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EDUCATION

1989, Ph.D. in computer science from the University of Wisconsin-Madison. Advisor: Udi Manber.
1984, B.S. in computer science and mathematics from Iowa State University

APPOINTMENTS

2001 – : Professor of computer science, University of Pittsburgh
1995 – 2001: Associate professor of computer science, University of Pittsburgh
1989 – 1995: Assistant professor of computer science, University of Pittsburgh

JOURNAL PUBLICATIONS

- S. Im, B. Moseley, K. Munagala, and K. Pruhs, “Dynamic Weighted Fairness with Minimal Disruptions”, *Proceedings of the ACM on Measurement and Analysis of Computing Systems*, **4**(1), 18 pages, 2020.
- A. Antoniadis, S. Im, R. Krishnaswamy, B. Moseley, V. Nagarajan, K. Pruhs, and C. Stein, “Hallucination Helps: Energy Efficient Virtual Circuit Routing”, *SIAM Journal of Computing*, **49**(1), 37-66, 2020.
- Z. Chen, Q. Deng, N. Xiao, K. Pruhs, and Y. Zhang, “DWMAcc: Accelerating Shift-based CNNs with Domain Wall Memories”, *ACM Transactions on Embedded Computing Systems*, **18**(5s), 19 pages, 2019.
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- J. Chen, K. Pruhs, and G.J. Woeginger, “The one-dimensional Euclidean domain: finitely many obstructions are not enough”, *Social Choice and Welfare*, **48**(2), 409-432, 2017.

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- N. Bansal, K. Pruhs, “The Geometry of Scheduling”, *SIAM Journal of Computing*, **43**(5), 1684-1698, 2014.
- N. Bansal, H. Chan and K. Pruhs, “Speed Scaling with an Arbitrary Power Function”, *ACM Transactions on Algorithms*, **9**(2), 18, 2013.
- L. Al Moakar, P. Chrysanthis, C. Chung, S. Guirguis, A. Labrinidis, P. Neophytou and K. Pruhs, “Auction-based Admission Control for Continuous Queries in a Multi-Tenant Data-Stream Management System”, *International Journal of Next-Generation Computing*, **3**(3), 2012.
- D. Cole, S. Im, B. Moseley and K. Pruhs, “Speed scaling for stretch plus energy”, *Operations Research Letters*, **40**(3), 180-184, 2012.
- J. Edmonds and K. Pruhs, “Scalably scheduling processes with arbitrary speedup curves”, *ACM Transactions on Algorithms*, **8**(3), 28, 2012.
- N. Bansal, H. Chan, D. Katz and K. Pruhs, “Improved Bounds for Speed Scaling in Devices Obeying the Cube-Root Rule”, special issue of *Theory of Computing* in memory of Rajeev Motwani, **8**(1), 209-229, 2012.
- C. Chung, K. Ligett, K. Pruhs, and A. Roth, “The Power of Fair Pricing Mechanisms”, special issue of *Algorithmica* devoted to selected papers from the 2010 Latin American Symposium on Theoretical Informatics, **63**(3), 634-644, 2012.
- D. Cole, S. Im, B. Moseley, and K. Pruhs, “Speed scaling for stretch plus energy”, *Operations Research Letters*, **40**(3), 180-184, 2012.
- J. Edmonds, and K. Pruhs, “ Cake cutting really is not a piece of cake”, *ACM Transactions on Algorithms*, **7**(4), 2011.
- N. Bansal, H. Chan, and K. Pruhs, “Competitive Algorithms for Due Date Scheduling”, *Algorithmica*, **59**(4), 569-582, 2011.
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- H. Chan, J. Edmonds, T.W. Lam, L. Lee, A. Marchetti-Spaccamela, and K. Pruhs, “Non-clairvoyant Speed Scaling for Flow and Energy”, *Algorithmica*, **61**(3), 507-517, 2011.

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- N. Bansal, and K. Pruhs, “Server Scheduling to Balance Priorities, Fairness, and Average Quality of Service”, *SIAM Journal of Computing*, **39**(7), 3311-3335, 2010.
- N. Bansal, K. Pruhs, and C. Stein, “Speed Scaling for Weighted Flow Time”, *SIAM Journal of Computing*, **39**(4), 1294-1308, 2009.
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- B. Kalyanasundaram, J. Noga, K. Pruhs and G. Woeginger, “Caching for web searching”, special issue of *Algorithmica* devoted to Internet algorithmics, **33**(3), 353–370, 2002.
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- Y. Azar, B.Kalyanasundaram, S. Plotkin, K. Pruhs, and O. Waarts, “Online load balancing of temporary tasks”, *Journal of Algorithms*, **22**(1), 93 – 110, 1997.
- K. Pruhs, “On the number of local adaptations to transform a spanning tree”, *Discrete Applied Mathematics*, **57**(1), 67 – 74, 1995.

