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Publications

» 2010

- K. Kempf, "Winning the INFORMS Prize", accepted INTERFACES
- B. Wieland, P. Mastrantonio, S. P. Willems, and K. G. Kempf, "Optimizing Inventory Levels within Intel's Channel Supply Demand Operations", accepted INTERFACES
- K. Kempf, S.D. Wu, S. Shirodkar, A. Mishra, M. Atan, and B. Aytac, "Extending Bass for Improved Forecasting at Intel", accepted INTERFACES

» 2009

- S. Orcun, R. Uzsoy, and K. Kempf, "An Integrated Production Planning Model with Load-Dependent Lead Times and Safety Stocks", Computers & Chemical Engineering, Vol 33, 2159-2163 (2009)
- J. L. Higle and K. G. Kempf, "Production Planning under Supply and Demand Uncertainty: A Stochastic Programming Approach", to appear in Stochastic Programming: The State of the Art 2009, ed. G. Infanger, Springer-Verlag, Berlin
- D. Huang, H. Sarjoughian, W. Wang, G. Godding, D. Rivera, K. Kempf, and H. Mittelmann, "Simulation of Semiconductor Manufacturing Supply-Chain Systems with DEVS, MPC, and KIB", IEEE Trans. Semiconductor Manufacturing, VOL 22:NO 1, p. 164-174, 2009.

» 2008

- S. Orcun, R. Uzsoy and K. G. Kempf, "An Integrated Production Planning Model with Load-Dependent Lead Times and Safety Stocks", Foundations of Computer-Aided Process Operations FOCAPO (Cambridge, MA), p. 513-516, 2008.
- K. G. Kempf, "Complexity and the Enterprise: The Illusion of Control", in Managing Complexity: Insights, Concepts, Applications, ed. D. Helbing, Springer-Verlag, Berlin, p. 57-90, 2008.

» 2007

- G. Godding, H. Sarjoughian, and K. Kempf, "Application of Combined Discrete-Event Simulation and Optimization Models In Semiconductor Enterprise Manufacturing Systems", Proc. IEEE Winter Simulation Conf. (Washington DC), p. 1729-1736, 2007.
- D. Perdaen, D. Armbruster, K. Kempf, and E. Lefeber, "Controlling a Re-entrant Manufacturing Line via the Push-Pull Point", Inter. J. Prod. Res. 46:16, p. 4521-4536, 2007.

- Zafra-Cabeza, M. A. Riado, E. F. Camacho, K. G. Kempf, and D. E. Rivera, "Managing Risk in Semiconductor Manufacturing: A Stochastic Predictive Control Approach", *Control Engineering Practice* V15, N8, p. 969-984, 2007.
 - W. Wang, D. E. Rivera, and K. G. Kempf, "Model Predictive Control Strategies for Supply Chain Management in Semiconductor Manufacturing", *Inter. J. Production Economics* V107, p. 56-77, 2007.
- » 2006
- D. Huang, H. S. Sarjoughian, G. W. Godding, D. E. Rivera, and K. G. Kempf, "Flexible Experimentation and Analysis for Hybrid DEVS and MPC Models", *Proc. IEEE Winter Simulation Conf. (Monterey, CA)*, p. 1863-1870, 2006. C:1,D:22
 - S. Orcun, R. Uzsoy, and K. G. Kempf, "Using System Dynamics Simulation to Compare Capacity Models for Production Planning", *Proc. IEEE Winter Simulation Conf. (Monterey, CA)*, p. 1855-1862, 2006. C:1,D:89
 - D. Armbruster, D. Marthaler, C. Ringhofer, K. Kempf, and T. C. Jo, "A Continuum Model for a Re-entrant Factory", *Operations Research* 54:5 933-950, 2006.
 - S. Shirodkar and K. Kempf, "Supply Chain Collaboration through Shared Capacity Models", *Interfaces* 36:5, p 420-432, 2006.
 - K. G. Kempf, "Complexity and the Enterprise", *Proc. Inter. Conf. Potentials of Complexity Science (Collegium Budapest)*, p. 248-256, 2006.
- » 2005
- H. Sarjoughian, D. Huang, W. Wang, D. Rivera, K. Kempf, and G. Godding, "Hybrid Discrete Event Simulation with Model Predictive Control for Semiconductor Supply Chain Management," *Proc. IEEE Winter Simulation Conf. (Orlando)*, p.255-266, 2005. C:3,D:73
 - K. G. Kempf, "Managing Supply-Demand Networks in Semiconductor Manufacturing", in *Networks of Interacting Machines*, ed. D. Armbruster, K. Kaneko, and A. Mikhailov, World Scientific Co., Singapore, p. 67-100, 2005.
 - J. D. Schwartz, D. E. Rivera, and K. G. Kempf, "Optimal Operation of Semiconductor Manufacturing Supply Chains under Uncertainty using Simulation-Based Optimization", *Proc. Annual AIChE Meeting (Cincinnati, OH)*, paper 477c, 2005.
 - K. Smith and K. G. Kempf, "Application of Model Predictive Control and Optimization Methods to Semiconductor Manufacturing Supply-Side Inventory Replenishment", *Proc. IEEE Inter. Symp. on Semiconductor Mfg. (San Jose, CA)*, p. 35-38, 2005
 - W. Wang, D. E. Rivera, and K. G. Kempf, "An Improved Model Predictive Control Algorithm for Supply Chain Management", *Proc. American Control Conference (Portland, OR)*, p. 208-213, 2005.

