Los Angeles, California, November 1997.
3. "Integer programming", *INFORMS Annual Meeting,* Dallas, Texas, October 1997.

4. "Numerical methods for global optimization," *International Symposium of Mathematical Programming*, Lausanne, Switzerland, August 1997.
5. "Advances in optimization-1," *AIChE Annual Meeting*, Miami Beach, Florida, November 1998.
6. "Advances in optimization-2," *AIChE Annual Meeting*, Miami Beach, Florida, November 1998.
7. "Posters—Issues in computers in operations and information processing," *AIChE Annual Meeting*, Dallas, Texas, October 1999.
8. "Planning and scheduling," II Pan American Workshop on Catalysis and Process Systems Engineering, September 1999, Santa Fe, Argentina.
9. *International Conference on Advances in Convex Analysis and Global Optimization Honoring the Memory of C. Carathéodory*, Samos, Greece, June 2000.
10. "Advances in optimization—1," *AIChE Annual Meeting*, Reno, Nevada, November 2001.
11. "Advances in optimization—2," *AIChE Annual Meeting*, Reno, Nevada, November 2001.
12. "Global optimization—I," *18th International Symposium on Mathematical Programming*, Copenhagen, Denmark, August 2003.
13. Semi-plenary, "A. Neumaier: Complete Search for Constrained Global Optimization," *International Conference on Continuous Optimization (ICCOPT—I)*, Troy, New York, August 2004.
14. "Optimization in Industry," NSF Symposium on Supply Chain Management in Process Industries, University of Minnesota, Minneapolis, May 2004.
15. "Polynomial programming," MINLP Workshop, Paris, France, September 2013.

Other sessions chaired

1. "Global Optimization," *International Conference on Continuous Optimization (ICCOPT—I)*, Troy, NY, August 2004.
2. "Applications in dynamic programming," *International Symposium on Mathematical Programming*, Rio de Janeiro, Brazil, August 2006.
3. "CAST rapid fire session I," *AIChE Annual Meeting*, San Francisco, California, November 2016.
4. "CAST rapid fire session II," *AIChE Annual Meeting*, San Francisco, California, November 2016.
5. "CAST rapid fire session III," *AIChE Annual Meeting*, San Francisco, California, November 2016.

G. PROFESSIONAL ACTIVITIES AND SERVICE

Professional affiliations

- American Institute of Chemical Engineers, 1986–date
  - Computers and Systems Technology Division
  - Food, Pharmaceutical, and Bioengineering Division
- Mathematical Optimization Society (former Mathematical Programming Society), 1987–date
- Institute for Operations Research and the Management Sciences (former ORSA/TIMS), 1987–date
  - Computing Society (former Computer Science Technical Section)

Optimization Society (former Optimization Section)
- Society for Industrial and Applied Mathematics, 1989–date
  Life Sciences Technical Section
  Optimization Technical Section
- American Association for the Advancement of Science, 1991–2005
- American Chemical Society, 1991–date
  Computers in Chemistry Division
- International Society for Computational Biology, 2002–2014
- Society for Mathematical Biology, 2002–2012
- American Crystallographic Association, 2002–date
- Institute of Electrical and Electronics Engineers, 2003–2005
  Control Systems Society
  Systems, Man, and Cybernetics Society
- Association for Computing Machinery, 2003–date
  Special Interest Group on Algorithms and Computation Theory
  Special Interest Group on Symbolic and Algebraic Manipulation
- Pittsburgh Diffraction Society, 2008–date

Public service

- Consulting Editors Board, *AIChE Journal*, 2017– date
- Editorial Advisory Board, *Industrial & Engineering Chemistry Research*, 2001–2003
- Editorial Boards:
  Computational Management Science, 2010–date
  Journal of Global Optimization, handling editor for 83 papers, 1997–date
    Best Paper Prize Selection Committee, 2016
  Mathematical Programming Computation, handling editor for 7 papers, 2008–date
  Operational Research—An International Journal, 2016–date
  Optimization and Engineering, handling editor for 56 papers, 1999–date
  Optimization Letters, handling editor for 29 papers, 2005–date
  Optimization Methods and Software, handling editor for 50 papers, 2007–date
    Broyden Prize Selection Committee, 2009–2016
  Royal Society Proceedings A, handling editor for 17 papers, 1/2014–12/2016
  Global World (online), 2001–date
  MINLP World (online), 2001–date
  Performance World (online), 2002–date
- Editorial Review Board, *International Journal of Operations and Quantitative Management*, 1994–2004
- Governing Council, University of Macedonia, Thessaloniki, Greece, 1/2013–2/2016
- *INFORMS* (former *ORSA/TIMS*):
  Finance committee member, 1999–2001
  Primary student contact at UIUC, 1996–2007
  Subdivisions Council, 2011–2012
  Optimization Society
    Most recent past chair, 2011

Chair, 2009–2010
Chair Elect, 2008
Young Researcher Prize committee chair, 2010, 2015
Young Researcher Prize committee member, 2004, 2006, 2013
Vice Chair for Global Optimization, 1998–2000
Secretary/Treasurer, 1996–1998
Web Master, 1996–2010

Computing Society (former *Computer Science Technical Section*)
Student paper award committee, 2008
Board of Directors, Jan. 2005–Dec. 2007
ICS Prize committee member, 1997, 2014, 2015
ICS Prize committee chair, 2016
Programming Vice Chair, 2011-2013

- *Mathematical Optimization Society*
  2009 Beale-Orchard-Hays Prize committee chair
  ICCOPT Steering Committee, 2013-2016
- Area 10c of *AIChE* (*Computers in Operations and Information Processing*):
  1999 Programming Coordinator
- Area 10 of *AIChE* (*Computers And Systems Technology* Division)
  Executive Committee, 1996–1999
  Awards Committee, 1997, 2011
  Programming Vice Chair, 2012–2013
  Programming Chair 2013–2016
- Pittsburgh Diffraction Society
  Chung Soo Yoo Award Committee, 2008
- Referee for journals (number of papers refereed are shown in parentheses):
  ACM Transactions on Mathematical Software (1)
  Advances in Water Resources (1)
  AIChE Journal (37)
  Annals of Operations Research (3)
  Applied Mathematics and Computation (1)
  Asia Pacific Journal of Operations Research (1)
  ASME Journal of Energy Resources Technology (1)
  ASME Transactions, Journal of Engineering for Industry (2)
  Automatica (2)
  Bioinformatics (3)
  Biotechnology and Bioengineering (1)
  Biotechnology Progress (3)
  Chemical Engineering Communications (4)
  Chemical Engineering Research and Design (2)
  Chemical Engineering Science (3)
  Computational Optimization and Applications (6)
  Computers & Chemical Engineering (46)
  Computers & Operations Research (7)
  Discrete Dynamics in Nature and Society (1)
  Engineering Optimization (4)