- K. Pruhs, “Average case scalable on-line algorithms for fault replacement”, *Information Processing Letters*, **52**(3), 131 – 136, 1995.
- B. Kalyanasundaram, and K. Pruhs, “Not all insertion methods yield constant approximate tours in the plane”, *Theoretical Computer Science*, **125**(2), 345 – 353, 1994.
- B. Kalyanasundaram, and K. Pruhs, “Constructing competitive tours from local information”, special issue of *Theoretical Computer Science* on dynamic and on-line algorithms, **130**(1), 125 – 138, 1994.
- B. Kalyanasundaram, and K. Pruhs, “A competitive analysis of algorithms for searching unknown scenes”, *Computational Geometry: Theory and Applications*, **3**, 139 – 155, 1993.
- B. Kalyanasundaram, and K. Pruhs, “Online weighted matching”, *Journal of Algorithms*, **14**(3), 478 – 488, 1993.
- K. Pruhs, and U. Manber, “The complexity of controlled selection,” *Information and Computation*, **91**(1), 103 – 127, 1991.

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- A. Samadian, K. Pruhs, B. Moseley, S. Im, .R. Curtin, “Unconditional Coresets for Regularized Loss Minimization”, International Conference on Artificial Intelligence and Statistics (AISTATS), 482-492, 2020.
- S. Im, B. Moseley, K. Munagala, and K. Pruhs, “Dynamic Weighted Fairness with Minimal Disruptions”, SIGMETRICS/Performance Joint International Conference on Measurement and Modeling of Computer Systems (SIGMETRICS), 5-6, 2020.
- S. Im, B. Moseley, K. Pruhs, and M. Purohit, “Matroid Coflow Scheduling”, International Conference on Automata, Languages and Programming (ICALP), 145:1-145:14, 2019.
- N. Olver, K. Pruhs, K. Schewior, R. Sitters, and L. Stougie: “The Itinerant List Update Problem”, Workshop on Approximation and Online Algorithms (WAOA), 310-326, 2018.
- R. Carrasco, K. Pruhs, C. Stein, and J. Verschae, “The Online Set Aggregation Problem”, Latin American Symposium on Theoretical Informatics (LATIN), 245-259, 2018
- S. Im, B. Moseley, K. Pruhs, and C. Stein, “Minimizing Maximum Flow Time on Related Machines via Dynamic Posted Pricing”, European Symposium on Algorithms (ESA), 51:1-51:10, 2017.
- S. Im, B. Moseley, K. Pruhs, and C. Stein, “An $O(\log \log m)$ -competitive Algorithm for Online Machine Minimization, IEEE Real-Time Systems Symposium (RTSS), 2017.
- N. Barcelono, P. Kling, M. Nugent, and K. Pruhs, “Optimal Speed Scaling with a Solar Cell”, International Conference on Combinatorial Optimization and Applications (COCOA), 521-535, 2016.
- A. Antoniadis, N. Barcelo, M. Nugent, K. Pruhs, K. Schewior, and M. Scquizzato, “Chasing Convex Bodies and Functions”, Latin American Symposium on Theoretical Informatics (LATIN), 68-81, 2016.

