

# JOHN W. FOWLER

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## EDUCATION

Ph.D. Industrial Engineering - 1990; Texas A&M University, Chairperson: Dr. Don T. Phillips.  
Dissertation Title: Strategic Control of Multichannel Bulk Server Diffusion/Oxidation Processes.  
M.S. Industrial Engineering - 1986; Texas A&M University  
B.S. Industrial Engineering - 1982 *cum laude*; Texas A&M University

## ACADEMIC EXPERIENCE

2011-Present ASU Department of Supply Chain Management, Motorola Professor of International Business, Department Chair 2011-2016  
2012-Present Senior Sustainability Scientist, ASU Julie Ann Wrigley Global Institute of Sustainability  
2012-2013 Faculty Director, Executive MBA Program, ASU W. P. Carey School of Business  
2003-2011 Department of Industrial Engineering, Arizona State University, Professor  
Associate Chair Research & Graduate Programs 2004-2009, Program Chair 2009-2011  
2001- 2007 Factory Operations Research Center Director - Funded by SRC and SEMATECH  
2001 - 2006 Department of Management, Arizona State University, Affiliated Professor  
2000 - 2003 Department of Industrial Engineering, Arizona State University, Associate Professor  
1995 - 2000 Department of Industrial Engineering, Arizona State University, Assistant Professor  
1991 - 1995 Department of Mechanical Engineering, UT Austin Adjunct Assistant Professor  
1990 Department of Industrial Engineering, Texas A&M University, Visiting Assistant Prof.

## INDUSTRIAL EXPERIENCE

1996 - 1998 Tefen, USA - Consultant, Reported to R&D Vice President  
1991 - 1995 SEMATECH - Senior Member of Technical Staff, Operational Modeling, Managed Future Factory Modeling Project-\$3.2M-2 years, Managed collaboration w JESSI  
1989 - 1990 Advanced Micro Devices - Project Manager, Simulation Modeling, Corp. Mfg.  
1984 - 1986 Lodestone II, Inc. - Simulation Analyst

## PRINCIPAL AREAS OF TEACHING AND RESEARCH

<b>Teaching</b>	<ul style="list-style-type: none"><li>• Operations Management</li><li>• Scheduling</li><li>• Discrete Event Simulation</li><li>• Operations Research</li><li>• Business Analytics</li></ul>	<b>Research</b>	<ul style="list-style-type: none"><li>• Deterministic Scheduling</li><li>• Discrete Event Simulation Methodology</li><li>• Semiconductor Manufacturing Operations</li><li>• Operations Research in Healthcare</li><li>• Collaborative Decision Making</li></ul>
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## AWARDS

- Institute of Industrial and Systems Engineering Fellow – 2005
- INFORMS Simulation Society Distinguished Service Award - 2017
- INFORMS Fellow - 2021

## RESEARCH

### REFEREED ARCHIVAL JOURNAL PAPERS (student names in bold)

Fowler, J.W. and Mönch, L. “A Survey of Scheduling with Parallel Batch (p-batch) Processing”, *European Journal of Operational Research*, to appear.

**Sampath, S.**, Gel, E., Fowler, J., and Kempf, K. “A Generalized Decision Support Framework for Large-Scale Project Portfolio Decisions”, *Decision Sciences*, 1-24, to appear. DOI: <https://doi.org.ezproxy1.lib.asu.edu/10.1111/dec.12507>

**Ramirez-Nafarrate, A., Araz, O.**, and Fowler, J., “Decision Assessment Algorithms for Location and Capacity Optimization under Resource Shortages”, *Decision Sciences*, 52:1, 142,181, 2021. DOI: <https://doi.org/10.1111/dec.12418>

Gel, E.S., Fowler, J.W. and **Khowala, K.**, 2020. “Queuing Approximations for Capacity Planning under Common Setup Rules”, *IIE Transactions*, 53:11, 1177-1195, 2021.

Liu, A., Wang, R., Fowler, J., and Ji, X., “Improving bicycle sharing operations: A multi-criteria decision-making approach”, *Journal of Cleaner Production*, 297, 2021. DOI: <https://doi.org/10.1016/j.jclepro.2021.126581>.

Currie, C.S.M., Fowler, J.W., Kotiadis, K., Monks, T., Onggo, B.S., Robertson, D.A., Tako, A.A., “How Simulation Modelling Can Help Reduce the Impact of COVID-19”, *Journal of Simulation*, 14:2, 83-97, 2020. DOI: <https://doi.org/10.1080/17477778.2020.1751570>

Rocholl, J., Mönch, L. and Fowler, J., “Bi-criteria Parallel Batch Machine Scheduling to Minimize Total Weighted Tardiness and Electricity Cost”, *Journal of Business Economics*, 90, 1345–1381, 2020. DOI: <https://doi.org/10.1007/s11573-020-00970-6>

Fowler, J.W., Kim, S.H. and Shunk, D.L., “Design for Customer Responsiveness: Decision Support System for Push–Pull Supply Chains with Multiple Demand Fulfillment Points”, *Decision Support Systems*, Vol. 123, Article 113071, 2019.

Zhong, Q., Tong, D., Kuby, M., Wei, F., Fowler, J. and Bailey, K., “Locating Alternative Fuel Stations for Maximizing Coverage and Ensuring Sufficient Spacing: a Case Study of CNG Truck Fueling”, *Process Integration and Optimization for Sustainability*, pp.1-16, 2019.

Kuby, M., Bailey, K., Wei, F., Fowler, J., Tong, D., Zhong, Q., Lopez, O. and Sheaffer, W., “Collaborative Geodesign for Alternative-Fuel Station Location using ‘Collablocation’ Software”, *Transportation Research Record*, Vol. 2672, No. 24, pp. 98-108, 2018.

Mönch, L., Chien, C.F., Dautère-Pérès, S., Ehm, H. and Fowler, J.W., “Modelling and Analysis of Semiconductor Supply Chains”, *International Journal of Production Research*, Vol. 56, No. 13, 4521–4523, 2018.

Mönch, L., Uzsoy, R. and Fowler, J.W., “A Survey of Semiconductor Supply Chain Models Part I: Semiconductor Supply Chains, Strategic Network Design, and Supply Chain Simulation”, *International Journal of Production Research*, Vol. 56, No. 13, 4524–4545, 2018.

Uzsoy, R., Fowler, J.W. and Mönch, L., “A Survey of Semiconductor Supply Chain Models Part II: Demand Planning, Inventory Management, and Capacity Planning”, *International Journal of Production Research*, Vol. 56, No. 13, 4546–4564, 2018.

Mönch, L., Uzsoy, R. and Fowler, J.W., “A Survey of Semiconductor Supply Chain Models Part III: Master Planning, Production Planning, And Demand Fulfilment”, *International Journal of Production Research*, Vol. 56, No. 13, 4565–4584, 2018.