- J. D. Schwartz, D. E. Rivera, and K. G. Kempf, "Towards Control-Relevant Forecasting in Supply Chain Management", Proc. American Control Conference (Portland, OR), p. 202-207, 2005.
- » 2004
 - G. W. Godding, H. S. Sarjoughian, and K. G. Kempf, "A Multi-Formalism Modeling Approach for Semiconductor Supply/Demand Networks", accepted for Proc. IEEE 2004 Winter Simulation Conference (Washington D.C), p. tbd, 2004.
 - M. Bachicha, K. G. Kempf, and E. Yamada, "Capacity Assessment Charts: Proactively Identifying and Managing Near-term Factory Constraints", Proc. IEEE 13th Inter. Symp. Semiconductor Mfg. (Tokyo), p. 121-124, 2004.
 - W. Wang, D. E. Rivera, and K. G. Kempf, "A Novel Model Predictive Control Strategy for Tactical Decision-Making in Semiconductor Supply Chain Management", accepted for Proc. 2004 AIChE Annual Meeting (Austin, TX), p. tbd, 2004.
 - K. D. Smith and K. Kempf, "Enabling Real-Time Agility in Manufacturing Execution Systems," e-Proc. Intel Mfg Excellence Conf.-04 (San Diego), index 2105, 2004.
 - 107) S. Shirodkar, W. Pruchnic, L. Deyer, and K. G. Kempf, "Using Mathematical Optimization to Minimize IA Substrate Costs," e-Proc. Intel Mfg Excellence Conf.-04 (San Diego), index 1857, 2004.
 - J. Bean and K. G. Kempf, "Optimizing the FSM Reset Process," e-Proc. Intel Mfg Excellence Conf.-04 (San Diego), index 1359, 2004.
 - K. Kempf, "Control-Oriented Approaches to Supply Chain Management in Semiconductor Manufacturing," Procs. 2004 American Control Conference, Boston, June 20 – July 2, 2004, pgs. 4563-4576.
 - W. Wang, D.E. Rivera, K.G. Kempf, and K.D. Smith, "A Model Predictive Control Strategy for Supply Chain Management in Semiconductor Manufacturing under Uncertainty," Proc., Procs. 2004 American Control Conference, Boston, June 20 - July 2, 2004, pgs. 4577-4582.
- » 2003
 - W. Wang, J. Ryu, D.E. Rivera, K.G. Kempf, and K.D. Smith "A Model Predictive Control Approach for Managing Semiconductor Manufacturing Supply Chains under Uncertainty," e-Proc. AIChE Annual Meeting (San Francisco), Paper 446d, 2003.
 - M. W. Braun, D. E. Rivera, M. E. Flores. W. M. Carlyle, and K. G. Kempf, "A Model Predictive Control Framework for Robust Management of Multi-Product Multi-Echelon Demand Networks", Annual Reviews in Control, Special Issue on Enterprise Integration and Networking, Vol. 27, Issue 2, p. 229-245, 2003. (derived from #83)
 - M. W. Braun, D.E. Rivera, W.M. Carlyle, and K.G. Kempf, "Application of Model Predictive Control to Robust Management of Multi-Echelon Demand

Networks in Semiconductor Manufacturing," Simulation: Transactions of the Society for Modeling and Simulation International, Vol. 79, No. 3, p.139-156, March 2003. (derived from #90)

- G. W. Godding, H. S. Sarjoughian, and K. G. Kempf, "Semiconductor Supply Network Simulation", Proc. IEEE Winter Simulation Conf. (New Orleans), pp. 1593-1601, 2003.
- F. D. Vargas-Villamil, D.E. Rivera, and K.G. Kempf, "A Hierarchical Approach to Production Control of Reentrant Semiconductor Manufacturing Lines," IEEE Transactions on Control Systems Technology, Vol. 11, No. 4, pp. 578-87, July 2003.
- W. Wang, D.E. Rivera, and K.G. Kempf, "Centralized Model Predictive Control Strategies for Inventory Management in Semiconductor Manufacturing Supply Chains," 2003 American Control Conference (Denver), p. 585-590, 2003.