Environmental Modeling & Assessment (3)
European Journal of Operational Research (12)
IEEE/ACM Transactions on Computational Biology and Bioinformatics (1)
IIE Transactions (1)
IIE Transactions on Operations Engineering (1)
IMA Journal of Numerical Analysis (1)
INFORMS Journal on Computing (4)
Industrial & Engineering Chemistry Research (48)
International Journal of Operations and Quantitative Management (4)
Journal of Global Optimization (29)
Journal of Heuristics (1)
Journal of Molecular Catalysis B: Enzymatic (1)
Journal of Natural Gas Science and Engineering (1)
Journal of Optimization Theory and its Applications (5)
Journal of Physical Chemistry (2)
Journal of Systems and Software (1)
Journal of Systems Science and Systems Engineering (1)
Langmuir (1)
Management Science (4)
Mathematical and Computer Modelling (1)
Manufacturing & Service Operations Management (1)
Mathematical Biosciences (1)
Mathematical Programming (13)
Mathematical Programming Computation (1)
Metabolic Engineering (2)
Naval Research Logistics (3)
Operations Research (5)
Operations Research Letters (1)
Optimization and Engineering (13)
Optimization Methods and Software (1)
Pacific Journal of Optimization (1)
PLoS ONE (1)
SIAM Journal on Optimization (8)
SIAM Journal on Scientific Computing (1)
SIAM Review (1)
Simulation Modelling Practice and Theory (1)
Springer PLUS (1)
Structural and Multidisciplinary Optimization (1)
Water Resources Research (1)

- Reviewer for chapters in books/proceedings papers:
  ASME Design Theory and Methodology Conference (1)
  BIRD'08: 2nd International Conference on Bioinformatics Research and Development (2)
  Constraint Programming '06 (1)
  Essays and Surveys in Global Optimization, C. Audet, P. Hansen, and G. Savard (eds.) (1)

Essays and Surveys in Metaheuristics, Ribeiro and Hansen (eds.) (1)
Foundations of Computer Aided Process Operations (FOCAPO'93) (2)
Foundations of Computer Aided Process Operations (FOCAPO'98) (6)
Foundations of Computer Aided Process Operations (FOCAPO'08) (6)
Global Optimization and Constraint Satisfaction (Cocos'03), C. Jermann and D. Samharoud (eds.) (1)
Global Optimization in Engineering Design, Grossmann (ed.) (3)
Handbook of Global Optimization—Volume 2, Pardalos and Romejin (eds.) (1)
IMA Hot Topic Workshop on MINLP, Lee and Leyffer (eds.) (1)
Innovation and Technology in Computer Science Education (ITiCSE'06) (1)
Network Optimization Problems: Algorithms, Complexity and Applications, Du and Pardalos (eds.) (1)
Research in Computational Biology 2008 (RECOMB'08) (1)
State of the Art in Global Optimization: Computational Methods and Applications, Floudas and Pardalos (eds.) (2)
Technical Symposium on Computer Science Education (SIGCSE'07) (2)
Technical Symposium on Computer Science Education (SIGCSE'08) (2)

- Proposal reviewer for American Chemical Society's *Petroleum Research Fund* (5)
- Proposal reviewer for the US Civilian Research & Development Foundation (1)
- Proposal reviewer for Department of Defense (1)
- Proposal reviewer for Austrian Science Fund (4)
- Proposal reviewer for National Science Foundation (20)
- Review panelist for National Science Foundation (13 panels, each with 10 to 60 proposals)
- Review panelist for Department of Energy (1 panel, 6 proposals)
- Reviewer for new journal proposals:
  Kluwer Academic Publishers (3)
- Reviewer for new book proposals:
  CRC Press (1)
  John Wiley & Sons (1)
  Oxford University Press (1)
  Prentice Hall (1)
  PWS Publishing Company (1)
  Taylor & Francis Engineering (1)
  The Chinese University Press (1)
  The McGraw-Hill Companies (2)
- Reviewer panelist for National Institutes of Health:
  Bioinformatics Study Section, 2002
- External evaluator of promotion and tenure packages
  Miscellaneous universities around the world (31)

H. SERVICE AT THE UNIVERSITY

Service at Carnegie Mellon University—Partial list

- Departmental committees

Chemical Engineering
Computer committee, 2008—date
Departmental seminars organizer, S09, F09, S10
Design minor, 2008—date
Master's program committee, 2013—date
Faculty recruiting, 2008—2015
Chair, 2009—2015
Process Systems Engineering seminar, F08, F10, F12
Promotions and tenure committee, 2008–date
Qualifying examination, 2007
Chair, 2012
Undergraduate Advising, 2007—date

- Carnegie Institute of Technology committees
  Awards Committee, 2009
  Meeting of the minds—CIT honors poster competition judge, 2009
  Ad hoc committee on promotion and tenure, 2010-2011, 2012-2013
  Search committee for head selection of Chemical Engineering Department (2013)
- University Committees
  Wilton E. Scott Institute for Energy Innovation, Faculty Advisory Council, 2017–

Service at the University of Illinois—Partial list

- Departmental committees
  Bioengineering
  Graduate Committee, 2004–2007
  Chemical and Biomolecular Engineering
  Administrative committee, January 1998–1999, 2000–2007
  Awards committee, 1998, 2001–2002, 2003–2006
  Chief undergraduate advisor, 1998–1999, 2000–2007
  Director of Bioinformatics Program, 2004–2007
  Drickamer fellowship committee, 2004, 2005
  Faculty hiring committee, Chair of computational area subcommittee, 2001–2005
  Promotions and tenure committee, 1998–2007
  Qualifying examination, 1998–2007
  Resource development committee, 2004
  Shen postdoctoral fellowship committee, 2003
  Systems Bioinformatics, committee chair, 2001
  TA assignments coordinator, 2000–2007
  Undergraduate awards, 2006
  Undergraduate curriculum committee (including ABET matters), 2006
  Mechanical and Industrial Engineering
  Graduate admissions committee, 1996–1997
  Graduate program committee, 1996–97
  Qualifying examination, 1992–1997
  Seminar committee, 1991–95
- School of Chemical Sciences Committees
  Ad hoc Committee on Scientific Software, 2003