- N. Barcelo, M. Nugent, K. Pruhs, and M. Scquizzato, “The power of heterogeneity in Near-Threshold Computing”, International Green and Sustainable Computing Conference (IGSC), 2015.
- N. Barcelo, P. Kling, M. Nugent, K. Pruhs, and M. Scquizzato, “On the Complexity of Speed Scaling”, International Symposium on Mathematical Foundations of Computer Science (MFCS), 75-89, 2015.
- N. Barcelo, M. Nugent, K. Pruhs, and M. Scquizzato, “Almost All Functions Require Exponential Energy”, International Symposium on Mathematical Foundations of Computer Science (MFCS), 90-101, 2015.
- S. Im, B. Moseley, and K. Pruhs, “Stochastic Scheduling of Heavy-tailed Jobs”, International Symposium on Theoretical Aspects of Computer Science (STACS), 474-486, 2015.
- Nikhil Bansal, Marek Elias, Lukasz Jez, Grigorios Koumoutsos, Kirk Pruhs: Tight Bounds for Double Coverage Against Weak Adversaries. WAOA 2015: 47-58
- S. Im, J. Kulkarni, K. Munagala, and K. Pruhs, “SelfishMigrate: A Scalable Algorithm for Non-clairvoyantly Scheduling Heterogeneous Processors”, Symposium on Foundations of Computer Science (FOCS), 531-540, 2014.
- A. Antoniadis, N. Barcelo, M. Nugent, K. Pruhs, and M. Scquizzato, “Complexity-theoretic obstacles to achieving energy savings with near-threshold computing”, International Green Computing Conference (IGCC), 1-8, 2014.
- A. Antoniadis, N. Barcelo, M. Nugent, K. Pruhs, and M. Scquizzato, “A $o(n)$ -Competitive Deterministic Algorithm for Online Matching on a Line”, International Workshop on Approximation and Online Algorithms (WAOA), 11-22, 2014.
- A. Antoniadis, N. Barcelo, M. Consuegra, P. Kling, M. Nugent, K. Pruhs, and M. Scquizzato, “Efficient Computation of Optimal Energy and Fractional Weighted Flow Trade-off Schedules”, Symposium on Theoretical Aspects of Computer Science (STACS), 63-74, 2014.
- R. Krishnaswamy, V. Nagarajan, K. Pruhs, and C. Stein, “Cluster Before You Hallucinate: Approximating Node-Capacitated Network Design and Energy Efficient Routing”, ACM Symposium on Theory of Computing (STOC), 734-743, 2014.
- A. Antoniadis, N. Barcelo, D. Cole, K. Fox, B. Moseley, M. Nugent, and K. Pruhs, “Packet Forwarding Algorithms in a Line Network”, Latin American Symposium on Theoretical Informatics (LATIN), 610-621, 2014.
- A. Antoniadis, N. Barcelo, M. Nugent, K. Pruhs and M. Scquizzato, “Energy-Efficient Circuit Design”, Innovations in Theoretical Computer Science Conference (ITCS), 303-312, 2014.
- S. Im, B. Moseley, K. Pruhs, and E. Torng, “Competitively scheduling tasks with intermediate parallelizability”, ACM Symposium on Parallelism in Algorithms and Architectures (SPAA), 22-29, 2014. Invited to appear in a special issue of *ACM Transactions on Parallel Computing* devoted to selected papers from the conference.
- A. Antoniadis, S. Im, R. Krishnaswamy, B. Moseley, V. Nagarajan, K. Pruhs, and C. Stein, “Hallucination Helps: Energy Efficient Virtual Circuit Routing”, in ACM-SIAM Symposium on Discrete Algorithms (SODA), 1141-1153, 2014.

- B. Moseley, K. Pruhs and C. Stein, “The Complexity of Scheduling for p-Norms of Flow and Stretch”, International Conference on Integer Programming and Combinatorial Optimization (IPCO), 278-289, 2013.
- N. Bansal, and K. Pruhs, “Weighted Geometric Set Multi-cover via Quasi-uniform Sampling”, European Symposium on Algorithms (ESA), 145-156, 2012.
- K. Pruhs and G. Woeginger, “Divorcing Made Easy”, International Conference on Fun with Algorithms (FUN), 305-314, 2012.
- D. Cole, D. Letsios, M. Nugent, and Kirk Pruhs, “Optimal energy trade-off schedules”, International Green Computing Conference (IGCC), 1-10, 2012.
- N. Bansal, A. Gupta, R. Krishnaswamy, V. Nagarajan, K. Pruhs and C. Stein, “Multicast Routing for Energy Minimization Using Speed Scaling”, Mediterranean Conference on Algorithms (MedAlg), 37-51, 2012.
- N. Barcelo, M. Zhou, D. Cole, M. Nugent and K. Pruhs, “Energy Efficient Caching for Phase-Change Memory”, Mediterranean Conference on Algorithms (MedAlg), 67-81, 2012.
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- A. Gupta, R. Krishnaswamy and K. Pruhs, “Online Primal-Dual for Non-linear Optimization with Applications to Speed Scaling”, Workshop on Approximation and Online Algorithms (WAOA), 173-186, 2012.
- L. Atkins, G. Aupy, D. Cole and K. Pruhs, “Speed Scaling to Manage Temperature”, International Conference on Theory and Practice of Algorithms in (Computer) Systems (TAPAS), 9-20, 2011.
- K. Pruhs and C. Stein, “How to Schedule When You Have to Buy Your Energy”, International Workshop on Approximation, Randomization, and Combinatorial Optimization. Algorithms and Techniques (APPROX), 352-365, 2010.
- N. Bansal and K. Pruhs, “The Geometry of Scheduling”, IEEE Symposium on Foundations of Compute Science (FOCS), 407-414, 2010.
- Kirk Pruhs, Julien Robert and Nicolas Schabanel, “Minimizing Maximum Flowtime of Jobs with Arbitrary Parallelizability”, Workshop on Approximation and Online Algorithms (WAOA), 237-248, 2010.
- A. Gupta, R. Krishnaswamy and K. Pruhs, Nonclairvoyantly Scheduling Power-Heterogeneous Processors, International Green Computing Conference (IGCC), 165-173, 2010.