» 2002

- J. C. Windish, S. A. Egbert, T. R. Hines, K. G. Kempf, J. E. Napier, and G. J. Ricks, "A Comprehensive Valuation of Through Put Time for Today's Microprocessor Factory", e-Proc. Intel Mfg Excellence Conf.-02 (Anaheim, CA), index 10604, 2002.
- K. D. Smith, K. G. Kempf, J. M. Larson, R. L. Parker, and N. Stuart, "Spares Inventory Modeling Comparison of EOQ, DROP and RSM Methods", e-Proc. Intel Mfg Excellence Conf.-02 (Anaheim, CA), index 13174 , 2002.
- R. Dietz, J. W. Bean, R. Rosen, and K. G. Kempf, "Using Linear Programming to Improve Cost and Efficiency in Intel's Supply Chain", e-Proc. Intel Mfg Excellence Conf.-02 (Anaheim, CA), index 11258, 2002.
- V. Vaidyanathan, D. A. Fox, B. B. Haney, K. G. Kempf, and J. L. Talerico, "Nikon Capacity Options: An Innovative Way to Manage Litho Capacity", e-Proc. Intel Mfg Excellence Conf.-02 (Anaheim, CA), index 12280, 2002.
- K. G. Kempf, "Data-Driven Continuous Improvement of Decision Knowledge", e-Proc. Intel Mfg Excellence Conf.-02 (Anaheim, CA), index 13792, 2002.
- W. Arnold, S. L. Kelly, K. G. Kempf, and R. L. Parker, "Using Expected Net Present Value to Plan ATM Buffer Capacity", e-Proc. Intel Mfg Excellence Conf.-02 (Anaheim, CA), index 11742, 2002.
- M. W. Braun, D.E. Rivera, W. M. Carlyle, and K. G. Kempf, "A Model Predictive Control Framework for Robust Management of Multi-Product, Multi-Echelon Demand Networks," Proc. 15th IFAC World Congress (Barcelona), CD:paper T-Mo-A16, 2002.
- M. W. Braun, D.E. Rivera, W. M. Carlyle, and K. G. Kempf , "Application of Model Predictive Control to Robust Management Of Multi-Product, Multi-Echelon Demand Networks in Semiconductor Manufacturing," Proc. Inter. Conf. on Modeling and Analysis of Semiconductor Mfg. (Tempe, AZ), p. 387-392, 2002.

- H. Aytug, K. G. Kempf, and R.Uzsoy, "Measures of Subproblem Criticality in Decomposition Algorithms for Job Shop Scheduling", *Inter. J. of Production Research*, Vol. 41, No. 5, p. 865-882, 2002. Also H. Aytug, K. G. Kempf, and R.Uzsoy, "Measures of Criticality for Decomposition Algorithms in Scheduling", *Research Memorandum*, Department of Industrial Engineering, Purdue University, 2000.
 - M. W. Braun, D. E. Rivera, W. M. Carlyle, and K. G. Kempf, "A Model Predictive Control Framework for Robust Management of Multi-Product, Multi-Echelon Demand Networks", *Proc. NSF Design, Service, and Mfg. Conf. (San Juan, Puerto Rico)*, p. 2199-2213, 2002.
- » 2001
- K. Knutson, J. Fowler, K. G. Kempf, and B. Duarte, "Modeling and analysis of material flows in complex supply networks", *Proc. IV SIMPOI/POMS (Sao Paulo)*, p. 1123-1131, 2001.
 - L. Ellram, K. G. Kempf, T. Callarman, and C. Arnold, "Modeling and analysis of financial flows in complex supply networks", *Proc. IV SIMPOI/POMS (Sao Paulo)*, p. 1115-1122, 2001.
 - Armbruster, R. Chidambaram, G. W. Godding, K. G. Kempf, and I. Katzorke, "Modeling and analysis of decision flows in complex supply networks", *Proc. IV SIMPOI/POMS (Sao Paulo)*, p. 1106-1114, 2001.
 - G. W. Godding and K. G. Kempf, "A modular, scalable approach to modeling and analysis of semiconductor manufacturing supply chains", *Proc. IV SIMPOI/POMS (Sao Paulo)*, p. 1000-1007, 2001.
 - M. W. Braun, D.E. Rivera, W. M. Carlyle, and K. G. Kempf, "Robust management of multi-product, multi-echelon demand networks using Model Predictive Control," *e-Proc. 2001 AIChE Annual Meeting (Reno)*, Paper 285e, 2001.
 - K. Kempf, K. Knutson, J. Fowler, B. Armbruster, P. Babu, and B. Duarte, "Fast Accurate Simulation of Physical Flows in Demand Networks", *Proc. Semiconductor Manufacturing Operational Modeling and Simulation Symposium (Seattle)*, p. 111-116, 2001.
- » 2000
- M. Capelle, G. Brown, D. Fanger, K. Kempf, and D. Lewis, "Increasing Agility Using Business Environment Scenario Planning", *e-Proc. Intel Mfg Excellence Conf.-00 (San Diego)*, index 72, 2000.
 - Parker and K. Kempf, "Faster, Cheaper, Lower Risk Ramps: Applying ToC to Factory Ramps", *e-Proc. Intel Mfg Excellence Conf.-00 (San Diego)*, index 152, 2000.
 - V. Capili, D. Banez, G. Lim, H. Lim, N. Keng, and K. Kempf, "Simulation Improves Assembly and Test Line Item Management and Agility", *e-Proc. Intel Mfg Excellence Conf.-00 (San Diego)*, index 15, 2000.