Chemical and Biomolecular Engineering Department head search committee, 2002–2003
Noyes Lab space utilization committee, 2000–2001

- College of Liberal Arts and Sciences Committees
  Committee on Departmental Advising, 2006
  General education committee, 2002–2004
  Honors Council, 2004–2006
  School of Chemical Sciences director search committee, 1999
- College of Engineering Committees
  Awards Committee, 2005-2006
  Bioinformatics M.S. Evaluation Committee, 2003
  Course Evaluation Committees
    CS 292, 293, 299, 391, 232, 333, 491, and 499, 1994
    CS 424, 1995
    ECE 488, 1997
    CEE 336 and 445, 2001
    CS 410, 412, 511, and 512, 2004
  Engineering-Biology/Chemistry Liaison Subcommittee, 2004–2005
  Engineering-Computer Science Liaison Subcommittee, 2005–2007
  Mechanical and Industrial Engineering Department head search committee, 2004–2005
- University Committees
  Honorary degrees committee, 2002–2004
  Reviewer for University Research Board proposals (6)
  Senate, 2002–2005
- Miscellaneous Campus Committees
  Bioengineering Program
    Course and curricula committee, 1995–1999
    Elections committee, 1999, 2001
  Computational Science and Engineering Program
    Steering committee, 1998–1999, 2001–date
    Fellowship Proposals Evaluation Panel, 2003
  Department of Mathematics
    Committee on Mathematics and its applications, 2000–2001
  Graduate College
    Bioinformatics steering committee
      Member, 2002–date
      Chair, Jan. 2005–date

I. STUDENT SUPERVISION

Students supervised

- Current: 8 Ph.D., 6 M.S., 2 postdoc
- Past: 21 Ph.D., 47 M.S., 2 B.S., 6 postdoc

Former Ph.D. students, theses titles, and initial or current position

1. Ming-Long Liu, Optimization tools for process planning (Ph.D. in Industrial Engineering, 1995), Associate Professor, Department of Mathematical Sciences, National Chengchi University, Taiwan.
2. Joseph P. Shectman, Finite algorithms for global optimization of concave programs and general quadratic programs (Ph.D. in Industrial Engineering, 1999), Northfield Information Services, Boston, Massachusetts.
3. Hong Seo Ryoo, Global optimization of multiplicative programs (Ph.D. in Industrial Engineering, 1999), Associate Professor, Department of Industrial Systems and Information Engineering, Korea University, Seoul, Korea.
4. Shabbir Ahmed, Strategic planning under uncertainty. Stochastic integer programming approaches (Ph.D. in Industrial Engineering, 2000), Professor, Georgia Institute of Technology, Atlanta, Georgia.
5. Mohit Tawarmalani, Mixed-integer nonlinear programs: Theory, algorithms, and applications (Ph. D. in Industrial Engineering, 2001), Professor, Quantitative Methods Area, Krannert School of Management, Purdue University, West Lafayette, Indiana.
6. Kevin C. Furman, Analytical investigations for heat exchanger network synthesis (Ph.D. in Chemical Engineering, 2002), ExxonMobil Corporate Strategic Research, Annandale, New Jersey.
7. Anastasia Vaia, Least squares problems with applications in parameter estimation in FTIR spectroscopy and X-ray crystallography (Ph.D. in Chemical Engineering, 2003), BPAmoco, Naperville, Illinois.
8. YoungJung Chang, Global optimization in systems biology and bioinformatics (Ph.D. in Chemical Engineering, 2006), Merck, Philadelphia, Pennsylvania.
9. Wei Xie, Optimization algorithms for protein bioinformatics (Ph.D. in Chemical Engineering, 2007), American Airlines Operations Research and Decision Support Group, Fort Worth, Texas.
10. Alexander B. Smith, Optimization techniques for phase retrieval based on single-crystal X-ray diffraction data (Ph.D. in Chemical Engineering, 2008), Pavillion Technologies, Austin, Texas.
11. Luis Miguel Rios, Algorithms for derivative-free optimization (Ph.D. in Industrial Engineering, 2009), Kimberly Clark, Atlanta, Georgia.
12. Xiaowei Bao, Enhancing polyhedral relaxations for global optimization (Ph.D. in Chemical Engineering, 2009), Sabre Decision Technologies, Dallas, Texas.
13. Joseph Elble, Computational experience with linear optimization and related problems (Ph.D. in Industrial Engineering, 2010), Citadel Investment Group, Chicago, Illinois.
14. Aida Khajavirad, Convexification techniques for global optimization of nonconvex nonlinear optimization problems (Ph.D. in Mechanical Engineering, 2011), jointly supervised with J. Michalek, IBM T.J. Watson Research Laboratory, Yorktown Heights, New York.
15. Shweta B. Shah, Optimization models and algorithms for protein structure alignment (Ph.D. in Chemical Engineering, 2011), Nielsen Marketing Analytics, Chicago, Illinois.
16. Apurva Samudra, A systematic framework for molecular design: Methodology and applications (Ph.D. in Chemical Engineering, 2012), Rockwell Simulation, Austin, Texas.
17. Keith Zorn, Exploitation of Intermediate Structures for Global Optimization (Ph.D. Chemical Engineering, 2013), ExxonMobil, Fairfax, Virginia.

18. Yan Zhang, Modeling uncertainty and risk in carbon capture and storage (Ph.D. Chemical Engineering, 2013), BASF, Shanghai, China.
19. Alison Cozad, Data- and theory-driven techniques for surrogate-based optimization (Ph.D. Chemical Engineering, 2014), ExxonMobil, Fairfax, Virginia.
20. Satyajith Amaran, Interactions of uncertainty and optimization: Theory, Algorithms, and applications to chemical site operations (Ph.D. Chemical Engineering, 2014), The Dow Chemical Company, Freeport, Texas.
21. Yash Puranik, Bounds tightening techniques for global optimization of MINLPs (Ph.D. Chemical Engineering, 2016), Rockwell Automation, Austin, Texas.
22. Nick D. Austin, Tools for computer-aided molecular and mixture design (Ph.D. Chemical Engineering, 2017), Scientific Computing & Modelling NV, Amsterdam, The Netherlands.