- A. Gupta, R. Krishnaswamy and K. Pruhs, “Scalably Scheduling Power-Heterogeneous Processors”, International Colloquium on Automata Languages and Programming, Track A (ICALP), 312-323, 2010.
- A. Gupta, S. Im, R. Krishnaswamy, B. Moseley, and K. Pruhs, “Scheduling Jobs with Varying Parallelizability to Reduce Variance”, Symposium on Parallel Algorithms and Architectures (SPAA), 11-20, 2010.
- L. Al Moakar, P. Chrysanthis, C. Chung, S. Guirguis, A. Labrinidis, P. Neophytou, and K. Pruhs, “Admission control mechanisms for continuous queries in the cloud”, International Conference on Data Engineering (ICDE), 409-412, 2010.
- C. Chung, K. Ligett, K. Pruhs, and A. Roth, “The Power of Fair Pricing Mechanisms”, Latin American Symposium on Theoretical Informatics (LATIN), 554-564, 2010. Invited to special issue of *Algorithmica* devoted to selected papers from the conference.
- N. Bansal, H.L. Chan, D. Katz, and K. Pruhs, “Improved Bounds for Speed Scaling in Devices Obeying the Cube-Root Rule”, International Colloquium on Automata Languages and Programming, Track A (ICALP), 144-155, 2009.
- S. Guirguis, M. Sharaf, P. Chrysanthis, A. Labrinidis, and K. Pruhs, “Adaptive Scheduling of Web Transactions”, International Conference on Data Engineering (ICDE), 357-368, 2009.
- J. Edmonds, and K. Pruhs, “Scalably scheduling processes with arbitrary speedup curves”, ACM-SIAM Symposium on Discrete Algorithms (SODA), 685-692, 2009.
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- H.L. Chan, J. Edmonds, and K. Pruhs, “Speed scaling of processes with arbitrary speedup curves on a multiprocessor”, Symposium on Algorithms and Architecture (SPAA), 1-10, 2009. Invited to appear in a special issue of *Theory Computing Systems* devoted to selected papers from the conference.
- H.L. Chan, J. Edmonds, T.W. Lam, L.K. Lee, A. Marchetti-Spaccamela, and K. Pruhs, “Nonclairvoyant Speed Scaling for Flow and Energy”, Symposium on Theoretical Aspects of Computer Science (STACS), 255-264, 2009.
- N. Bansal, H. Chan, and K. Pruhs, “Speed Scaling with a Solar Cell”, Conference on Algorithmic Aspects in Information and Management (AAIM), 2008.
- J. Edmonds, K. Pruhs, and J. Solanki, “Confidently Cutting a Cake into Approximately Fair Pieces”, Conference on Algorithmic Aspects in Information and Management (AAIM), 2008.
- C. Chung, K. Ligett, K. Pruhs, and A. Roth, “The Price of Stochastic Anarchy”, Symposium on Algorithmic Game Theory (SAGT), 303-314, 2008.
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- C. Chung, K. Pruhs, and P. Uthaisombut, “The Online Transportation Problem: On the Exponential Boost of One Extra Server”, Latin American Theoretical Informatics Symposium (LATIN), 2008.

- W. Zhang, V. Liberatore, J. Beaver, P. Chrysanthis, and K. Pruhs, “Scalable data dissemination using hybrid methods”, IEEE International Symposium on Parallel and Distributed Processing, 1-12, 2008.
- M. Sharaf, S. Guirguis, A. Labrinidis, K. Pruhs, and P. Chrysanthis, “ASETS: A self-managing transaction scheduler”, International Conference on Data Engineering Workshops, 56-62, 2008.
- N. Bansal, H. Chan, R. Khandekar, K. Pruhs, B. Schieber and C. Stein, “Non-Preemptive Min-Sum Scheduling with Resource Augmentation”, IEEE Symposium on Foundations of Computer Science (FOCS), 2007.
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- M. Aly, K. Pruhs, P. Chrysanthis, “KDDCS: a load-balanced in-network data-centric storage scheme for sensor networks”, ACM International Conference on Information and Knowledge Management (CIKM), 317-326, 2006.
- D. Mosse, L. Comfort, A. Amer, J. Brustoloni, P. Chrysanthis, M. Hauskrecht, A. Labrinidis, R. Melhem, K. Pruhs, “Secure-CITI Critical Information-Technology Infrastructure”, International Conference on Digital Government Research, 253-254, 2006,
- J. Edmonds, K. Pruhs, “Balanced Allocations of Cake”, IEEE Symposium on Foundations of Computer Science (FOCS), 623-634, 2006.
- J. Beaver, P. Chrysanthis, K. Pruhs, V. Liberatore, “To Broadcast Push or Not and What?” International Conference on Mobile Data Management (MDM), 2006.
- M. Sharaf, P. Chrysanthis, A. Labrinidis, K. Pruhs, “Efficient Scheduling of Heterogeneous Continuous Queries”, International Conference on Very Large Data Bases (VLDB), 511-522, 2006.
- M. Aly, P. Chrysanthis, K. Pruhs, “Decomposing Data-Centric Storage Query Hot-spots in Sensor Networks”, International Conference on Mobile and Ubiquitous Systems: Networks and Services (MOBIQUITOUS), 2006.
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- M. Sharaf, A. Labrinidis, P. Chrysanthis, K. Pruhs, “Freshness-aware scheduling of continuous queries in the dynamic web”, Workshop on the Web and Databases (WebDB), 73-78, 2005.
- K. Pruhs, R. van Stee, P. Uthaisombut, “Speed Scaling of Tasks with Precedence Constraints”, Workshop on Approximation and Online Algorithms (WAOA), 307-319, 2005. Invited to special issue of *Theory of Computing Systems* of selected papers from the conference.