- K. Kempf, J. Lewis, and T. Fentress, "Achieving Improved Delivery Performance Using Critical Ratio", e-Proc. Intel Mfg Excellence Conf.-00 (San Diego), index 19, 2000.
 - J. Tumlinson, E. Kopel, and K. Kempf, "Automated Fab Scheduler Improves Execution Consistency", e-Proc. Intel Mfg Excellence Conf.-00 (San Diego), index 22, 2000.
 - S. Shirodkar, C. Arnold, K. Kempf, and J. Fowler, "Modeling and Simulating Supply Chains for Increased Performance and Profitability", Proc. Inter. Conf. Modeling and Analysis of Semiconductor Manufacturing (Tempe, AZ), p. 346-352, 2000.
 - K. Kempf, R. Uzsoy, S. Smith, and K. Gary, "Evaluation and Comparison of Production Schedules", Computers in Industry, Vol. 42, p. 203-220, 2000. also K. Kempf, R. Uzsoy, S. Smith, and K. Gary, "Evaluation and Comparison of Production Schedules", Research Memorandum #93-14, Department of Industrial Engineering, Purdue University, 1993.
 - H. Aytug, K. Kempf, and R. Uzsoy, "Integrating Machine Learning and Decomposition Heuristics for Complex Factory Scheduling Problems", Proc. NSF Design and Mfg. Conf. (Vancouver), 2000.
- » 1999
- Allen, A. Kalir, E. Harding, and K. Kempf, "Joint Protective Capacity: Methodology, Sensitivity Analyses, and Implementation for P856/8 Factories", Proc. Intel Mfg Excellence Conf.-99 (San Diego), p. 377-383, 1999.
 - M. O'Brien, W. Campbell, and K. Kempf, "Improving Manufacturing Simulation by Modeling Technician Decision Processes", Proc. ASI 5th Simulation Users Conference (Salt Lake City), 1999.
 - K. Knutson, K. Kempf, J. Fowler, and M. Carlyle, "Lot-to-Order Matching for a Semiconductor Assembly & Test Facility", IIE Trans. Scheduling and Logistics, Vol. 31, No. 11, p. 1103-1111, 1999.
- » 1998
- K. Kempf, "Optimizing Performance over the Factory Life-Cycle", Intel Tech. Jour., Winter 98, 1998.
 - K. Gray and K. Kempf, "Increasing Output and Decreasing TPT Through Focused Continuous Improvement", Proc. Intel Mfg Excellence Conf.-98 (San Diego), 1998.
 - M. Carson, S. Cunningham, K. Kempf, E. McBride, M. Mitlehner, and M. Swihart, "Joint Protective Capacity: A Novel Planning Metric and Methodology", Proc. Intel Mfg Excellence Conf.-98 (San Diego), 1998.
 - N. Keng, K. Kempf, and M. O'Brien, "Simulation Improves Factory Performance", Proc. ASI 4th Simulation Users Conference (Salt Lake City), 1998.