Former M.S. students, theses titles, and placement or current position

1. Russ J. Vander Wiel, A decomposition approach for the time-dependent traveling salesman problem (M.S. in Industrial Engineering, 1993), 3M, Minneapolis, Minnesota.
2. Hong Seo Ryoo, Range reduction as a means of performance improvement in global optimization: A branch-and-reduce global optimization algorithm (M.S. in Industrial Engineering, 1995), Associate Professor, Department of Industrial Systems and information Engineering, Korea University, Seoul, Korea.
3. Joseph P. Shectman, A finite algorithm for global minimization of separable concave programs (M.S. in Industrial Engineering, 1995), Northfield Information Services, Boston, Massachusetts.
4. Ramon Gutierrez, A branch-and-bound approach for machine selection in just-in-time manufacturing systems (M.S. in Industrial Engineering, 1996), entrepreneur in Bolivia.
5. Shabbir Ahmed, Robust process planning under uncertainty (M.S. in Industrial Engineering, 1997), Professor, Georgia Institute of Technology, Atlanta, Georgia.
6. Mohit Tawarmalani, Multistage network optimization and decomposition algorithms (M.S. in Industrial Engineering, 1997), Associate Professor, Quantitative Methods Area, Krannert School of Management, Purdue University, West Lafayette, Indiana.
7. Vinay Ghildyal, Design and development of a global optimization system (M.S. in Industrial Engineering, 1997), *i*2 Technologies, India.
8. Nilanjan Adhya, Global optimization of pooling and blending problems (M.S. in Industrial Engineering, 1998), IBM, New York, NY.
9. Minrui Yu, Optimal design of alternative refrigerants (M.S. in Industrial Engineering, 1998), Marconi Communications, Dallas, Texas.
10. Kevin C. Furman, Computational Complexity of heat exchanger network synthesis (M.S. in Chemical Engineering, 1999), ExxonMobil Corporate Strategic Research, Annandale, New Jersey.
11. Yannis Voudouris, A branch-and-bound approach to globally optimal training of feedforward neural networks (M.S. in Chemical Engineering, 1999), Merck & Co., New Jersey.
12. Anastasia Vaia, Quantitative analysis of chemical mixtures using global MINLP optimization (M.S. in Chemical Engineering, 1999), BPAmoco, Naperville, Illinois.
13. Gautam Nanda, Design of efficient secondary refrigerants (M.S. in Chemical Engineering, 2001), US Airways, Arlington, Virginia.

14. Sumit Mehra, Experiments with cutting planes in branch-and-reduce (M.S. in Chemical Engineering, 2001), KPMG Consulting, Chicago, Illinois.
15. Mayank Mishra, Heuristics and approximation schemes for mixed-integer linear programs (M.S. in Chemical Engineering, 2001), Hindusan Lever, Ltd (Unilever-India).
16. Wei Xie, Robust dynamic facility layout under uncertainty (M.S. in Chemical Engineering, 2003), American Airlines Operations Research and Decision Support Group, Fort Worth, Texas.
17. Alexander Barton Smith, Direct methods for X-ray structure determination based on the minimal principle (M.S. in Chemical Engineering, 2006), Pavillion Technologies, Austin, Texas.
18. Benjamin Yung Sheng Ong, Evaluation of advanced Paclitaxel drug delivery implants for controlled release post-surgical treatment against glioblastoma multiform in the brain, M.S. in Chemical and Biomolecular Engineering, 2007, Department of Chemical and Biomolecular Engineering, National University of Singapore, Singapore (main advisor: Chi-Hwa Wong).
19. Joseph Elble, Direct methods for sparse linear systems (M.S. in Industrial Engineering, 2007), Citadel Investment Group, Chicago, Illinois.
20. Joseph Elble, Scaling linear programs: A comprehensive case study (M.S. in Computer Science, 2007), The Optimization Firm, Champaign, Illinois.
21. Xiaowei Bao, Automatic convexity identification for global optimization (M.S. in Chemical Engineering, 2007), Sabre Decision Technologies, Dallas, Texas.
22. Saurabh Awasthi, Molecular docking by derivative-free optimization solvers (M.S. in Chemical Engineering, 2008), Kinapse Information Processing and Consulting, Philadelphia, Pennsylvania.
23. Yiqi Zhu, Computational implementation of a successive linear programming algorithm (M.S. in Chemical Engineering, 2008), Bloomberg L.P., New York, New York.
24. Xuan Shi, Deterministic global optimization in neural network training (M.S. in Chemical Engineering, 2008), Elite Consulting Group, New York, New York.
25. Deepak Channamariyappa, Preprocessing in linear programming (M.S. in Chemical Engineering, 2008), AkzoNobel, Netherlands.
26. Danan Wicaksono, Protein-ligand docking under an algebraic modeling and optimization system (M.S. in Chemical Engineering, 2009), RWTH Aachen University, Germany.
27. Satyajith Amaran, Global optimization of parameter estimation problems (M.S. in Chemical Engineering, 2009), graduate student, Carnegie Mellon University, Pittsburgh, Pennsylvania.
28. Rohan Desai, A comparison of algorithms for optimizing the omega function (M.S. in Chemical Engineering, 2010), ZK Petroleum, Missouri City, Texas.
29. Yizhi Zheng, Pairs trading and portfolio optimization (M.S. in Chemical Engineering, 2011), Bloomberg L.P., New York, New York.
30. Chih-Wei Chu, Certainty equivalence adaptive control with inherent robustness (M.S. in Chemical Engineeering, 2011), Corning, Taiwan.
31. Fernando Monero Leira, Clustering and integer optimization (M.S. in Chemical Engineering, 2011), Spain.
32. Kai-Fu Chang, Modeling and optimization of polymerase chain reaction using derivative-free optimization (M.S. in Chemical Engineering, 2011; co-supervised with J. Schneider), Microfusion Engineering Laboratories, Inc., Norcross, Georgia.