- Tan, Y.**, Mönch, L. and Fowler, J.W., “A Hybrid Scheduling Approach for a Two-stage Flexible Flow Shop with Batch Processing Machines”. *Journal of Scheduling*, Vol. 22, No. 2, pp. 209-226, 2018.
- Ham, A., Fowler, J.W. and Cakici, E., “Constraint Programming Approach for Scheduling Jobs with Release Times, Non-identical Sizes, and Incompatible Families on Parallel Batching Machines.” *IEEE Transactions on Semiconductor Manufacturing*, Vol. 30 No. 4, pp.500-507, 2017.
- Pfund, M.E. and Fowler, J.W., “Extending the boundaries between scheduling and dispatching: hedging and rescheduling techniques”, *International Journal of Production Research*, Vol. 55, No. 11, pp.3294-3307, 2017.
- Mohan, S., **Li, Q.**, Gopalakrishnan, M., Fowler, J. and Printezis, A., “Improving the process efficiency of catheterization laboratories using simulation”. *Health Systems*, Vol. 6, No. 1, pp.41-55, 2017.
- Ewen, H., Monch, L., Ehm, H., Ponsignon, T., Fowler, J.W. and Forstner, L., “A Testbed for Simulating Semiconductor Supply Chains”. *IEEE Transactions on Semiconductor Manufacturing*, Vol. 30, No. 3, pp. 293-305, 2017.
- Buke, B., **Araz, O.**, and Fowler, J.W., “Cross-Training with Imperfect Training Schemes”, *Production and Operations Management*, Vol. 25, No. 7, pp. 1216–1231, 2016.
- Liu, A., Pfund, M.E., and Fowler, J.W., “Scheduling Optimization of Tasks Allocation in Integrated Manufacturing System Based on Tasks Decomposition”, *Journal of Systems Engineering and Electronics*, Vol. 27, No. 2, pp. 422-433, 2016.
- Liu, A., Fowler, J.W., and Pfund, M.E., “Dynamic Coordinated Scheduling in the Supply Chain Considering Flexible Routes”, *International Journal of Production Research*, Vol. 54, No. 1, pp. 322-335, 2016.
- Sampath, S.**, Gel, E.S., Fowler, J.W., and Kempf, K.G., “A Decision-Making Framework for Project Portfolio Planning at Intel Corporation”, *Interfaces*, Vol. 45, No. 5, pp. 391-408, 2015.
- Marquis, J.**, Gel, E. S., Fowler, J.W., Koksalan, M., Korhonen, P., and Wallenius, J., “Impact of Number of Interactions, Different Interaction Patterns and Human Inconsistencies on Some Hybrid Evolutionary Multi-Objective Optimization Algorithms”, *Decision Sciences*, Vol. 46, No. 5, pp. 981-1006, 2015.
- Ramirez-Nafarrate, A., Lyon, J.**, Fowler, J., and **Araz, O.**, “Point-of-Dispensing Location and Capacity Optimization via a Decision Support System”, *Production and Operations Management*, Vol. 24, No. 8, pp. 1311-1328, 2015.
- Gul, S.**, Denton, B.T., and Fowler, J.W., “A Progressive Hedging Approach for Surgery Planning Under Uncertainty”, *INFORMS Journal on Computing*, Vol. 27, No. 4, pp. 755-772, 2015.
- Fu, M.**, Askin, R., Fowler, J.W., and Zhang, M., “Stochastic Optimization of Product–Machine Qualification in a Semiconductor Back-end Facility”, *IIE Transactions*, Vol. 47, No. 7, pp 739-750, 2015.
- Li, M., Yang, F., Wan, H., and Fowler, J. W., "Simulation-Based Experimental Design and Statistical Modeling for Lead Time Quotation." *Journal of Manufacturing Systems*, Vol. 37, No. 1, pp. 362-374, 2015.
- Cheng, J.**, Fowler, J., Kempf, K. and Mason, S., “Multi-Mode Resource-Constrained Project Scheduling Problems with Non-Preemptive Activity Splitting”. *Computers & Operations Research*, Vol. 53, pp.275-287, 2015.
- Fowler, J., Mönch, L. and Ponsignon, T., “Discrete-Event Simulation for Semiconductor Wafer Fabrication Facilities”. *International Journal of Industrial Engineering: Theory Applications and Practice*, Vol. 22 No. 5, pp.661-682, 2015.

Mohan, S., **Alam, F.**, Fowler, J.W., Gopalakrishnan, M., and Printezis, A., “Capacity Planning and Allocation for Web-based Applications”, *Decision Sciences*, Vol. 45, No. 3, pp. 535–56, 2014.

**Araz, O.**, Fowler, J., and **Ramirez-Nafarrate, A.**, “Optimizing Service Times for a Public Health Emergency Using a Genetic Algorithm: Locating Dispensing Sites and Allocating Medical Staff”, *IIE Transactions on Healthcare Systems Engineering*, Vol. 4, No. 4, pp 178-190, 2014.

**Cakici, E.**, Mason, S. J., Geismar, N., and Fowler, J.W., “Scheduling Parallel Machines with Single Vehicle Delivery”, *Journal of Heuristics*, Vol. 20, No. 5, pp 511-537, 2014.

Huber, D., Fowler, J., and Armbruster, D., “Simplification of DES Models of M/M/1 Tandem Queues by Approximating WIP-dependent Inter-departure Times”, *Simulation: Transactions of the Society for Computer Simulation International*, Vol. 90, No. 10, pp 1188-1196, 2014.

**Lin, Y.-K.**, Pfund, M.E., and Fowler, J.W., “Processing Time Generation Schemes for Parallel Machine Scheduling Problems with Various Correlation Structures”, *Journal of Scheduling*, Vol. 17, No. 6, pp. 569-586, 2014.

**Ramirez-Nafarrate, A.**, Hafizoglu, A.B., Gel, E.S., Fowler, J.W., “Optimal Control Policies for Ambulance Diversion”, *European Journal of Operational Research*, Vol. 236, No. 1, pp 298-312, 2014.

**Huang, S.**, Li, J., Lamb, G., Schmitt, M., and Fowler, J., “Multi-data Fusion for Enterprise Quality Improvement by a Multilevel Latent Response Model,” *IIE Transactions*, Vol. 46, No. 5, pp 512-525, 2014.

**Khowala, K.**, Fowler, J.W., Keha, A., Balasubramanian, H., “Single Machine Scheduling with Interfering Job Sets”, *Computers and Operations Research*, Vol. 45, pp. 97-107, 2014.

**Lin, Y.-K.**, Fowler, J.W., Pfund, M.E., “Multiple-Objective Heuristics for Scheduling Unrelated Parallel Machines”, *European Journal of Operational Research*, Vol. 227, No. 2, pp. 239-253, 2013.

**Cakici, E.**, Mason, S. J., Fowler, J.W., Geismar, N., “Batch Scheduling on Parallel Machines with Dynamic Job Arrivals and Incompatible Job Families”, *International Journal of Production Research*, Vol. 51, No. 8, pp. 2462-2477, 2013.

**Araz, O.M.**, Lant, T., Fowler, J.W., Jehn, M.,” Simulation Modeling for Pandemic Decision Making: A Case Study with Bi-criteria Analysis on School Closures”, *Decision Support Systems*, Vol. 55, No. 2, pp. 564-575, 2013.

**Duarte, B.**, Montgomery, D., Fowler, J. and Konopka, J., “Deploying LSS in a global enterprise–project identification”. *International Journal of Lean Six Sigma*, Vol. 3, No. 3, pp.187-205, 2012.  
*2013 Outstanding paper for International Journal of Lean Six Sigma*

**Alam, F.**, Mohan, S., Fowler, J.W., and Gopalakrishnan, M., “A Discrete Event Simulation Tool for Performance Management of Web-based Application Systems”, *Journal of Simulation*, Vol. 6, pp. 21-32, 2012.

**Kim, S.H.**, Fowler, J. W., Shunk, D. L., Pfund, M. E., “Improving the Push-Pull Strategy in a Serial Supply Chain by a Hybrid Push-Pull Control with Multiple Pulling Points”, *International Journal of Production Research*, Vol. 50, No. 19, pp. 5651-5668, 2012.

Ng, T.S., Fowler, J.W., and Ivy, M., “Robust Demand Service Achievement for the Co-Production Newsvendor”, *IIE Transactions*, Vol. 44, No. 5, pp. 327-341, 2012.

**Araz, O.**, Jehn, M., Lant, T., and Fowler, J.W., “A New Method of Exercising Pandemic Preparedness through an Interactive Simulation and Visualization”, *Journal of Medical Systems*, Vol. 36, No. 3, pp. 1475-1483, 2012.

**Wang, S.**, Wu, T., **Weng, S.-J.**, Fowler, J. W., “An Integrated Approach to Monitoring Supply Network Dynamics Using Kalman Filtering and Control Charts”, *International Journal of Production Research*, Vol. 50, No. 11, pp. 3137-3151, 2012.

**Gul, S.**, Denton, B.T., Fowler, J.W., and Huschka, T., “Bi-Criteria Scheduling of Surgical Services for an Outpatient Procedure Center”, *Production and Operations Management*, Vol. 20, No. 3, pp. 406-417, 2011.