- K. Kempf, R. Uzsoy, and C. Wang, "Scheduling a Single Batch Processing Machine with Secondary Resource Constraints", *J. Mfg. Sys.*, Vol. 17, No. 1, p. 37-51, 1998.
- » 1997
 - B. Rodgers, B. Schofield, D. Danielson, B. Verwer, and K. Kempf, "A WIP Management Policy to Maximize Fab Velocity", *Proc. Intel Mfg Excellence Conf.-97 (San Diego)*, p. 589-593, 1997.
 - McBride and K. Kempf, "Metering Fab Starts by Application of Control Charts", *Proc. Intel Mfg Excellence Conf.-97 (San Diego)*, p. 325-330, 1997.
 - C. Geiger, K. Kempf, and R. Uzsoy, "A Tabu Search Approach to Scheduling an Automated Wet Etch Station", *J. Mfg. Sys.*, Vol. 16, No. 2, p. 102-116, 1997.
- » 1996
 - C. Hilton, G. Mazenko, L. Solomon, and K. Kempf, "Assembly Floor Layout and Operation: Quantifying the Differences", *Proc. IEEE 5th Inter. Symp. Semiconductor Mfg. (Tokyo)*, paper IV-3, 1996.
 - K. Kempf, "Simulating Semiconductor Manufacturing Systems: Successes, Failures, and Deep Questions", *Proc. IEEE Winter Simulation Conference (San Diego)*, p. 3-11, 1996. (also presented at the AutoSimulation Simulation and Scheduling Symposium (Salt Lake City), 1998.)
 - B. Sohn and K. Kempf, "Manufacturing Execution Policies — Past, Present, Future", *Proc. Intel Mfg Excellence Conf.-96 (San Diego)*, p. 537-543, 1996.
 - C. Hilton, G. Mazenko, L. Solomon, and K. Kempf, "Manufacturing Floor Layout - Quantifying the Differences Between Our Assembly Sites", *Proc. Intel Mfg Excellence Conf.-96 (San Diego)*, p. 195-199, 1996.
- » 1995
 - Nadoli, J. Philbin, S. Smith, and K. Kempf, "The Concepts of Constraint Management Applied to Equipment Maintenance", *Proc. Intel Mfg Excellence Conf.-95 (San Diego)*, p. 317-323, 1995.
 - J. Spier and K. Kempf, "Simulation of Emergent Behavior in Manufacturing Systems", *Proc. 6th SEMI/IEEE Adv. Semicon. Mfg. Conf.(Cambridge, MA)*, p. 90-94, 1995.
 - K. Gary, R. Uzsoy, S. Smith, and K. Kempf, "Measuring the Quality of Manufacturing Schedules", in *Intelligent Scheduling Systems*, ed. W. Scherer and D. Brown, Kluwer Academic Pub., Norwell, MA, p. 129-154, 1995. (derived from #47)
 - N. Srivatsan and K. Kempf, "Effective Modeling of Factory Throughput Times", *Proc. IEEE/CHMT Int. Conf. Elect. Mfg. (Austin)*, p. 377-383, 1995.
- » 1994
 - T. Beaumariage and K. Kempf, "The Nature and Origins of Chaos in Manufacturing Systems", *Proc. 5th SEMI/IEEE Adv. Semicon. Mfg. Conf. (Cambridge, MA)*, p. 169-174, 1994. BEST PAPER AWARD

- Sarkisian and K. Kempf, "The Concepts of Constraint Management Applied to Ramping Process P852 in Fab D2", Proc. Intel Mfg Excellence Conf.-94 (San Diego), p. 61-65, 1994.
- K. Kempf and T. Beaumariage, "Chaotic Behavior in Manufacturing Systems", Proc. AAAI SIGMAN Workshop on Reasoning about the Shop Floor (Seattle), p. 82-96, 1994. (also presented at the 2nd Annual Chaos Conference (Sante Fe), March 1995.)
- » 1993
 - K. Kempf, "Operational Policies in Manufacturing — Concepts and Practices", Intel Tech. Jour., Winter, p. 36-41, 1993.
 - K. Kempf, "Intelligently Scheduling Semiconductor Wafer Fabrication", in Intelligent Scheduling, ed. Zweben and Fox, Morgan Kaufman Pub., San Francisco, p. 517-544, 1993.
 - D. Dierke and K. Kempf, "The Concepts of Constraint Management Applied to Fab 9.1", Proc. Intel Mfg Excellence Conf.-93 (San Diego), p. 327-330, 1993.
 - S. Smith, N. Keng, and K. Kempf, "The Cost of High Priority Lots in Wafer Fabrication", Proc. Intel Mfg Excellence Conf.-93 (San Diego), p. 125-129, 1993.
- » 1992
 - K. Gary, K. Kempf, S. Smith, and R. Uzsoy, "Assessing the Quality of Production Schedules", Proc. of the Intelligent Scheduling Systems Symposium (San Francisco), p. 148-164, November 1992.
 - S. Smith, N. Keng, and K. Kempf, "Exploiting Local Flexibility during Execution of Pre-Computed Schedules", in Artificial Intelligence Applications in Manufacturing, ed. A. Famili, D. S. Nau and S. H. Tong, MIT Press, Cambridge, MA, p. 277-292, 1992. also S. Smith, N. Keng, and K. Kempf, "Exploiting Local Flexibility during Execution of Pre-Computed Schedules", Report CMU-RI-TR-90-13, Robotics Institute, Carnegie Mellon University, 1990.
- » 1991
 - K. Kempf, B. Russell, S. Sidhu, and S. Barrett, "AI-Based Schedulers in Manufacturing Practice", AI Magazine, Vol. 11, No. 5, p. 46-55, 1991.
 - K. Kempf, C. Lapepe, S. Smith, and B. Fox, "Issues in the Design of AI-Based Schedulers", AI Magazine, Vol. 11, No. 5, p. 37-46, 1991.
 - B. Fox and K. Kempf, "Reasoning About Opportunistic Schedules", in Autonomous Robots, ed. Pugh, Taylor, and Taylor, IFS Publications, Bedford (UK), 1991. (derived from #26)
- » 1990
 - Reece and K. Kempf, "Designing a Multi-Agent Meta-Planning Component for Intelligent Production Scheduling", Proc. 2nd AAAI SIGMAN Workshop on Manufacturing Planning (College Park, MD), p. 38-39, 1990.
- » 1989