33. Haoqi Wang, Application of derivative-free algorithms in powder diffraction (M.S. in Chemical Engineering, 2011), Taiwan.
34. Jianfeng Liu, Tuning BARON using derivative-free optimization (DFO) algorithms (M.S. in Chemical Engineering, 2012), Purdue University, West Lafayette, Indiana.
35. Judy Chen, Application of derivative-free optimization to influenza epidemic vaccination (M.S. in Chemical Engineering, 2013), Baker Hughes, Canada.
36. Huangqiang Zhao, Application of derivative-free optimization algorithms in crystallization process optimization (M.S. in Chemical Engineering, 2013), OSIsoft, Shanghai.
37. Tianluo Chen, A GPU-based parallel implementation of BLASTN (M.S. in Chemical Engineering, 2013), University of Houston, Houston, Texas.
38. Ye Wang, Optimization of lithium-ion battery with derivative-free optimization algorithms (M.S. in Chemical Engineering, 2013), AspenTech, Houston, Texas.
39. Zhihao Jin, A web-based interface for ALAMO (M.S. in Chemical Engineering, 2013), Amazon, Seattle, Washington.
40. Jingjiang Cheng, A Fortran implementation of ALAMO (M.S. in Chemical Engineering, 2013), INVISTA, Chattanooga, Tennessee.
41. Zilong Wang, PSA-based prostate cancer screening policy optimization with derivative-free optimization algorithms (M.S. in Chemical Engineering, 2013), Rutgers University, Piscataway, New Jersey.
42. Jiaqi Luo, Analysis and testing of solving nonlinear programs with filter (M.S. in Chemical Engineering, 2014).
43. Hua Zheng, Model-And-Search: A derivative-free algorithm and computational experience (M.S. in Chemical Engineering, 2014), Microsoft Research, Seattle, Washington.
44. Weijia Cui, Optimization of lithium–ion batteries with a Comsol model and derivative-free optimization algorithms (M.S. in Chemical Engineering, 2014).
45. Xinyu Nie, ALAMO-based models for the thermodynamic properties of water and steam (M.S. in Chemical Engineering, 2014).
46. Tong Zhang, Medium-term maintenance turnaround planning under uncertainty for integrated chemical sites (M.S. in Chemical Engineering, 2014), Carnegie Mellon University, Pittsburgh, Pennsylvania.
47. Yicheng Ren, Computational experiments with affine arithmetic (M.S. in Chemical Engineering, 2015), Google, Mountain View, California.
48. Atharv Bhosekar, Branch-And-Model: A derivative-free optimization algorithm and computational experience (M.S. in Chemical Engineering, 2015), visiting researcher, Carnegie Mellon University, Pittsburgh, Pennsylvania.
49. Ananya Chowdhury, Modeling, simulation and derivative-free optimization of Lithium-ion batteries (M.S. in Chemical Engineering, 2015), Process Systems Enterprise, Cedar Knolls, New Jersey.
50. Yunli Han, Effect of low-discrepancy sequence in ALAMO: Hammersley and Halton sequences (M.S. in Chemical Engineering, 2015).
51. Siyu Liu, Effect of low-discrepancy sequence in ALAMO: Sobol sequences (M.S. in Chemical Engineering, 2015).
52. Tapas Peshin, Crude oil price and Dow Jones Industrial Average forecasting using machine learning (M.S. in Chemical Engineering, 2015).
53. Gongda Ge, Computational investigation of the impact of A-optimal design on ALAMO (M.S. in Chemical Engineering, 2016).

54. Hejun Li, Computational investigation of the impact of D-optimal design on ALAMO (M.S. in Chemical Engineering, 2016).
55. Zehua Lyu, Computational investigation of the impact of I-optimal design on ALAMO (M.S. in Chemical Engineering, 2016).
56. Teng Nie, Computational investigation of the impact of D-optimal design via Monte Carlo on ALAMO (M.S. in Chemical Engineering, 2016).
57. Bhavana Rao, A user-friendly method to select basis functions for ALAMO (M.S. in Chemical Engineering, 2016).
58. John Villaraga, Multi-agent system for supply chain automation (M.S. in Chemical Engineering, 2017).

Supervision of B.S. theses (name of undergraduate student, thesis title, date)

1. Hussain Arsiwalla, Computational experiments with the branch-and-reduce algorithm for global optimization, 1999.
2. Hermioni Zouridis, Design of fire suppressants via global optimization, 2003.

Supervision of undergraduate student projects (name of undergraduate student, project title, date)

1. Chi-Fu Yin, Mathematical modeling of the eye, 1998–1999.
2. Andy Miller, Robust control with mixed H_2/H_∞ performance objectives, Fall 2002.
3. Mark Lawrence, Design of solvents via mixed-integer optimization, Spring 2003.
4. Choi Teng Ho, Design of aircraft deicing fluids, Spring 2009.

CMU student doctoral committees separately from supervision of a thesis

	Doctoral Candidate (ChE unless noted)	PhD Proposal	Defense
1.	Ramkumar Karuppiah		9/13/07
2.	Fengqi You	12/19/07	10/22/09
3.	Yuan Xu		5/21/08
4.	Michael Wartmann	8/8/08	4/20/10
5.	Rui Huang	8/22/08	12/17/10
6.	Sree Rama Raju	12/12/08	1/20/11
7.	Ravindra Kamath	12/18/08	
8.	Juan Pablo Ruiz	1/6/09	4/25/11
9.	Lidio Meireles (CMU/Pitt Computational Biology)	1/29/09	
10.	Abdulrahman Alattas	2/18/09	5/18/12
11.	Rodrigo Lopez-Negrete de la Fuente	10/20/09	
12.	Sylvain Mouret	2/6/09	8/27/10
13.	Aida Khajavirad (ME)	5/18/09	8/23/11
14.	Vijay Gupta	11/17/10	4/26/13
15.	Robert Smith	1/20/11	4/26/13
16.	Anita Lee	3/16/11	4/26/13
17.	Sebastian Terrazas		4/21/11
18.	Karthikeyan Marimuthu	11/19/12	4/25/14
19.	Sumit Mitra	11/22/11	5/2/13