Chien, C-F., Dauzère-Pérès, S., Ehm, H., Fowler, J.W., Jiang, Z., Krishnaswamy, S., Lee, T-E., Mönch, L. and Uzsoy, R., “Modelling and Analysis of Semiconductor Manufacturing in a Shrinking World: Challenges and Successes”, *European Journal of Industrial Engineering*, Vol. 5, No. 3, pp. 254-271, 2011.

**Rastogi, A.P.**, Fowler, J.W., Carlyle, W.M., **Araz, O.M.**, Maltz, A., and Büke, B., “Supply Network Capacity Planning for Semiconductor Manufacturing with Uncertain Demand and Correlation in Demand Considerations”, *International Journal of Production Economics*, Vol. 134, No. 2, pp. 322-332, 2011.

Fowler, J., Benneyan, J., Carayon, P., Denton, B., Keskinocak, P., and Runger, G., “An Introduction to a New Journal for Healthcare Systems Engineering,” *IIE Transactions on Healthcare Systems Engineering*. Vol. 1, No. 1, pp. 1-5, 2011.

Mönch, L., Fowler, J.W., Dauzere-Peres, S., Mason, S.J., Rose, O., “A Survey of Problems, Solution Techniques, and Future Challenges in Scheduling Semiconductor Manufacturing Operations”, *Journal of Scheduling*, Vol. 14, pp. 583-599, 2011.

**Araz, O.**, Lant, T., Fowler, J., and Jehn, M., “A Simulation Model for Policy Decision Analysis: A Case of Pandemic Influenza on a University Campus”, *Journal of Simulation*, Vol. 5, Issue 2, pp. 89-100, 2011.

**Lin, Y.**, Pfund, M.E., and Fowler, J.W., “Heuristics for Minimizing Regular Performance Measures in Unrelated Parallel Machine Scheduling Problems”, *Computers and Operations Research*, Vol. 38, No. 6, pp. 901-916, 2011.

Mönch, L., Zimmerman, J., Mason, S.J., and Fowler, J.W., “Multiple Orders Per Job Formation and Release Strategies in Large Scale Wafer Fabs: A Simulation Study”, *Journal of Simulation*, Vol. 5, No. 1, pp. 25-43, 2011.

**Sun, Y.**, Fowler, J.W., and Shunk, D., “Policies for Allocating Product Lots to Customer Orders in Semiconductor Manufacturing Supply Chains”, *Production Planning and Control*, Vol. 22, No.1, pp. 69-80, 2011.

Liu, J., Yang, F., Wan, H., and Fowler, J.W., “Capacity Planning through Queueing Analysis and Simulation-based Statistical Methods: A Case Study for Semiconductor Wafer Fabs”, *International Journal of Production Research*, Vol. 49, No. 15, pp. 4573-4591, 2011.

**Fu, M.**, Askin, R., Fowler, J., **Haghnevis, M.**, Keng, N., Pettinato, J., and Zhang, M., “Batch Production Scheduling for Semiconductor Back-end Operations”, *IEEE Transactions on Semiconductor Manufacturing*, Vol. 24, No. 2, pp. 249-260, 2011.

Bozkurt, B., Fowler, J.W., Gel, E.S., **Kim, B.**, Köksalan, M., and Wallenius, J. , “Quantitative Comparison of Approximate Solution Sets for Multi-Criteria Optimization Problems with Weighted Tchebycheff Preference Function”, *Operations Research*, Vol. 58, No. 3, pp. 650-659, 2010.

**Chen, Y.**, Pfund, M.E., Fowler, J.W., Montgomery, D.C., and Callarman, T.E., “Robust Scaling Parameters for Composite Dispatching Rules”, *IIE Transactions*, Vol. 42, No. 11, pp. 842 – 853, 2010.

Fowler, J.W., Gel, E.S., Köksalan, M.M., Korhonen, P., **Marquis, J.L.**, and Wallenius, J., “Interactive Evolutionary Multi-Objective Optimization for Quasi-Concave Preference Functions”, *European Journal of Operational Research*, Vol. 206, No. 2, pp. 417-425, 2010.

Ng, T.S., **Sun, Y.**, and Fowler, J.W., “Semiconductor Lot Allocation Using Robust Optimization”, *European Journal of Operational Research*, Vol. 205, No. 3, pp. 557-570, 2010.

- Parmar, D.**, Wu, T., Callarman, T., Fowler, J., and Wolfe, P., “A Clustering Algorithm for Supplier Base Management”, *International Journal of Production Research*, Vol. 48, No. 13, pp. 3803 – 3821, 2010.
- Bekki, J. M.**, Fowler, J.W., Mackulak, G.T., and Nelson, B.L., “Indirect Cycle-Time Quantile Estimation Using the Cornish-Fisher Expansion”, *IIE Transactions*, Vol. 42, No. 1, pp. 31-44, 2010.
- Sun, Y.**, Shunk, D., Fowler, J., and Gel, E., “Strategic Factor-driven Supply Chain Design for Semiconductors”, *California Journal of Operations Management*, Vol. 8, No. 1, pp. 31-43, 2010.
- Balasubramanian, H.**, Fowler, J.W., Keha, A., and Pfund, M.E., “Scheduling Interfering Job Sets on Parallel Machines”, *European Journal of Operational Research*, Vol. 199, No. 1, pp. 55-67, 2009.
- McNeill, J. E.**, Fowler, J.W., Mackulak, G.T. and Kulahci, M., “Simulation Based Cycle-Time Quantile Estimation in Manufacturing Settings Employing Non-FIFO Dispatching Policies”, *Journal of Simulation*, Vol. 3, No. 2, pp. 69-83, 2009.
- Keha, A., **Howala, K.**, and Fowler, J., “Mixed Integer Programming Formulations for Single Machine Scheduling Problems”, *Computers and Industrial Engineering*, Vol. 56, No. 1, pp. 357-367, 2009.
- Feller, A.**, Wu, T., Shunk, D. and Fowler, J. “Petri Net Translation Patterns for the Analysis of eBusiness Collaboration Messaging Protocols”, *IEEE Transactions on System, Man, Cybernetics Part A.: Systems and Humans*, Vol. 39, No. 5, pp.1022-1034, 2009.
- Alvarez-Perez, G.**, Gonzalez-Velarde, J.-L., and Fowler, J.W., “Crossdocking - Just in Time Scheduling: An Alternative Solution Approach”, *Journal of the Operational Research Society*, Vol. 60, No. 4, pp. 554-564, 2009.
- Mason, S.J., Kurz, M.E., Pohl, L.M., Fowler, J.W., Pfund, M.E., Random Keys Implementation of NSGA-II for Semiconductor Manufacturing Scheduling, *International Journal Of Information Technology And Intelligent Computing*, Vol. 2, No. 3, 2008.
- Fowler, J. W., **Leach, S.E.**, Mackulak, G.T., and Nelson, B.L., “Variance-based Sampling for Simulating Cycle Time – Throughput Curves using Simulation-based Estimates”, *Journal of Simulation*, Vol. 2, No. 2, pp. 69-80, 2008.
- Pfund M.E., **Balasubramanian, H.**, Fowler, J.W., Mason S.J., and Rose, O, “A Multi-criteria Approach for Scheduling Semiconductor Wafer Fabrication Facilities”, *Journal of Scheduling*, Vol. 11, No. 1, pp. 29-47, 2008.
- Fowler, J.W., **Wirojanagud, P.**, and Gel, E.S., “Heuristics for Workforce Planning with Worker Differences”, *European Journal of Operational Research*, Vol. 190, No. 3, pp. 724-740, 2008.
- Jimenez, J.**, Mackulak, G.T., and Fowler, J.W., “Levels of Capacity and Material Handling System Modeling for Factory Integration Decision Making in Semiconductor Wafer Fabs”, *IEEE Transactions on Semiconductor Manufacturing*, Vol. 21, No. 4, pp. 600-613, 2008.
- Pfund, M.E., Fowler, J.W., **Gadkari, A.**, and **Chen, Y.**, “Scheduling Jobs on Parallel Machines with Setup Times and Ready Times”, *Computers and Industrial Engineering*, Vol. 54, No. 4, pp. 764-782, 2008.
- Boushell, T.G.**, Fowler, J.W., Keha, A., **Knutson, K.**, and Montgomery, D.C., “Evaluation of Heuristics for a Class-constrained Lot-to-Order Matching Problem in Semiconductor Manufacturing”, *International Journal of Production Research*, Vol. 46, No. 12, pp. 4143-3166, 2008.
- Duarte, B.**, Fowler, J.W., Knutson, K., Gel, E., and Shunk, D., “A Compact Abstraction of Manufacturing Nodes in a Supply Network”, *International Journal of Simulation and Process Modeling*, Vol. 3, No. 3, pp. 115-126, 2007.