- K. Kempf, "Intelligent Interfaces for Computer Integrated Manufacturing", Proc. 5th Inter. Conf. on Expert Systems (Hilton Head, SC), p. 269-279, 1989.
 - C. Hilton and K. Kempf, "Training Costs Associated with AI Application in Manufacturing", in Expert Systems in Production and Services II, ed. Bernold and Hillenkamp, Elsevier Scientific, Amsterdam, p. 201-213, 1989. (derived from #29)
 - K. Kempf, "Manufacturing Scheduling - Intelligently Combining Existing Methods", Proc. 1989 Nat. Conf. on Artificial Intelligence Fall Symposium (Stanford), p. 51-55, 1989.
 - K. Kempf, "Facilities Layout as Constraint Satisfaction", Proc. 1989 Nat. Conf. on Artificial Intelligence Fall Symposium (Stanford), p. 46-50, 1989.
 - K. Kempf, "The Concepts of Chaos Applied to Manufacturing Production Scheduling", Proc. AAAI SIGMAN Workshop on Manufacturing Production Scheduling (Detroit), section 4 — paper 2, 1989.
 - K. Kempf, "The (Artificially) Intelligent Scheduling of Semiconductor Wafer Fabrication", SME Electronics Manufacturing, Vol. 4, No. 3, p. 1-3, 1989.
 - G. Meieran and K. Kempf, "Applications of Artificial Intelligence in Factory Management", Proc. IEEE Conf. Elect. Materials Tech. (San Francisco), p. 18-22, 1989.
- » 1988
- K. Kempf, "Practical Applications of Artificial Intelligence in Manufacturing", in Artificial Intelligence in Manufacturing, Assembly, and Robotics, ed. Bunke, R. Oldenbourg Verlag, Munchen, p. 1-26, 1988. (derived from #28)
 - Holman, K. Ho, and K. Kempf, "Artificial Intelligence and Scheduling Semiconductor Wafer Fabrication", Proc. Intel Process Technology Conf. (Portland, OR), p. 135-138, 1988.
 - C. Yu, G. Scott, and K. Kempf, "Artificial Intelligence and Computer Interfaces for Manufacturing Personnel", Proc. Intel Process Technology Conf. (Portland, OR), p. 177-180, 1988.
 - Kempf, "Manufacturing Planning and Scheduling: Where We Are and Where We Need to Be", Proc. 5th IEEE Conf. on Artificial Intelligence Applications (Miami), p. 13-19, 1988.
 - R. Culley and K. Kempf, "Planning Constrained Quantitative Actions", Proc. USA-Japan Symp. on Flexible Automation (Minneapolis), paper 3C/4, 1988.
 - C. Hilton and K. Kempf, "Training Costs Associated with AI Application in Manufacturing", Proc. Expert Systems in Industry and Service (Chicago), paper B/1, 1988.
 - Kempf, "Practical Applications of Artificial Intelligence in Manufacturing", Proc. SGAICO '88: Artificial Intelligence in Manufacturing, Assembly, and Robotics (Berne), p. 1-27, 1988.
- » 1987