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- M. Aly, N. Morsillo, P. Chrysanthis, and K. Pruhs, “Zone Sharing: A Hot-Spots Decomposition Scheme for Data-Centric Storage in Sensor Networks”, International VLDB Workshop on Data Management for Sensor Networks (DMSN), 2005.
- N. Bansal, T. Kimbrel, and K. Pruhs, “Dynamic speed scaling to manage energy and temperature”, IEEE Symposium on Foundations of Computer Science (FOCS), 520-529, 2004.
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- N. Bansal, and K. Pruhs, “Server scheduling in the weighted l_p norm”, Latin American Theoretical Informatics (LATIN), 2004.
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- J. Beaver, N. Morsillo, K. Pruhs, P. Chrysanthis, and V. Liberatore, “Scalable dissemination: What’s hot and what’s not”, Workshop on the Web and Databases (WebDB), 2004.
- N. Bansal and K. Pruhs, “Server scheduling in the L_p norm: A rising tide lifts all boats”, ACM Symposium on Theory of Computing (STOC), 2003.
- J. Beaver, W. Li, V. Penkrot, S. Roychowdhury, M. Sharaf, W. Zhang, P. Chrysanthis, K. Pruhs, and V. Liberatore, “An optimized multicast based data dissemination middleware: a demonstration”, IEEE International Conference on Data Engineering (ICDE) 2003.
- P. Chrysanthis, K. Pruhs, and V. Liberatore, “Middleware support for multicast-based data dissemination: a working reality”, IEEE Workshop on Reliable Dependable Systems (WORDS), 2003.
- L. Becchetti, S. Leonardi, A. Marchetti-Spaccamella, and K. Pruhs, “Semi-Clairvoyant Scheduling”, European Symposium on Algorithms (ESA), 2003.
- K. Pruhs and P. Uthaisombut “A comparison of multicast pull models”, European Symposium on Algorithms (ESA), 2002.
- E. Wiewiora and K. Pruhs “Evaluating the Local Ratio Algorithm for Dynamic Storage Allocation”, Workshop on Algorithms Engineering and Experiments (ALENEX), 2002.

- J. Edmonds, and K. Pruhs “Broadcast scheduling: when fairness is fine”, *ACM/SIAM Symposium on Discrete Algorithms (SODA)*, 2002.
- A. Berfield, B. Simmons, P. Chrysanthis, and K. Pruhs “Better client OFF time predictions using machine learning techniques”, *International Workshop on Web and Data Management (WIDM)*, 2001.
- Luca Becchetti, Stefano Leonardi, Alberto Marchetti–Spaccamela, Kirk Pruhs, “Online weighted flow time and deadline scheduling”, *Workshop on Approximation Algorithms for Combinatorial Optimization Problems (APPROX)*, 2001.
- B. Kalyanasundaram, K. Pruhs, and M. Velauthapillai, “Scheduling broadcasts in wireless networks”, *European Symposium on Algorithms (ESA)*, 2000. Invited to submit to a special issue of *Journal of Scheduling* devoted to selected papers from ESA 2000.
- B. Kalyanasundaram, J. Noga, K. Pruhs and G. Woeginger, “Caching for web searching”, *Scandinavian Workshop on Algorithms and Theory (SWAT)*, 2000. Invited to submit to a special issue of *Nordic Journal of Computing* devoted to selected papers from SWAT 2000.
- B. Kalyanasundaram, and K. Pruhs, “Dynamic spectrum allocation: the impotency of duration notification”, *Conference on Foundations of Software Technology and Theoretical Computer Science (FSTTCS)*, 2000.
- B. Kalyanasundaram, and K. Pruhs, “Eliminating migration in multi-processor scheduling”, *ACM/SIAM Symposium on Discrete Algorithms (SODA)*, 1999. Invited to appear in a special issue of *Journal of Algorithms* devoted to selected papers from the 1999 SODA.
- B. Kalyanasundaram, and K. Pruhs, “Maximizing job completions online”, *European Symposium on Algorithms (ESA)*, 1998. Invited to appear in a special issue of *Journal of Algorithms* devoted to selected papers from the 1998 ESA.
- B. Kalyanasundaram, and K. Pruhs, “Minimizing flow time nonclairvoyantly”, *IEEE Symposium on Foundations of Computer Science (FOCS)*, 1997.
- B. Kalyanasundaram, and K. Pruhs, “Fault-tolerant real-time scheduling”, *European Symposium on Algorithms (ESA)*, 1997. Invited to appear in a special issue of *Algorithmica* devoted to selected papers from the 1997 ESA.
- B. Kalyanasundaram, and K. Pruhs, “An optimal deterministic algorithm for online b-matching”, *Conference on Foundations of Software Technology and Theoretical Computer Science (FSTTCS)*, 1996.
- B. Kalyanasundaram, and K. Pruhs, “Speed is as powerful as clairvoyance”, *IEEE Symposium on Foundations of Computer Science (FOCS)*, 1995.
- B. Kalyanasundaram, and K. Pruhs, “The online transportation problem”, *European Symposium on Algorithms (ESA)*, 1995.
- B. Kalyanasundaram, and K. Pruhs, “Fault-tolerant scheduling”, *ACM Symposium on Theory of Computing (STOC)*, 1994.
- Y. Azar, B. Kalyanasundaram, S. Plotkin, K. Pruhs, and O. Waarts, “Online load balancing of temporary tasks”, *Workshop on Algorithms and Data Structures (WADS)*, 1993.