**Perry, L. A.**, Montgomery, D. C., and Fowler, J. W., “A Partition Experimental Design for a Sequential Process with a Large Number of Variables”, *Quality and Reliability Engineering International*, Vol. 23, No. 5, pp. 555-564, 2007.

**Vardar, C.**, Gel, E.S., and Fowler, J.W., “A Framework for Evaluating Remote Diagnostics Investment Decisions for Semiconductor Equipment Suppliers”, *European Journal of Operational Research*, Vol. 180, No. 3, pp. 1411–1426, 2007.

Zhang, M.T., Fowler, J.W., Chen, T. W.-Y., Shanthikumar, J. G, and Chien, C.-F., “Editorial: e Manufacturing in the Semiconductor Industry”, *IEEE Transactions on Automation Science and Engineering*, Vol. 4, No. 4, pp. 485-487, 2007.

**Laub, J.D.**, Fowler, J.W., and Keha, A.B., “Minimizing Makespan with Multiple Orders per Job in a Two Machine Flowshop”, *European Journal of Operational Research*, Vol. 182, No. 1, pp. 63-79, 2007.

**Swaminathan, R.**, Pfund, M.E., Fowler, J.W., Mason, S.J., and Keha, A., “Impact of Permutation Enforcement when Minimizing Total Weighted Tardiness in Dynamic Flowshops with Uncertain Processing Times”, *Computers and Operations Research*, Vol. 34, No. 10, pp. 3055-3068, 2007.

**Wirojanagud, P.**, Gel, E.S., Fowler, J.W., and Cardy. R., “Modeling Inherent Worker Differences for Workforce Planning”, *International Journal of Production Research*, Vol. 45, No. 3, pp. 525 – 553, 2007.

Mönch, L., Schabacker, R., **Pabst, D.**, and Fowler, J.W., “Genetic Algorithm-Based Subproblem Solution Procedures for a Modified Shifting Bottleneck Heuristic for Complex Job Shops”, *European Journal of Operational Research*, Vol. 177, No. 3, pp. 2100-2118, 2007.

Chong, C.S., Lendermann, P., Gan, B.P., **Duarte, B.M.**, Fowler, J.W., and Callarman, T.E., “Development and Analysis of a Customer Demand Driven Semiconductor Supply Chain Model using High Level Architecture (HLA)”, *International Journal of Simulation and Process Modeling*, Vol. 2, Nos. 3-4, pp. 210-221, 2006.

**Delp, D.**, Si, J., and Fowler, J., “The Development of the Complete X-Factor Contribution Measurement for Improving Cycle Time and Cycle Time Variability”, *IEEE Transactions on Semiconductor Manufacturing*, Vol. 13, No. 3, pp. 352-362, 2006.

**Kim, B.**, Gel, E.S., Fowler, J.W., Carlyle, W.M., and Wallenius, J. “Evaluation of Nondominated Solution Sets for *K*-Objective Optimization Problems: An Exact Method and Approximations”, *European Journal of Operational Research*, Vol. 173, No. 2, pp. 565-582, 2006.

Gupta, J.N.D., Ruiz, R., Fowler, J.W., and **Mason, S.J.**, “Operational Planning and Control of Semiconductor Wafer Production”, *Production Planning and Control*, Vol. 17, No. 7, pp. 639–647, 2006.

**Park, Y.**, Montgomery, D.C., Fowler, J.W., and Borrór, C.M., “Cost-Constrained *G*-Efficient Response Surface Designs for Cuboidal Regions”, *Quality and Reliability Engineering International*, Vol. 22, No. 2, pp 121-139, 2006.

**Stray, J.**, Fowler, J.W., Carlyle, W.M., and **Rastogi, A.P.**, “Enterprise-Wide Strategic and Logistics Planning for Semiconductor Manufacturing”, *IEEE Transactions on Semiconductor Manufacturing*, Vol. 19, No. 2, pp. 259-268, 2006.

**Delp, D.**, Si, J., Hwang, Y., Pei, B., and Fowler, J., “Availability Adjusted X- Factor”, *International Journal of Production Research*, Vol. 43, No. 18, pp. 3933–3953, 2005.

Shao, Y.E., Fowler, J.W., and Runger, G.C., “A Note on Determining an Optimal Target by Considering the Dependence of Holding Costs and the Quality Characteristics”, *Journal of Applied Statistics*, Vol. 32, No. 8, pp. 813–822, 2005.

- Mason, S.J.**, Fowler, J.W., Carlyle, W.M., and Montgomery, D.C., "Heuristics for Minimizing Total Weighted Tardiness in Complex Job Shops", *International Journal of Production Research*, Vol. 43, No. 10, pp. 1943-1963, 2005.
- Diaz, S.**, Fowler, J.W., Pfund, M.E., Mackulak, G.T., and Hickie, M., "Evaluating the Impacts of Reticle Requirements in Semiconductor Wafer Fabrication", *IEEE Transactions on Semiconductor Manufacturing*, Vol. 18, No. 4, pp. 622-632, 2005.
- Mönch, L., **Balasubramanian, H.**, Fowler, J.W., and **Pfund, M.E.**, "Heuristic Scheduling of Jobs on Parallel Batch Machines with Incompatible Job Families and Unequal Ready Times", *Computers and Operations Research*, Vol. 32, No. 11, pp. 2731-2750, 2005.
- Mackulak, G., Fowler, J., **Park, S.**, and **McNeill, J.E.** "A Three Phase Simulation Methodology for Generating Accurate and Precise Cycle Time-Throughput Curves", *International Journal of Simulation and Process Modeling*, Vol. 1, Nos. 1/2, pp. 36-47, 2005.
- Fowler, J.W., **Kim, B.**, Carlyle, W.M., Gel, E.S., and **Horng, S.-M.**, "Evaluating Solution Sets of a Posteriori Solution Techniques for Bi-Criteria Combinatorial Optimization Problems", *Journal of Scheduling*, Vol. 8, No. 1, pp. 75-96, 2005.
- Perez, I.**, Fowler, J.W., and Carlyle, W.M., "Minimizing Total Weighted Tardiness on a Single Batch Processing Machine with Incompatible Job Families", *Computers and Operations Research*, Vol. 32, No.2, pp. 327-341, 2005.
- Fowler, J. and Rose, O., "Grand Challenges in Modeling and Simulation of Complex Manufacturing Systems", *Simulation: Transactions of the Society for Computer Simulation International*, Vol. 80, No. 9, pp. 469-476, 2004.
- Pfund, M.E.**, Fowler, J.W., and Gupta, J., "A Survey of Algorithms for Single and Multi-Objective Unrelated Parallel Machine Deterministic Scheduling Problems", *Journal of the Chinese Institute of Industrial Engineers*, Vol. 21, No. 3, pp. 230-242, 2004.
- Balasubramanian, H.**, Mönch, L., Fowler, J.W., and **Pfund, M.E.**, "Genetic Algorithm Based Scheduling of Parallel Batch Machines with Incompatible Job Families to Minimize Total Weighted Tardiness", *International Journal of Production Research*, Vol. 42, No. 8, 1621-1638, 2004.
- Fowler, J.W., **Horng, S-M**, and Cochran, J.K., "A Hybridized Genetic Algorithm to Solve Parallel Machine Scheduling Problems with Sequence Dependent Setups", *International Journal of Industrial Engineering – Theory, Applications, and Practice*, Vol. 10, No. 3, 232-243, 2003.
- Carlyle, W.M., Fowler, J.W., Gel, E., and **Kim, B.**, "Quantitative Comparison of Approximate Solution Sets for Bi-criteria Optimization Problems", *Decision Sciences*, Vol. 34, No. 1, pp. 63-82, 2003.
- Greiner, M.A.**, Fowler, J.W., Shunk, D.L., Carlyle, W.M., and McNutt, R.T., "A Hybrid Approach Using the Analytic Hierarchy Process and Integer Programming to Screen Weapon Systems Projects", *IEEE Transactions on Engineering Management*, Vol. 50, No. 2, pp. 192-203, 2003.
- Dabbas, R.M.** and Fowler, J.W., "A New Scheduling Approach Using Combined Dispatching Criteria in Semiconductor Manufacturing Systems", *IEEE Transactions on Semiconductor Manufacturing*, Vol. 16, No. 3, pp. 501-510, 2003.
- Cochran, J.K., **Horng, S-M**, and Fowler, J.W., "A Multi-Population Genetic Algorithm to Solve Multi-Objective Scheduling Problems for Parallel Machines", *Computers and Operations Research*, Vol. 30, No. 7, pp. 1087-1102, 2003.
- Dabbas, R.M.**, Fowler, J.W., Rollier, D.A., and McCarville, D., "Multiple Response Optimization Using Mixture Designed Experiments and Desirability Functions in Semiconductor Scheduling", *International Journal of Production Research*, Vol. 41, No. 5, pp. 939-961, 2003.