- Kempf, "Artificially Intelligent Tools for Manufacturing Process Planners", Proc. Inter. Conf. Expert Systems and the Leading Edge in Production Planning and Control (Charleston), p. 179-212, 1987.
 - B. Fox and K. Kempf, "Reasoning About Opportunistic Schedules", Proc. IEEE Conf. Robotics and Automation (Raleigh), p. 1876-1882, 1987.
 - K. Kempf, "Changing the Nature of CAD/CAM using Artificial Intelligence", Proc. IEEE COMPCON-87 (San Francisco), p. 426-429, 1987.
 - K. Kempf, "Integrating Artificial Intelligence into the CAD/CAM Environment", Proc. IEEE Conf. Sys. Design and Integration (Santa Clara), p. 9/1-9/7, 1987.
 - K. Kempf, "Planning and Scheduling: Is There a Difference?", Proc. NASA Workshop on Space Telerobotics (Pasadena), p. 48-53, 1987.
- » 1986
- B. Fox and K. Kempf, "Opportunistic Scheduling for Robotic Assembly", in Robotics and Industrial Engineering: Selected Readings Vol. 2, ed. E. L. Fisher and O. Z. Maimon, Industrial Engineering and Management Press (IIE), Atlanta, p. 176-185, 1986. (derived from #10)
 - B. Perrin, D. Vaughn, R. Yadrick, P. Holden, and K. Kempf, "Evaluation of Uncertain Inference Models II: Mycin", Proc. 2nd Workshop on Uncertainty in AI (Philadelphia), p. 338-342, 1986.
 - R. Yadrick, B. Perrin, D. Vaughn, P. Holden, and K. Kempf, "Evaluation of Uncertain Inference Models I: Prospector", Proc. 2nd Workshop on Uncertainty in AI (Philadelphia), p. 333-337, 1986.
 - B. Fox and K. Kempf, "Planning, Scheduling, and Uncertainty in the Sequence of Future Events", Proc. 2nd Workshop on Uncertainty in AI (Philadelphia), p. 77-83, 1986.
 - Kilhoffer and K. Kempf, "Designing for Manufacturability in Riveted Joints", Proc. AAAI-86 National Conf. on Artificial Intelligence (Philadelphia), p. 820-825, 1986.
 - R. Culley and K. Kempf, "A Collision Detection Algorithm Based on Velocity and Distance Bounds", Proc. IEEE Inter. Conf. Robotics and Automation (San Francisco), p. 1064-1069, 1986.
- » 1985
- K. Kempf, "Manufacturing and Artificial Intelligence", Robotics, Vol. 1, No. 1, p. 13-26, 1985. (derived from #9)
 - B. Fox and K. Kempf, "Complexity, Uncertainty, and Opportunistic Scheduling", Proc. IEEE Conf. AI Applications (Miami Beach), p. 487-492, 1985.
 - K. Whiting, P. Holden, M. Dwyer, and K. Kempf, "SUBEX: A Focus of Attention Technique for Rule-Based Inference", Proc. IEEE Conf. AI Applications (Miami Beach), p. 215-220, 1985.
 - P. Newman and K. Kempf, "Opportunistic Scheduling for Robotic Machine Tending", Proc. IEEE Conf. AI Applications (Miami Beach), p. 168-175, 1985.

- B. Fox and K. Kempf, "A Representation for Opportunistic Scheduling", Proc. 3rd Inter. Symp. Robotics Research (Gouvieux), p. 111-117, 1985.
- D. Vaughn, B. Perrin, R. Yadrick, P. Holden, and K. Kempf, "An Odds Ratio Based Inference Engine", Proc. IEEE/AAAI Workshop on Uncertainty and Probability in AI (Los Angeles), p. 383-392, 1985.
- B. Fox and K. Kempf, "Opportunistic Scheduling for Robotic Assembly", Proc. IEEE Inter. Conf. Robotics and Automation (St. Louis), p. 880-889, 1985.
- » 1984
 - K. Kempf, "Manufacturing and Artificial Intelligence". Proc. Artificial Intelligence: Towards Practical Application (Zurich), p. 1-17, 1984.
- » 1983
 - K. Kempf and A. Ambler, "An Experimental Comparison of Symbolic and Graphic Offline Robot Programming Techniques", Proc. IEE Robotics Research (London), p. 101-108, 1983.
 - K. Kempf, "Chess:AI::Snooker:SB," AISB Quarterly, Vol. 46, p. 17-20, 1983.
- » 1982
 - K. Kempf, "Robot Command Languages and Artificial Intelligence", Proc. ROBOTS VI (Detroit), p. 369-391, 1982.
 - Ambler, R. Popplestone and K. Kempf, "An Experiment in the Offline Programming of Robots", Proc. 12th Inter. Symp. Ind. Robots / 6th Inter. Conf. Ind. Robot Tech (Paris), p. 491-502, 1982. also A. Ambler, R. Popplestone, and K. Kempf, "An Experiment in the Offline Programming of Robots", Research Paper #170, Department of Artificial Intelligence, University of Edinburgh, 1982.
- » 1978
 - K. Kempf and Peter Windsor, "The Friction Circle," Autocar, 22 April, p. 57-59, 1978.
 - K. Kempf and H. J. Harwood, "A Procedure for Preparing Aryl Esters of Polyacids: The Conversion of Poly(methacrylic acid) to Poly(phenyl methacrylate)", Macromolecules, Vol. 11, p. 1038-1041, 1978.
 - H. J. Harwood, K. Kempf, and L. Landoll, "A Convenient, Systematic Method for Evaluating the Relative Reactivities of Monomer Units in Polymer Reactions", J. Poly. Sci., Polymer Letters, Vol. 16, p. 109-114, 1978.
 - H. J. Harwood, L. Landoll, and K. Kempf, "A Decreasing-Table Technique to Increase the Efficiency of Monte Carlo Simulations of Polymer Modification Reactions", J. Poly. Sci., Polymer Letters, Vol. 16, p. 91-94, 1978.