20.	Lu Xie (Computational Biology)	11/30/12	2/17/15
21.	Bruno Calfa	12/20/12	4/20/15
22.	Alex Dowling	1/10/13	4/17/15
23.	Pablo Garcia-Herreros	11/18/13	12/15/15
24.	Francisco Trespalacios	11/20/13	9/25/15
25.	Mingzhao Yu	1/21/14	4/21/17
26.	Wei Wan	1/22/15	8/2/17
27.	Nikolaos Lappas	12/8/15	
28.	Markus Druven	11/30/15	4/27/17
29.	John Eason	1/12/16	
30.	Juan Morinelly	1/19/16	
31.	Devin Griffith	1/21/16	
32.	Jun Shi		4/27/16
33.	Bethany Nicholson		4/28/16
34.	Cristiana Lara	12/13/16	
35.	Braulio Brunaud	12/14/16	
36.	Yajun Wang	1/25/17	
37.	Robert Apap		7/31/17
38.	David Thierry	8/30/17	
39.	Qi Chen	11/15/17	

UIUC student doctoral committees separately from supervision of a thesis

	Doctoral Candidate (Department)	Preliminary Exam	Final Exam
1.	Pan Michaleris (TAM)	4/17/92	10/4/93
2.	Curtis Louis Stowers (MIE)	9/25/92	9/13/93
3.	Yi Zhang (MIE)	10/31/94	5/22/95
4.	Elias Kourpas (Business)	12/13/94	4/26/97
5.	Dragan Miljkovic (Agricultural Economics)		8/26/96
6.	Jeremy G. Van Antwerp	5/1/97	4/8/99
7.	Ernesto Rios-Patron	12/10/97	12/8/99
8.	Antonios Doufas	6/12/98	
9.	Efimia Metsi	8/9/98	
10.	Timothy J. Pricer	11/23/98	
11.	Eric R. Bromiley	2/10/99	
12.	Fred Thomas	3/11/99	9/6/00
13.	Leo Hao-Tien Chiang	4/25/00	7/13/01
14.	Timokleia Togkalidou	9/8/00	8/29/02
15.	Joshua R. Gray	4/26/01	6/30/04
16.	Rudiyanto Gunawan	3/22/01	7/23/03
17.	Zhengguang Wang	4/30/01	12/2/03
18.	Derek E. Armstrong (MIE)	5/14/01	
19.	Lars K. Henricksen	3/13/03	
20.	Su Y. Ha (CHBE)	2/25/04	7/15/05
21.	Karuppiah Chockalingam	5/17/04	
22.	Andrew Dalton	4/27/04	
23.	Shivani Agarwal (CS)	12/8/04	4/11/05

24.	Vijay Gopalakrishnan	2/21/05	
25.	William E. Smith	3/7/05	
26.	Li Ang	4/4/05	
27.	Joshua D. Isom	4/8/05	
28.	Michael Mitchell	7/11/05	12/14/06
29.	Xi Zhu		7/28/05
30.	Kim Seng Cheong	1/26/06	

J. EXTERNAL THESIS COMMITTEES

External habilitation thesis committees (name of candidate, institution, date)

1. Dr. Ivo Novak, Humboldt-University Berlin, Faculty of Mathematics and Natural Sciences II, Department of Mathematics, Berlin, Germany, 2/6/04.

External doctoral committees (name of Ph.D. candidate, institution, date)

1. Gavin Jon Bell, University of Canterbury, Department of Management, Canterbury, New Zealand, 10/27/98.
2. Adriaan Jacobus Quist, Delft University of Technology, Department of Statistics, Probability and Operations Research, Delft, The Netherlands, 5/29/00.
3. Kaj-Mikael Björk, Åbo University, Department of Chemical Engineering, Åbo, Finland, 11/22/02.
4. Danielle Zyngier, McMaster University, Department of Chemical Engineering, Hamilton, Canada, 7/13/06.
5. Hong Choon Oh, National University of Singapore, Department of Chemical and Biomolecular Engineering, Singapore, 4/6/09.
6. Nikolaos Ploskas, University of Macedonia, Department of Applied Informatics, Thessaloniki, Greece, 12/20/13.

External M.S. thesis evaluation committees (name of student, institution, date)

1. Thekra Behbehani, Kuwait University, Department of Chemical Engineering, Safat, Kuwait, 11/6/99.
2. Ghanima Al-Sharrah, Kuwait University, Department of Chemical Engineering, Safat, Kuwait, 6/13/00.
3. Mufreh Saeed Al-Rashidi, Kuwait University, Department of Chemical Engineering, Safat, Kuwait, 6/27/02.

K. COURSES TAUGHT

- Chemical Engineering, Carnegie Mellon University:
  Computer Science for Chemical Engineers (S15, S16)

Process Thermodynamics (F14, F15)
Computational Aspects of the Simplex Method (F09, F10, F11, F12)
Metabolic Engineering (F08)
Product Design (S08, S09, S10, S11, S12, S13)
Optimization (S91, S08, S09, S10, S11, S12, S13)

- Computer Science, University of Illinois, Urbana-Champaign:
  Algorithms in Bioinformatics (S04; co-taught with Zhai and Skeel)
- Chemical and Biomolecular Engineering, University of Illinois, Urbana-Champaign:
  Computational Aspects of the Simplex Method (F04)
  Bioinformatics (F03)
  Metabolic Engineering (S02, S03, S04, S05, S07)
  Chemical Process Control and Dynamics (F00, F01, F02, F03)
  Synthesis and Design of Chemical Systems (S98, S01)
  Approximation Algorithms (F00)
  Global Optimization (S99)
  Applied Mathematics (F98)
- Mechanical and Industrial Engineering, University of Illinois, Urbana-Champaign:
  Introduction to Operations Research (S92, F92, F93, F94, F97)
  Integer Programming (F91, S93, S95, F96)
  Linear Programming (S94, F95, S97)
  Nonlinear Programming (S96)
- Short courses and workshops
  Global Optimization and Optimization under Uncertainty: An intense one-day short course as part of the *CAPD short course*, Carnegie Mellon University, Pittsburgh, PA, June 14, 2008 (6 students); March 14, 2009 (12 students)
  Global Optimization and Optimization under Uncertainty: An intense one-day short course as part of the *Pan American Advanced Studies Institute*, August 18, 2005, Iguazú, Argentina (69 students)
  Advanced Topics in Optimization: An intense short course on global optimization (three days) and optimization under uncertainty (one day), December 13-16, 2004, Plapiqui, Bahia Blanca, Argentina (20 students)
  Global Optimization with BARON: An intense half-day short course as part of the *Workshop on Global Optimization with GAMS*, Washington, DC, September 18, 2003 (15 students)
  Introduction to Global Optimization: A two-day short course, Åbo University, Åbo, Finland, August 20-21, 1998 (18 students)

L. FUNDING

Past internal funding for teaching material development

1. Computational Science and Engineering Program ($11,818, 1/2003–7/2003): Development of teaching material for a new bioinformatics course. Investigator: N. V. Sahinidis (sole PI).