- Phojanamongkolkij, N.**, Fowler, J.W., and Cochran, J.K., “Determining ‘Optimal’ Policies for Batch-Processing Machines of a Wafer Fabrication Facility”, *Journal of Manufacturing Systems*, Vol. 21, No. 5, pp. 363-379, 2002.
- Fowler, J.W., Hogg, G.L., and **Mason, S.J.**, “Workload Control in the Semiconductor Industry”, *Production Planning and Control*, Vol. 13, No. 7, pp. 568-578, 2002.
- Mackulak, G.T., **Park, S.**, Keats, J.B., and Fowler, J.W., “A Sequential Stopping Rule for Steady State Simulation Based on Time Series Forecasting”, *Transactions of the Society for Computer Simulation International*, Vol. 78, No. 11, pp. 643-654, 2002.
- Skinner, K.R.**, Montgomery, D.C., Runger, G.R., Fowler, J.W., McCarville, D.R., **Rhoads, T.R.**, and Stanley, J.D., “Multivariate Statistical Methods for Modeling and Analysis of Wafer Probe Test Data”, *IEEE Transactions on Semiconductor Manufacturing*, Vol. 15, No. 4, pp. 523-530, 2002.
- Park, S.**, Fowler, J.W., Mackulak, G.T., Keats, J.B., and Carlyle, W.M., “D-Optimal Sequential Experiments for Generating a Simulation-Based Cycle Time-Throughput Curve”, *Operations Research*, Vol. 50, No. 6, pp. 981-990, 2002.
- Perry, L. A.**, Montgomery, D. C., and Fowler, J. W., “Partition Experimental Designs for Sequential Processes: Part II - Second-Order Models”, *Quality and Reliability Engineering International*, Vol. 18, No. 5, pp. 373-382, 2002.
- Yu, L., Shih, H.M., **Pfund, M.**, Carlyle, W.M., and Fowler, J.W., “Scheduling of Unrelated Parallel Machines: An Application to PWB Manufacturing”, *IIE Transactions on Scheduling and Logistics*, Vol. 34, No. 11, pp. 921-931, 2002.
- Solomon, L.**, Fowler, J., **Pfund, M.**, and Jensen, P., “The Inclusion of Future Arrivals and Downstream Setups into Wafer Fabrication Batch Processing Decisions”, *Journal of Electronics Manufacturing*, Vol. 11, No. 2, pp. 149-159, 2002.
- Mason, S.J.**, Fowler, J.W., and Carlyle, W.M., “A Modified Shifting Bottleneck Heuristic for Minimizing the Total Weighted Tardiness in a Semiconductor Wafer Fab”, *Journal of Scheduling*, Vol. 5, No. 3, pp. 247-262, 2002.
- Fowler, J.W., **Phojanamongkolkij, N.**, Cochran, J.K., and Montgomery, D.C., “Optimal Batching in a Wafer Fabrication Facility Using a Multi-Product G/G/c Model with Batch Processing”, *International Journal of Production Research*, Vol. 40, No. 2, pp. 275-292, 2002.
- Pfund, M.**, Yu, L., Fowler, J., and Carlyle, W., “The Effects Of Processing Time Variability And Equipment Downtimes On Various Scheduling Approaches For A Printed Wiring Board Assembly Operation”, *Journal of Electronics Manufacturing*, Vol. 11, No. 1, pp. 19-31, 2002.
- Perry, L. A.**, Montgomery, D. C., and Fowler, J. W., “Partition Experimental Designs for Sequential Processes: Part I - First-Order Models”, *Quality and Reliability Engineering International*, Vol. 17, No. 6, pp. 429-438, 2001.
- Carlyle, W.M., **Knutson, K.**, and Fowler, J.W., “Bin Covering Algorithms in the Second Stage of the Lot to Order Matching Problem”, *Journal of the Operational Research Society*, Vol. 52, No. 11, pp. 1232-1243, 2001.
- Fowler, J.W., **Park, S.**, Mackulak, G.T., and Shunk, D.L., “Efficient Cycle Time-Throughput Curve Generation Using a Fixed Sample Size Procedure”, *International Journal of Production Research*, Vol. 39, No. 12, pp. 2595-2613, 2001.
- Dabbas, R.M.**, Chen, H.-N., Fowler, J.W., and Shunk, D.L., “A Combined Dispatching Approach to Scheduling Semiconductor Manufacturing Systems”, *Computers and Industrial Engineering*, Vol. 39, pp. 307-324, 2001.

Fowler, J.W., **Knutson, K.**, and Carlyle, W.M., "Comparison and Evaluation of Lot-To-Order Matching Policies for a Semiconductor Assembly and Test Facility", *International Journal of Production Research*, Vol. 38, No. 8, pp. 1841-1853, 2000.

Fowler, J.W., Hogg, G.L., and Phillips, D.T., "Control of Multiproduct Bulk Server Diffusion/Oxidation Processes Part Two: Multiple Servers", *IIE Transactions*, Vol. 32, No. 2, pp. 167-176, 2000.

**Horng, S.-M.**, Fowler, J., and Cochran, J., "A Genetic Algorithm Approach to Manage Ion Implantation Processes in Wafer Fabrication", *International Journal of Manufacturing Technology Management*, Vol. 1, No. 2/3, pp. 156-172, 2000.

Shao, Y., Fowler, J., and Runger, G., "Determining the Optimal Target for a Process with Multiple Markets and Holding Costs", *International Journal of Production Economics*, Vol. 65, No. 3, pp. 229-242, 2000.

**Knutson, K.**, Kempf, K., Fowler, J., and Carlyle, M., "Lot-to-Order Matching for a Semiconductor Assembly & Test Facility", *IIE Transactions on Scheduling and Logistics*, Vol. 31, No. 11, pp. 1103-1111, 1999.

Fowler, J.W., Cochran, J.K., and **Horng, S.-M.**, "A Group-Technology-Coded Literature Review of Semiconductor Manufacturing Operations Publications: The MASMLAB Bibliography Web Site", *IEEE Transactions on Semiconductor Manufacturing*, Vol. 12, No. 2, pp. 259-263, 1999.

Runger, G.C. and Fowler, J.W., "Run-to-Run Control Charts with Contrasts", *Quality and Reliability Engineering International*, Vol. 14, pp. 261-272, 1998.

Montgomery, D.C., Keats, J.B., Fowler, J.W., Runger, G.C., and **Rajavelu, G.**, "Statistical Monitoring Techniques for Contamination Data", *Journal of the Institute of Environmental Sciences*, Vol. 40, No. 2, pp. 23-30, 1997.