- B. Kalyanasundaram, and K. Pruhs, “Constructing competitive tours from local information”, *EATCS International Colloquium on Automata, Languages, and Programming (ICALP)*, 1993. Invited to submit to a special issue of the *Nordic Journal of Computing* devoted to selected papers from ICALP 1993.
- B. Kalyanasundaram, and K. Pruhs, “A competitive analysis of algorithms for searching unknown scenes”, *Symposium on Theoretical Aspects of Computer Science (STACS)*, 1992.
- B. Kalyanasundaram, and K. Pruhs, “Online weighted matching”, *ACM/SIAM Symposium on Discrete Algorithms (SODA)*, 1991.
- K. Pruhs, and U. Manber, “The complexity of controlled selection,” *EATCS International Colloquium on Automata Languages and Programming (ICALP)*, 1989.
- K. Pruhs, “The computational complexity of some rounding and survey overlap problems,” *Meeting of the Survey Research Methods Section of the American Statistical Association*, 1989.

SELECTED OTHER PUBLICATIONS

- Kirk Pruhs, “Green Computing Algorithmics”, *Computing and Software Science*, 161-183, 2019.
- Sungjin Im, Benjamin Moseley, Kirk Pruhs, “ A tutorial on amortized local competitiveness in online scheduling”, *SIGACT News*, **42**(2), 83-97, 2011.
- Kirk Pruhs, “ Review of Algorithmic Game Theory (Editors: Noam Nisan, Tim Roughgarden, Eva Tardos and Vijay Vazirani)”, *Operations Research Letters*, **36**(5), page 656, 2008.
- Luca Becchetti, Stefano Leonardi, Alberto Marchetti-Spaccamela, Kirk Pruhs: Flow Time Minimization. *Encyclopedia of Algorithms*, 2008.
- Kirk Pruhs: Speed Scaling. *Encyclopedia of Algorithms*, 2008.
- K. Pruhs, “Competitive online scheduling for server systems”, *SIGMETRICS Performance Evaluation Review*, **34**(4), 52-58, 2007.
- Sandy Irani, Kirk Pruhs, “Algorithmic problems in power management”, *SIGACT News* **36**(2), 63-76, 2005.
- K. Pruhs, J. Sgall, and E. Torng, “Online Scheduling”, *Handbook of Scheduling: Algorithms, Models and Performance Analysis*, editor J. Leung, 2004.
- P. Chrysanthis, V. Liberatore, and K. Pruhs, “Middleware for scalable data dissemination”, *Middleware for Communications*, editor Q. H. Mahmoud, 2004.
- K. Pruhs and B. Kalyanasundaram, “Online network optimization problems”, *Online Algorithms: The State of the Art*, Editors: Amos Fiat and Gerhard Woeginger, Springer-Verlag, 1998.
- K. Pruhs, “How to design dynamic programming algorithms sans recursion”, *SIGACT News*, **29**(1), 32 - 35, March 1998.

- K. Pruhs, T. Znati, and R. Melhem, “Dynamic mapping of adaptive computations onto linear arrays”, *Unstructured Scientific Computations on Scalable Multiprocessors*, Editors: P. Mehrotra, J. Saltz, and R. Voigt, MIT Press, 1991.
- B. Kalyanasundaram, and K. Pruhs, “On-line weighted matching”, *On-Line Algorithms*, Editors: L. McGeoch, and D. Sleator, ACM/AMS, 1991.
- B. Kalyanasundaram and K. Pruhs, “Visual searching and mapping”, *On-Line Algorithms*, Editors: L. McGeoch, and D. Sleator, ACM/AMS, 1991.
- K. Pruhs, “The SPIN-OUT Puzzle”, *Bulletin of the ACM Special Interest Group on Computer Science Education*, **25**(3), 36 – 38, 1993.