Speakerships

» 2009

- INFORMS Prize: The Institute for Operations Research and the Management Sciences annually awards the INFORMS Prize for effective integration of Operations Research/Management Science (OR/MS) into organizational decision making. The award is given to an organization which has repeatedly applied the Principles of OR/MS in pioneering varied, novel and lasting ways (usually over 20+ years).
- Invited keynote address, IEEE, Winter Simulation Conference, Austin, December
- Invited keynote address, Society for Industrial and Applied Mathematics, Conference on Challenges and Frontiers, San Francisco, October
- Invited keynote address, Institute for Operations Research and Management Science, Regional Conference, Phoenix, April
- Invited Guest Lectures on Applied decision Science at ASU Business School and Engineering School (4x)
- Invited speaker, National Academy of Engineering Grand Challenge Team “Educating Industrial and Systems Engineering Students”
- Conference Program Committee, INFORMS Practice Conference 2010

» 2008

- Overall conference chair, “Conference on Operations Research Practice” of the Institute for Operations Research and the Management Sciences (INFORMS). (meetings.informs.org/Practice08/)
- Member of the National Academy of Engineering team that perform a assessment for Congress of the National Institute of Standards and Technology (previously known as the National Bureau of Standards)
- Invited keynote speaker for the Proctor and Gamble Analytics Summit (September)
- Invited Guest Lectures on Supply Chain Management at Arizona State University business school (6x), Stanford (3x), North Carolina State University (1x)

» 2006

- Overall conference chair, “Conference on Operations Research Practice” of the Institute for Operations Research and the Management Sciences (INFORMS). (meetings.informs.org/Practice06/)
- Invited Keynote Speaker, “Conference on Complexity Science for Business” in Budapest (www.trafficforum.org/budapest) and for the “Honeywell Fellows Forum” at MIT

» 2005 and older

- Invited tutorial presenter — Society of Industrial and Applied Mathematicians (SIAM) Annual Meeting (August 2005, Montreal, Canada) — Inventory Computations for Supply Chains Management.

- Invited participant and speaker — The Applied Mathematics Group (this is an international group of 18 mathematics professors who hold a private conference each year including roughly 18 invited mathematicians) — (June 2005, Italy).
- Invited keynote speaker — NSF DMII Grantees Conference / Decision Sciences Section, Tempe Arizona, January 2005 — topic: Decision Technologies Across DMII: An Intel Perspective
- Invited tutorial presenter — American Controls Conference (ACC) Annual Meeting (June 2004, Boston, MA) — topic: Control-Oriented Approaches to Supply Chain Management in Semiconductor Manufacturing
- Invited keynote speaker — Institute for Operations Research and the Management Sciences (INFORMS), 2004 Conference on OR/MS Practice (April 2004, Cambridge, MA) — topic: Overcoming Barriers to Applying Optimization in Business Operations.
- Invited keynote speaker — Purdue University annual e-Enterprise Conference (March 2004, West Lafayette, IN) — topic: Technical and Organizational Challenges in Supply Chain Management.
- Invited participant and speaker — The Applied Mathematics Group (this is an international group of 18 mathematics professors who hold a private conference each year for roughly 18 invited mathematicians) — (December 2003, Berlin, Germany) — topic: Managing Stochasticity in Semiconductor Supply Networks.
- Invited tutorial presenter — Society of Industrial and Applied Mathematicians (SIAM) Annual Meeting (November 2003, Toronto, Canada) — Managing Stochasticity in Supply Chains.
- Invited supply chain section keynote speaker — Institute for Operations Research and the Management Sciences (INFORMS), 2003 Conference on OR/MS Practice (May 2003, Phoenix, AZ) — topic: Optimization of Semiconductor Supply Chains.
- Invited panel member — National Academy of Engineering panel on Next Generation Manufacturing (development of a report outline, collection of ideas through organization and execution of a conference with invited speakers based on the outline, co-authoring and editing of the final report) — throughout 2002 and 2003.
- Invited participant and speaker — The Applied Mathematics Group (this is an international group of 18 mathematics professors who hold a conference each year including roughly 18 invited mathematicians) — (December 2002, Phoenix, AZ) — topic: Mathematical Models Needed for Supply-Demand Network Management.
- Invited tutorial presenter — Society of Industrial and Applied Mathematicians (SIAM) Annual Meeting (June 2001, Snowbird, UT) — Optimization Applied to Supply Chains.

Professional Affiliations

- » Institute for Operations Research and the Management Sciences (INFORMS)
- » Member of IEEE and Society for Industrial and Applied Mathematics (SIAM)
- » Adjunct professor, Arizona State University