Past internal research funding

1. DuPont Young Faculty Starting Grant from the Department of Mechanical and Industrial Engineering ($30,000, 1991): Unrestricted research gift (N. V. Sahinidis, sole PI).
2. Research Board ($20,005, 1992–1993): An aid to molecular structure prediction (N. V. Sahinidis, sole PI).
3. IBM State University Support ($58,140, 1993): Research equipment grant (P. M. Ferreira: PI, co-PIs: U. S. Palekar, R. E. DeVor, S. G. Kapoor, N. V. Sahinidis, and T-C. Tsao).
4. Research Board ($11,550, 1994–1995): Global optimization of nonconvex NLPs and MINLPs with application in process design (N. V. Sahinidis, sole PI).
5. Research Board ($15,000, 1995-1996): Optimization tools for planning and scheduling in the process industries (N. V. Sahinidis, sole PI).
6. Computational Science and Engineering Program ($28,000, 1995–1997): Globally optimal robust reliable control of large-scale sheet and film processes (R. D. Braatz: PI, N. V. Sahinidis: co-PI).
7. Research Board ($10,500, 1998): Bridging the gap between heuristics and optimization in process systems engineering (N. V. Sahinidis, sole PI).
8. Computational Science and Engineering Program ($29,000, 1998–2000): Computer-aided design of environmentally benign refrigerants (N. V. Sahinidis: PI, D. Wuebbles: co-PI).
9. Research Board ($14,727, 1999–2000): Portfolio optimization via global nonconvex quadratic programming (N. V. Sahinidis: sole PI).
10. Research Board ($6,000, 2001–2002): Novel algorithms for heat exchanger network synthesis and related transportation problems (N. V. Sahinidis: sole PI).
11. Research Board ($13,000, 2003): Novel algorithms for crystallographic computing (N. V. Sahinidis: sole PI).
12. Research Board ($6,433, 2005): Global optimization algorithms for differential-algebraic systems (N. V. Sahinidis: sole PI).
13. Computational Science and Engineering Program ($44,000, 2004–2006): Design of robust metabolic and signaling networks. Investigators: N. V. Sahinidis (PI), P. G. Voulgaris (co-PI), H. Zhao (co-PI).

Past external research funding (unless mentioned otherwise, sole Principal Investigator: N. V. Sahinidis)

1. TAPPI Foundation ($39,969, 1995–1996): Development of novel modeling and optimization approaches for scheduling the operation of paper production plants.
2. NSF (DMII program, $79,990, 1995–1997): Development of a global optimization methodology to support engineering design and manufacturing.
3. EXXON Education Foundation ($10,000, 1995–1996): Mixed-integer and global non-linear optimization in science and engineering.
4. NSF CAREER Award (OR/PS program, $310,000, 1995–2000): Optimization tools for planning and scheduling in the process industry.
5. Petroleum Research Fund (American Chemical Society, $50,000, 1995–1997): Development of a global optimization methodology.

6. NSF (CTS program, $152,905, 1997–2001): Bridging the gap between heuristics and optimization in process systems engineering.
7. NSF/Lucent Technologies (NSF's BES program, $100,000, 1998–2000): Design of environmentally benign refrigerants.
8. Mobil Technology Company ($20,000, 1998): Unrestricted research gift.
9. DuPont Educational Aid Program ($10,000, 1998): Unrestricted research gift.
10. Mobil Technology Company ($15,000, 1999): Unrestricted research gift.
11. Mitsubishi Chemicals, Inc. ($25,000, 2000–2001): Unrestricted research gift.
12. NSF (Electrical and Communication Systems Program, $158,475, 2001–2004): Collaborative Research: Globally optimal neural computing algorithms and applications. Investigators: N. V. Sahinidis (PI), T. Trafalis (co-PI, University of Oklahoma). A separate award at the amount of $150,553 was made to the University of Oklahoma. UIUC is the lead institution on this grant.
13. ExxonMobil Upstream Research Technology Center ($15,000, 2002): Unrestricted research gift.
14. ExxonMobil Upstream Research Technology Center ($15,000, 2003): Unrestricted research gift.
15. ExxonMobil Upstream Research Technology Center ($15,000, 2004): Unrestricted research gift.
16. NSF (Operations Research Program, $232,598, 2001–2005): Development and implementation of algorithms for stochastic integer programming.
17. NSF/EPA (NSF's Chemical and Thermal Systems Program, $424,560, 2001–2005): A theoretical and experimental approach to rapid screening and design of secondary refrigerants. Investigators: N. V. Sahinidis (PI), P. Kenis (co-PI), P. Hrnjak (co-PI).
18. ExxonMobil Upstream Research Technology Center ($15,000, 2005): Unrestricted research gift.
19. NIH (NIGMS, $2,083,068, 2004–2010): Novel algorithms for crystallographic computing. Principal Investigator: N. V. Sahinidis. This award included a subcontract with the Hauptman-Woodward Medical Institute at Buffalo in the amount of $978,883 (Collaborators at HWI: H. Hauptman, C. M. Weeks, H. Xu).
20. DOE (National Energy Technology Laboratory, $362,757, 2008-2010): Risk assessment in CO2 sequestration.
21. DOE (National Energy Technology Laboratory, $185,169, 2008-2010): Design of novel drilling fluids.
22. NSF (OCI, $1,210,402, 2008–2012): Open cyberinfrastructure for mixed-integer nonlinear programming: Collaboration and deployment via virtual environments. Investigators: L. T. Biegler (co-PI), I. E. Grossmann (PI), F. Margot (co-PI), N. V. Sahinidis (co-PI).
23. DOE (National Energy Technology Laboratory, $125,000, 2010): Design of novel drilling fluids.
24. DOE (National Energy Technology Laboratory, $152,000/yr, 2010-13): Risk assessment in CO2 sequestration.
25. DOE (National Energy Technology Laboratory, $155,000/yr, 2010-13): Optimal selection and integration of CO2 capture technologies.
26. NSF (CBET, $364,093, 2010-2013): Process optimization without an algebraic model.
27. NSF (CMMI, $200,000, 2010-2013): Novel relaxations for global optimization.