FUNDING

- “AF:Small: Algorithmic Management of Heterogeneous Resources”, National Science Foundation award number CCF-1907673 from the Algorithmic Foundations program, October 2018 to October 2021, \$239,000. Solo grant.
- “AitF: EXPL: Data Management in Domain Wall Memory-based Scratchpad for High Performance Mobile Devices” National Science Foundation award number CCF-1535755 from the Algorithmic Foundations program, August 2015 to August 2018, \$400,000. Joint with Youtao Zhang.
- “AF: Small: Algorithmic Energy Management in New Information Technologies”, NSF award number CCF1421508 from the Algorithmic Foundations program, June 2014 to June 2017, \$400,000. Solo grant.
- “EAGER: A Framework for joint optimization of power management and performance in virtualized, heterogeneous cloud computing environments”, National Science Foundation award number CNS-1253218, August 2012 to August 2014, \$188,000. Joint with Taieb Znati.
- “AF: Small: Green Computing Algorithmics”, National Science Foundation Award Number CCF-1115575 from Algorithmic Foundations Program, September 2011 to September 2014, \$350,000. Solo grant.
- “Science of Power Management”, National Science Foundation award CNS-0936386 from Computer and Network Systems division, April 2009 to March 2011, \$70,000. To support an NSF visioning workshop.
- “Algorithmic Support for Power Management” National Science Foundation award CCF-0830558 from Algorithmic Foundations Program, August 2008 to August 2011, \$300,000. Solo grant.
- “Algorithms and Metrics for New Generation Data Stream Management Systems”, National Science Foundation award IIS-0534531 from Data Management Systems Program, September 2006 to September 2009, \$516,000. Joint with Panos Chrysanthis and Alex Labrinidis.
- “Algorithmic support for power aware computing and communication”, National Science Foundation award CCF-0514058 from the Computer and Communication Foundations Program July 2005 to July 2008, \$150,000. Solo grant.

- “Algorithmic support for temperature aware computing and networking”, National Science Foundation award CCF-0448196 from the Computer and Communication Foundations Program. August 2004 to August 2005, \$100,000. Solo grant.
- “ITR: Secure CITI: A Secure Critical Information Technology Infrastructure for Disaster Management”, National Science Foundation award CNS- 0325353 from the ITR medium program, September 2003 to September 2008, \$2,806,000. Joint with 8 other faculty.
- “Middleware support for multicast data dissemination”, National Science Foundation award ANIR-0123705 from the Network Centric Middleware Services Program, October 2001 to October 2004, \$555,000. Joint with Panos Chrysanthis.
- “Dynamic spectrum allocation algorithms”, United States Air Force, October 2001 to October 2002, \$100,000. Joint with Bala Kalyanasundaram.
- “Algorithmic problems in next generation networks”, National Science Foundation award CCR-0098752 from the Theory of Computing Program, July 2001 to July 2004, \$240,000. Solo grant.
- “Dynamic storage allocation”, United States Air Force, December 1999 to December 2000, \$100,000. Joint with Bala Kalyanasundaram.
- “Scheduling protocols for networked multi-media applications”, National Science Foundation award CCR-9734927 from the Theory of Computing Program, June 1998 to June 2001. \$206,000. Joint with Bala Kalyanasundaram.
- “Online network optimization”, National Science Foundation Research Initiation Award CCR-9209283 from the Theory of Computing Program, June 1992 to June 1995, \$72,000. Solo grant.

EDUCATIONAL GRANTS AND AWARDS

- Several “student choice” teaching awards for graduate algorithms.
- Innovation in Teaching Award from the University of Pittsburgh Advisory Council on Instructional Excellence, 2000.
- Several NSF Research Experiences for Undergraduates (REU) Supplements.

POST-DOCS SUPERVISED

- Ilan Cohen, 2017. Next position: post-doc at Eindhoven University.
- Peter Kling, 2014. Next position: post-doc at Simon Fraser University.
- Michele Scquizzato, 2014. Next position: post-doc at University of Houston.
- Antonios Antoniadis, 2013. Next position: post-doc at Max Planck Institute in Saarbrucken.
- Ho-Leung Chan, 2007-2008. Next position: Assistant professor University of Hong Kong

Ph.D. STUDENTS SUPERVISED

- Max Bender. Expected graduation May 2021.
- Alireza Samadian. Expected graduation May 2021
- Neal Barcelo, graduated 2016. First position: McKinsey Consulting.
- Michael Nugent, graduated 2016. First position: Local Industry.
- Daniel Cole, graduated 2013. First position: Local Industry.
- Christine Chung, graduated 2009. First position: Jean C. Tempel Assistant Professor of Computer Science at Connecticut College.
- Mohamed Aly, graduated 2009. (Co-supervised with Panos Chrysanthis). First position: Yahoo Research.
- Jonathan Beaver, graduated 2005. (Co-supervised with Panos Chrysanthis). First position: Local Industry.