**Robinson, J.**, Fowler, J.W., and Bard, J., "The Use of Upstream and Downstream Information in Scheduling Semiconductor Batch Operations", *International Journal of Production Research*, Vol. 33, No. 7, pp. 1849-1870, 1995.

Duenyas, I., Fowler, J.W., and Schruben, L.W., "Planning and Scheduling in Japanese Semiconductor Manufacturing", *Journal of Manufacturing Systems*, Vol. 13, No. 5, pp. 323-332, 1994.

Fowler, J.W., Phillips, D.T., and Hogg, G.L., "Control of Multiproduct Bulk Server Diffusion/Oxidation Processes", *IIE Transactions*, Vol. 24, No. 4, pp. 84-96, 1992.

Wilhelm, W.E. and Fowler, J.W., "Workshop on Electronics Manufacturing Research", *IIE Transactions*, Vol. 24, No. 4, pp. 6-17, 1992.

Fowler, J.W., Phillips, D.T., and Hogg, G.L., "Real Time Control of Multiproduct Bulk Service Semiconductor Manufacturing Processes", *IEEE Transactions on Semiconductor Manufacturing*, Vol. 5, No. 2, pp. 158-163, 1992.

Fernando, E., Fowler, J.W., and Scullion, T., "Evaluation of RAMS-DO1 as a Tool for Project Programming", *Transportation Research Record*, No. 1262, pp. 105-115, 1990.

#### **CONFERENCE PROCEEDINGS REFEREED PAPERS (student names in bold)**

Ham, A., Park, M., Shin, H., Choi, S. (CSPI), Fowler, J., "Integrated Scheduling of Jobs, Reticles, Machines, AMHS and ARHS in a Semiconductor Manufacturing", pp. 1966-1973, 2020.

Mönch, L., Shen, L., and Fowler, J., "Heuristics for Order-Lot Pegging in Multi-Fab Settings", Winter Simulation Conference, pp. 1742-1752, 2020.

Rashwan, W., Fowler, J. and Arisha, A., "A multi-method scheduling framework for medical staff". *Proceedings of the 2018 Winter Simulation Conference*, 2018, pp. 1464-1475.

Fowler, J.W., "Personal reflections on the evolution of simulation over the past 35 years". *Proceedings of the 2018 Operational Research Society Simulation Workshop, SW 2018*, 2018, pp. 1-4.

Ham, A. and Fowler, J., "Constraint programming approach for scheduling batch operations with incompatible job families in fab and compatible job families in backend: FA: Factory automation". *Proceedings of the 2017 Advanced Semiconductor Manufacturing Conference (ASMC)*, 2017 28th Annual SEMI , 2017, pp. 294-297.

Cheng, R., Macal, C., Nelson, B., Rabe, M., Currie, C., Fowler, J. and Lee, L.H., "Simulation: the past 10 years and the next 10 years". *Proceedings of the 2016 Winter Simulation Conference*, 2016., pp. 2180-2192.

Fowler, J. W. and Mönch, L., "A Comparison of Discrete-Event Simulation Approaches for Complex Manufacturing Systems and Healthcare Systems", *Proceedings of the 16<sup>th</sup> Simulation in Production and Logistics (ASIM) Conference*, Dortmund, Germany, Sept. 23-25, 2015, pp. 447-457.

Tan, Y., Mönch, L., and Fowler, J. W., "Scheduling Jobs in a Two-Stage Flexible Flow Shop with Batch Processing Machines", *Proceedings of the 7th Multidisciplinary International Conference on Scheduling: Theory and Applications (MISTA)*, Prague, Czech Republic, Aug. 25-28, 2015, pp. 801-804.

Tan, Y., Mönch, L., and Fowler, J.W., "A Decomposition Heuristic for a Two-Machine Flow Shop with Batch Processing", *Proceedings of the Winter Simulation Conference*, Savannah, GA, Dec. 7-10, 2014, pp. 2490-2501.

**Cheng, J.**, Fowler, J.W., and Kempf, K., "Simulation-Based Multi-Mode Resource-Constrained Project Scheduling of Semiconductor Equipment Installation and Qualification", *Proceedings of the Winter Simulation Conference*, Berlin, Germany, Dec. 9-12, 2012, pp. 2183-2194.

**Ramirez-Nafarrate, A.**, Hafizoglu, B., Gel, E., and Fowler, J.W., "Comparison of Ambulance Diversion Policies via Simulation", *Proceedings of the Winter Simulation Conference*, Berlin, Germany, Dec. 9-12, 2012, pp. 967-978.

**Ramirez-Nafarrate, A.**, Fowler, J.W., and Wu, T., "Design of Centralized Ambulance Diversion Policies using Simulation-Optimization", *Proceedings of the Winter Simulation Conference*, Phoenix, AZ, Dec. 11-14, 2011, pp. 1251-1262.

**Bekki, J.**, Nelson, B.L., and Fowler, J.W., "Bootstrapping-Based Fixed-Width Confidence Intervals for Ranking and Selection", *Proceedings of the Winter Simulation Conference*, Baltimore, MD, Dec. 5-8, 2010, pp. 1024-1033.

**Ramirez-Nafarrate, A.**, Fowler, J., and Wu, T., "Bi-Criteria Analysis of Ambulance Diversion Policies", *Proceedings of the Winter Simulation Conference*, Baltimore, MD, Dec. 5-8, 2010, pp. 2315-2326.

Fowler, J.W., **Fu, M.**, Askin, R.G., Zhang, M., and **Haghevis, M.**, "Machine Qualification Management for a Semiconductor Back-end Facility", *Proceedings of the Winter Simulation Conference*, Baltimore, MD, Dec. 5-8, 2010, pp. 2486-2492.

**Ham, M.S.**, Lee, Y.H., and Fowler, J.W., "Integer Programming-Based Real-Time Scheduler in Semiconductor Manufacturing", *Proceedings of the Winter Simulation Conference*, Austin, TX, Dec. 13-16, 2009, pp. 1657-1666.

**Ramirez Nafarrate, A.**, Fowler, J.W. and Wu, T., "Analysis of Ambulance Diversion Policies for a Large-size Hospital", *Proceedings of the Winter Simulation Conference*, Austin, TX, Dec. 13-16, 2009, pp. 1875-1886.

**Araz, O.M.**, Fowler, J.W., Lant, T., and Jehn, M., “A Pandemic Influenza Simulation Model for Preparedness Planning” *Proceedings of the Winter Simulation Conference*, Austin, TX, Dec. 13-16, 2009, pp. 1986-1995.

**Lin, Y.K.**, Pfund, M.E., and Fowler, J.W., “Minimizing Makespans for Unrelated Parallel Machine Scheduling Problems”, IEEE International Conference on Service Operations, Logistics, and Informatics, Chicago, Illinois, July 22-24, 2009.

**Gul, S.**, Fowler, J.W., and B.T. Denton. “Modeling and Analysis of the Tradeoffs in Surgical Suite Performance Measures”, Proceedings of the 2009 INFORMS Simulation Society Research Workshop, pp. 80-84 (online version available at <http://www.informs-sim.org/2009informs-simworkshop/paper82-86.pdf>).

**Ramirez Nafarrate, A.**, Fowler, J.W. and Wu, T., “Modeling of Regional Healthcare Delivery Networks Using Distributed Simulation”, *17<sup>th</sup> Annual Industrial Engineering Research Conference*, Miami, FL, May 30-June 3, 2009, pp. 681-685.

**Johnson, R.T.**, Montgomery, D.C., Jones, B., and Fowler, J.W., “Comparing Designs for Computer Simulation Experiments”, *Proceedings of the Winter Simulation Conference*, Miami, FL, Dec. 7-10, 2008, pp. 463-470.

Lant, T., **Araz, O.M.**, Jehn, M., Christensen, C., and Fowler, J.W., “Simulating Pandemic Influenza Preparedness Plans for a Public University: A Hierarchical System Dynamics Approach”, *Proceedings of the Winter Simulation Conference*, Miami, FL, Dec. 7-10, 2008, pp. 1305-1313.