28. DOE (National Energy Technology Laboratory, $335,211, 2013-2014): ALAMO and Superstructure Optimization.
29. DOE (National Energy Technology Laboratory, $76,582, 2013-2014): Development of a Generation III RPM/ROM for a reservoir that includes injection and production.
30. DOE (National Energy Technology Laboratory, $44,408, 2013-2014): Development of a ROM/RPM for a groundwater model using the PCE technique.
31. DOE (National Energy Technology Laboratory, $62,500, 2013-2014): Development of third-generation ROMs for groundwater impacts.
32. Process Systems Enterprise ($143,749, 2015-2016): Evaluation of the CCSI toolset.
33. DOE (Lawrence Berkeley National Laboratory, $196,129, 2014-2016): ALAMO and Superstructure Optimization.
34. Dow Chemical Company ($457,375, 2011-2016): Development, implementation, and application of a molecular design framework.
35. Dow Chemical Company ($457,375, 2011-2016): Financial risk optimization over discrete event simulators.
36. DOE (Lawrence Berkeley National Laboratory, $102,500, 2016-2017): Optimization methods and parallel computing.
37. DOE (Lawrence Berkeley National Laboratory, $166,250, 2016-2017): Tools for kinetics and thermophysical properties.

Current external research funding

1. DOE (Lawrence Berkeley National Laboratory, $102,500, 2017-2018): Optimization methods and parallel computing.
2. DOE (Lawrence Berkeley National Laboratory, $166,250, 2017-2018): Tools for kinetics and thermophysical properties.
3. Dow Chemical Company ($559,644, 2017-2021): Optimization and risk analysis for turnaround planning.
4. Dow Chemical Company ($645,310, 2017-2021): Next-generation data analytics capabilities for manufacturing and process applications. Investigators: N. V. Sahinidis (PI) and Carolyn Rose (co-PI).
5. Eli Lilly and Company ($7,785,580, 2017-2024): Digital pharmaceutical process design with advanced optimization technology. Investigators: N. V. Sahinidis (PI), L. T. Biegler (co-PI), C. Gounaris (Co-PI), and I. E. Grossmann (Co-PI).

M. EDUCATION

Degrees

- Doctoral Degree in Chemical Engineering, Carnegie Mellon University, April 1990.
  Degree grade: 3.92/4.00.
  Dissertation: "Mixed-integer nonlinear programming approaches to planning and scheduling problems in the chemical process industries"
  (Advisor: I. E. Grossmann).
  Coursework: linear programming, advanced linear programming, integer programming, nonlinear programming, dynamic programming, network flow programming, graph theory, polyhedral combinatorics, heuristic scheduling, productions management,

applied mathematics, thermodynamics, kinetics, transport phenomena, process systems engineering.

- Undergraduate Diploma in Chemical Engineering, Aristotle University, July 1986.
  Diploma grade: 9.02/10.
  Diploma thesis: "Dynamic matrix control"
  (Advisor: C. Kiparissides).

Improvement activities I undertook

- Workshop on High Performance Computing and Grand Challenges in Structural Biology, Florida State University, Tallahassee, Florida, January 24-27, 1992.
- Dean's Seminar Series on Teaching, University of Illinois at Urbana-Champaign, November 13, 1991; March 19, 1992; October 15, 1992; November 19, 1992; March 4, 1993; April 6, 1993; January 25, 1994.
- Conference on Receptor Proteins: Structure, Function and Modeling, Beckman Institute, University of Illinois at Urbana-Champaign, May 29-June 1, 1992.
- Short Course: "Introduction to Molecular Modeling and Computational Chemistry," American Chemical Society Continuing Education, Washington, D.C., August 23, 1992.
- Workshop: "Current Techniques in Rational Drug Design," Biosym Technologies, Washington, D.C., August 25, 1992.
- Conference on Receptor Proteins: Structure, Function and Modeling, Beckman Institute, University of Illinois at Urbana-Champaign, June 1-4, 1995.
- Workshop: "The Future of Biothermal Engineering," University of Illinois at Urbana-Champaign, April 18-21, 1997.
- Workshop: "Introduction to Bioinformatics," Biotechnology Center, University of Illinois at Urbana-Champaign, June 2-6, 1998.
- Workshop: "Molecular Modeling for Life Science Applications," Molecular Simulations, Inc., School of Chemical Sciences, University of Illinois at Urbana-Champaign, July 24-25, 2001.
- Short Course: "The Language of Biology and Medicine," College of Veterinary Medicine, University of Illinois at Urbana-Champaign, seven four-hour lectures on biology and medicine for physical sciences, January 25, 26, February 8, 9, 22, 23, March 8, 2002.
- 2002 *Intelligent Systems for Molecular Biology*, Edmonton, Canada, August 1-10, 2002, short courses:
  DNA Microarrays and Gene Regulation.
  Functional Genomics in 4 Hours: A Practical Guide to Creating Your Own High-Throughput Pipeline.
- *Molecular Biology Workshop*, University of Illinois at Urbana-Champaign, June 27-July 1, 2005, one week long, intense experimental laboratory workshop on modern molecular biology techniques, including DNA isolation, PCR, RT-PCR, Southern Blot, gel electrophoresis, working with RNA, and site-directed mutagenesis.
- Workshop: "Introduction to Small-Angle Scattering," August 23, 2005, Florence, Italy.

N. TECHNOLOGY TRANSFER ACTIVITIES

Founder of *The Optimization Firm, LLC.,* a software development company incorporated in Champaign, Illinois. The company has licensed from the University of Illinois the BARON software that was developed in Professor Sahinidis' academic research laboratory. In partnership with AIMMS, AMPL and GAMS, the company provides commercial versions of BARON under the AIMMS, AMPL and GAMS systems. In addition, the company provides versions of BARON that can be used under MATLAB, PYOMO, YALMIP, and BARON's own native modeling language. For those who prefer to use free software, the full commercial versions of AMPL/BARON and GAMS/BARON are available free of charge on the NEOS server for optimization, along with free CPU cycles. This multi-pronged approach to technology transfer aims for maximum impact in the academic and commercial worlds.

O. CITATIONS ACCORDING TO GOOGLE SCHOLAR

Citation data as of February 8, 2017
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Citation indices	All	Since 2012
Citations	8933	4235
h-index	42	32
i10-index	83	64