PROFESSIONAL ACTIVITIES

- Associate Editor:
 - *ACM Transactions on Algorithms*, 2007-2016.
 - *INFORMS Journal of Computing*.
 - *Journal of Scheduling*.
 - *Encyclopedia of Algorithms*, first edition.
 - *Sustainable Computing: Informatics and Systems*, 2011-2013.
- Selected Program Committees
 - ACM/SIAM Symposium on Discrete Algorithms (SODA): 2001, 2005, 2010, 2013.
 - Conference on Algorithm Engineering and Experience (ALENEX): 2015
 - European Symposium on Algorithms (ESA): 2005, 2007, 2014, 2017.
 - Symposium on Parallelism in Algorithms and Architectures (SPAA): 2009, 2016, 2019.
 - International Conference on Green Computing (IGCC): 2010, 2011, 2012, 2013, 2014, 2016, 2017, 2018.
 - Workshop on Approximation and Online Algorithms (WAOA): 2005, 2007, 2012, 2013, 2020.
 - International Symposium on Algorithms and Computation (ISAAC): 2020.
- Guest Editor:
 - Special issue of *Theory of Computing Systems* devoted to selected papers from the 2013 Workshop on Approximation and Online Algorithms.
 - Special issue of *Journal of Scheduling* devoted to selected papers from the 2007 Workshop on Models and Algorithms for Planning and Scheduling.
 - Special issue of *Journal of Scheduling* devoted to selected papers from the 2002 ACM/SIAM Symposium on Discrete Algorithms (SODA).

- Special issue of *Journal of Scheduling* devoted to selected papers from the 2001 Phillips Workshop on Scheduling and Resource Management (SCHARM)
 - Two special issues of *Journal of Scheduling* devoted to online scheduling
 - Special issue of *Journal of Algorithms* devoted selected papers from the 2001 ACM/SIAM Symposium on Discrete Algorithms (SODA)
 - Special issue of *Journal of Scheduling* devoted to papers from the 1999 Phillips Workshop on Scheduling and Resource Management (SCHARM)
- Program Committee Chair:
 - 2017 European Symposium on Algorithms (ESA), track B on algorithms engineering and applications.
 - 2013 Workshop on Approximation and Online Algorithms (WAOA), with Christos Kalamanis.
 - 2007 Workshop on Models and Algorithms for Planning and Scheduling Problems (MAPSP)
- Organizer:
 - 2013 Dagstuhl Seminar on Scheduling, with Susanne Albers and Onno Boxma.
 - 2012 Symposium on Theory of Computing (STOC) Workshop on Computational Sustainability, with David Shmoys and Steven Phillips.
 - 2010 Dagstuhl Seminar on Scheduling, with Rolf Mohring and Sanjoy Baruah.
 - 2010 Second NSF Workshop on the Science of Power Management, with Cliff Stein.
 - 2009 NSF Workshop on the Science of Power Management, with Kirk Cameron.
 - 2008 Dagstuhl Workshop on Scheduling, with Rolf Mohring and Jane Liu.
 - 2007 Dagstuhl Workshop on Fair Division, with Steven Brams and Gerhard Woeginger.
 - 2006 Cluster on Online Optimization at International Symposium on Mathematical Programming (ISMP)
 - 2004 Bertinoro Workshop on Models and Algorithms for Information Networks, with Stefano Leonardi.
- Invited Speaker Gigs:
 - 2017 Workshop on Approximation and Online Algorithms
 - 2017 Networks Scientific Conference.
 - 2017 Workshop on Approximation and Online Algorithms (WAOA).
 - 2015 Scheduling Under Uncertainty Workshop.
 - 2015 Max Planck Advanced Course on the Foundations of Computer Science (ADFOCS).
 - 2012 Latin American Symposium on Theoretical Informatics (LATIN).
 - 2011 International Conference on Theory and Practice of Algorithms in (Computer) Systems (TAPAS).
 - 2011 IEEE Symposium on Foundations of Computer Science (FOCS).
 - 2009 Inaugural Workshop for the Microsoft-CNRS Chair on Optimization and Sustainable Development at Ecole Polytechnique in Paris.

- 2006 New Horizons in Computing School on Discrete Algorithms in Japan.
 - 2004 Conference on the Mathematics of Operations Research in the Netherlands.
- Steering Committees:
 - European Symposium on Algorithms (2017 - 2020).
 - Latin American Symposium on Theoretical Informatics (2016 - 2020).
 - Workshop on Models and Algorithms for Planning and Scheduling Problems (Chair).
- Referee: Many journals and conferences
- Panel Member: Many NSF Panels, primarily in Algorithmic Foundations.
- Chair of undergraduate program committee in the Computer Science Department since 1995.
- Director of the undergraduate program in Bioinformatics (2007 - 2020).