Chien, C.-F., Dauzère-Pérès, S., Ehm, H., Fowler, J.W., Jiang, Z., Krishnaswamy, S., Mönch, L. and Uzsoy, R., “Modeling and Analysis of Semiconductor Manufacturing in a Shrinking World: Challenges and Successes”, *Proceedings of the Winter Simulation Conference*, Miami, FL, Dec. 7-10, 2008, pp. 2093-2099.

Zimmermann, J., Mönch, L., Mason, S.J., and Fowler, J.W., “Determining an Appropriate Number of Froups in Semiconductor Wafer Fabrication Facilities”, *Proceedings of the Winter Simulation Conference*, Miami, FL, Dec. 7-10, 2008, pp. 2164-2170.

**Jarugumilli, S., Fu, M.**, Keng, N., DeJong, C., Askin, R. and Fowler, J.W., “Framework for Execution Level Capacity Allocation Decisions for Assembly – Test Facilities Using Integrated Optimization - Simulation Models”, *Proceedings of the Winter Simulation Conference*, Miami, FL, Dec. 7-10, 2008, pp. 2292-2297.

**Weng, S.-J.**, Wu, T., Mackulak, G.T., and Fowler, J.W., “Distributed Resource Allocation for Healthcare Systems”, Proceedings of the 2008 IEEE International Conference on Service Operations and Logistics, and Informatics, Beijing, China, October 12-15, 2008, pp. 1078-1083.

Araz, O., and Fowler, J.W., “Two Stage Stochastic Integer Programming Model for Workforce Cross Training”, *Proceedings of the 2008 Industrial Engineering Research Conference*, Vancouver, British Columbia, Canada, May 17-20, 2008, pp. 314-319.

Askin, R.G., Fowler, J.W., **Fu, M.**, and **Li, Q.**, “Optimal Shade Location for Urban Environments”, *Proceedings of the 2008 Industrial Engineering Research Conference*, Vancouver, British Columbia, Canada, May 17-20, 2008, pp. 899-904.

Huschka, T., Denton, B., **Gul, S.**, Fowler, J., “Bi-criteria Evaluation of an Outpatient Surgery Procedure Center Via Simulation”, *Proceedings of the Winter Simulation Conference*, Washington DC, Dec. 2007, pp. 1510-1518.

Habla, C., Mönch, L., Pfund, M.E., and Fowler, J.W., “A Decomposition Heuristic for Planning and Scheduling of Jobs on Unrelated Parallel Machines”, *Proceedings of the 3rd Multidisciplinary International Conference on Scheduling: Theory and Applications*, 2007, pp. 112-119.

**Laub, J.D.**, Fowler, J.W., and Keha, A.B., “Minimizing Makespan with Multiple Orders per Job in Mixed Flowshops”, *Proceedings of the 3rd Multidisciplinary International Conference on Scheduling: Theory and Applications*, 2007, pp. 301-308.

**Marquis, J.**, Fowler, J.W., Gel, E., Köksalan, Korhonen, P., and Wallenius, J., “Interactive Evolutionary Multicriteria Scheduling,” *Proceedings of the 3rd Multidisciplinary International Conference on Scheduling: Theory and Applications*, 2007, pp. 591-594.

**Bekki, J. E.**, Mackulak, G.T. and Fowler, J.W., “Indirect Cycle-Time Quantile Estimation for Non-FIFO Dispatching Policies”, *Proceedings of the Winter Simulation Conference*, Monterey, CA, Dec. 3-6, 2006, pp. 1829-1835.

**Chen, Y.**, Fowler, J.W., Wu, T., Ambrose, E., and Vincent Hargaden, “An Adaptive Distributed Simulation Framework for a Server Fulfillment Supply Chain”, *IEEE Conference on Automation Science and Engineering*, Shanghai, China, October 8-10, 2006, pp. 661-667.

**Lin, Y.K.**, Pfund, M.E., Fowler, J.W., and Montgomery, D.C., “Classification of Parallel Machine Environments under Various Correlation Structures”, *36th International Conference on Computers and Industrial Engineering*, Taipei, Taiwan, R.O.C., June 20-23, 2006, pp. 1253-1261.

Wu, T., Fowler, J., Callarman, T. and **Moorehead, A.**, “Multi-stage DEA as a Measurement of Progress in Environmentally Benign Manufacturing”, *The 16th International Conference on Flexible Automation and Intelligent Manufacturing*, Limerick, Ireland, June, 2006, pp. 221-228.

**Parmar, D.**, Wu, T., Fowler, J., Callarman, T. and Hargaden, V. “An Integrated Framework for Responsive Supply Chain Management,” *The 16th International Conference on Flexible Automation and Intelligent Manufacturing*, Limerick, Ireland, June, 2006, pp. 859-866.

**McNeill, J. E.**, Fowler, J.W., Mackulak, G.T. and Nelson, B.L., “Cycle-Time Quantile Estimation in Manufacturing Systems Employing Dispatching Rules”, *Proceedings of the Winter Simulation Conference*, Orlando, FL, Dec. 4-7, 2005, pp. 749-755.

**Jimenez, J.**, Mackulak, G.T. and Fowler, J.W., “Efficient Simulations for Capacity Analysis and Automated Material Handling System Design in Semiconductor Wafer Fabs”, *Proceedings of the Winter Simulation Conference*, Orlando, FL, Dec. 4-7, 2005, pp. 2157-2161.

**Johnson, R.T.**, Fowler, J.W., and Mackulak, G.T., “A Discrete Event Simulation Model Simplification Technique”, *Proceedings of the Winter Simulation Conference*, Orlando, FL, Dec. 4-7, 2005, pp. 2172-2176.

**Vardar, C.**, Gel, E.S., and Fowler, J.W., “Using Transient Simulations to Improve Field Service Systems for Semiconductor Manufacturing”, *3rd International Conference on Modeling and Analysis of Semiconductor Manufacturing (MASM 2005)*, Singapore, Oct. 6-7, 2005, pp. 140-146.

**Wirojanagud, P.**, Fowler, J.W., and Gel, E.S., “Workforce Planning in Semiconductor Manufacturing”, *3rd International Conference on Modeling and Analysis of Semiconductor Manufacturing (MASM 2005)*, Singapore, Oct. 6-7, 2005, pp. 222-230.

**Laub, J.**, Fowler, J., and Keha, A., “Minimizing Makespan with with Multiple Orders Per Job in a Two Machine Flowshop with Item Processing”, *Proceedings of the 2nd Multidisciplinary International Conference on Scheduling: Theory and Applications (MISTA 2005)*, New York, NY, July 18-21, 2005, pp. 288-298.

**Khowala, K.**, Keha, A., and Fowler, J., “A Comparison of Different Formulations for the Non-Preemptive Single Machine Total Weighted Tardiness Scheduling Problem”, *Proceedings of the 2nd Multidisciplinary International Conference on Scheduling: Theory and Applications (MISTA 2005)*, New York, NY, July 18-21, 2005, pp. 643-652.

**Pfund, M., Balasubramanian, H.,** Fowler, J., and **Mason, S.,** “A Bi-Criteria Approach to Scheduling Wafer Fabrication Facilities”, *Proceedings of the 2nd Multidisciplinary International Conference on Scheduling: Theory and Applications (MISTA 2005)*, New York, NY, July 18-21, 2005, pp. 276-287.

**Balasubramanian, H.,** Fowler, J.W., and Keha, A., “Bicriteria Scheduling of Equal Length Jobs with Ready Times on Identical Parallel Machines”, *Proceedings of the 2nd Multidisciplinary International Conference on Scheduling: Theory and Applications (MISTA 2005)*, New York, NY, July 18-21, 2005, pp. 112-122.

**Johnson, R.T., Leach, S.E.,** Fowler, J.W., and Mackulak, G.T., “Variance-Based Sampling for Cycle Time - Throughput Confidence Intervals”, *Proceedings of the Winter Simulation Conference*, Washington DC, Dec. 5-8, 2004, pp. 716-720.

Lendermann, P., Gan, B.P., Loh, Y.L., Tan, H.K., Lieu, S.K., Fowler, J.W., and McGinnis, L.F., “Analysis of a Borderless Fab Scenario in a Distributed Simulation Testbed”, *Proceedings of the Winter Simulation Conference*, Washington DC, Dec. 5-8, 2004, pp. 1896-1901.

Chong, C.S., Lendermann, P., Gan, B.P., **Duarte, B.M.,** Fowler, J.W., and Callarman, T.E., “Analysis of a Customer Demand Driven Semiconductor Supply Chain in a Distributed Simulation Test Bed”, *Proceedings of the Winter Simulation Conference*, Washington DC, Dec. 5-8, 2004, pp. 1902-1909.

Gan, B.P., Chong, C.S., Lendermann, P., **Duarte, B.M.,** Fowler, J.W., and Callarman, T.E., “Architecture and Performance of an HLA-Based Distributed Decision Support System for a Semiconductor Supply Chain”, 2004 Fall Simulation Interoperability Workshop, Orlando, FL, Sept. 19-24, 2004, Paper # 04F-SIW-109.

**Vardar, C.,** Fowler, J.W., and Gel, E., “Designing a Field Service System for Semiconductor Manufacturing Systems for Remote Diagnostics Era”, *12<sup>th</sup> Annual Industrial Engineering Research Conference*, Houston, TX, May 15-19, 2004, (no page numbers)

Mönch, L., Schmidt, J., **Balasubramanian, H.,** and Fowler, J.W., “A Decision Theory Approach for Scheduling Jobs with Unequal Ready Times and Incompatible Families on a Single Batch Processing Machine”, *12<sup>th</sup> Annual Industrial Engineering Research Conference*, Houston, TX, May 15-19, 2004, (no page numbers)

**McNeill, J.,** Mackulak, G.T., and Fowler, J.W., “Indirect Estimation of Cycle Time Quantiles from Discrete Event Simulation Models using the Cornish-Fisher Expansion”, *Proceedings of the Winter Simulation Conference*, New Orleans, LA, Dec. 7-10, 2003, pp. 1377-1382.

**D. Pabst, J. Fowler, M. Pfund, S. Mason, O. Rose, L. Moench, R. Sturm,** 'Deterministic Scheduling of Wafer Fab Operations', Brooks Worldwide Automation Symposium, Phoenix, AZ, Oct. 20-24, 2003 (no page numbers).

**Mason, S.J.,** Carlyle, W.M., and Fowler, J.W., “Improving MIP Solver Performance for Scheduling Complex Job Shops”, *11<sup>th</sup> Annual Industrial Engineering Research Conference*, Portland, OR, May 18-20, 2003, (no page numbers).

**Bullock, M.,** Fowler, J.W., and **Pfund, M.E.,** “Evaluation of Lot Dispatching Rules for Semiconductor Manufacturing”, *11<sup>th</sup> Annual Industrial Engineering Research Conference*, Portland, OR, May 18-20, 2003, (no page numbers).

**Duarte, B.M.,** Fowler, J.W., **Knutson, K.,** Gel, E., and Shunk, D., “Parameterization of Fast and Accurate Simulations for Complex Supply Networks”, *Proceedings of the Winter Simulation Conference*, San Diego, CA, Dec. 8-11, 2002, pp. 1327-1336.

**Jimenez, J., Kim, B.,** Fowler, J.W., Mackulak, G.T., Choung, Y.I., and Kim, D.-J., “Operational Modeling and Simulation of An Inter-Bay AMHS in Semiconductor Wafer Fabrication”, *Proceedings of the Winter Simulation Conference*, San Diego, CA, Dec. 8-11, 2002, pp. 1377-1382.

**Rasmidatta, C., Murray, S.,** Fowler, J.W., and Mackulak, G.T., "New Approaches for Simulation of Wafer Fabrication: The Use of Control Variates and Calibration Metrics", *Proceedings of the Winter Simulation Conference*, San Diego, CA, Dec. 8-11, 2002, pp.1414-1422.

Potoradi, J., Boon, O.S., **Mason, S.J.,** Fowler, J.W., and **Pfund, M.E.,** "Using Simulation-Based Scheduling to Maximize Demand Fulfillment in a Semiconductor Assembly Facility", *Proceedings of the Winter Simulation Conference*, San Diego, CA, Dec. 8-11, 2002, pp. 1857-1861.

Mönch, L., **Balasubramanian, H.,** Fowler, J.W., and **Pfund, M.E.,** "Minimizing Total Weighted Tardiness on Parallel Batch Process Machines Using Genetic Algorithms", *OR 2002: International Conference on Operations Research*, Klagenfurt, Austria, September 2-5, 2002, pp. 205-210.

**Pfund, M.,** Fowler, J., and Carlyle, M., "An Evaluation of Scheduling and Dispatching Algorithms in High Tech Manufacturing Environments with Uncertainty", *12<sup>th</sup> Annual International Conference on Flexible Automation and Intelligent Manufacturing*, Dresden, Germany, July 15-17, 2002, pp. 1224-1230.

Fowler, J., Brown, S., Carlyle, M., Gel, E., **Mason, S.,** Mönch, L., Rose, O., Runger, G., and Sturm, R., "A Modified Shifting Bottleneck Heuristic for Scheduling Wafer Fabrication Facilities", *12<sup>th</sup> Annual International Conference on Flexible Automation and Intelligent Manufacturing*, Dresden, Germany, July 15-17, 2002, pp. 1231-1236.

**Mason, S., Skinner, G., Qu, P., Jin, S., Wessels, C., Pfund, M.,** Fowler, J., Carlyle, M., and **Kim, B.,** "Scheduling and Rescheduling Methodologies", *12<sup>th</sup> Annual International Conference on Flexible Automation and Intelligent Manufacturing*, Dresden, Germany, July 15-17, 2002, pp. 1464-1471.

Carlyle, M., Fowler, J., **Pfund, M., Abraham R., Balasubramanian, H.,** and **Gadkari, A.,** "Semiconductor Wafer Fabrication Subproblem Solution Procedures for the Shifting Bottleneck Heuristic", *12<sup>th</sup> Annual International Conference on Flexible Automation and Intelligent Manufacturing*, Dresden, Germany, July 15-17, 2002, pp. 1434-1439.

Gel, E., Runger, G., **Pfund, M.,** Fowler, J., **Burhanuddin, A.,** and **Vardar, C.,** "Event and Data Triggers for Rescheduling in Wafer Fabs", *12<sup>th</sup> Annual International Conference on Flexible Automation and Intelligent Manufacturing*, Dresden, Germany, July 15-17, 2002, pp. 1440-1445.

**Fowler, L., Pfund, M.,** Yu, L., Fowler, J., and Carlyle, W., "Development of a Robust Scheduling Rule for a Printed Wiring Board Drilling Operation with Multiple Scheduling Objectives and Fixed Order Release / Pickup Times", *10<sup>th</sup> Annual Industrial Engineering Research Conference*, Orlando, FL, May 19-21, 2002, (no page numbers).

Scholl, W., Gel, E., **Khowala, K.,** and Fowler, J.W., "Use of Analytical Queuing Approximations to Set Processing Step Performance Targets at Infineon Technologies Dresden", *Proceedings of the International Conference on Modeling and Analysis of Semiconductor Manufacturing (MASM 2002)*, Tempe, Arizona, April 10-12, 2002, pp. 206-210.

Sung, C.S., Choung, Y.I., and Fowler, J.W., "Heuristic Algorithm for Minimizing Earliness-Tardiness on a Single Burn-In Oven in Semiconductor Manufacturing", *Proceedings of the International Conference on Modeling and Analysis of Semiconductor Manufacturing (MASM 2002)*, Tempe, Arizona, April 10-12, 2002, pp. 217-222.

**Pfund, M.** and Fowler, J.W., "Exploring the Boundaries between Scheduling and Dispatching in High-Tech Manufacturing Environments", *Proceedings of the Western Decisions Sciences Institute Conference*, Las Vegas, NV, April 2-5, 2002, pp.726-731.

**Park, S.,** Mackulak, G.T., and Fowler, J.W., "An Overall Framework for Generating Simulation-Based Cycle Time-Throughput Curves," *Proceedings of the Winter Simulation Conference*, Washington DC, Dec. 9-12, 2001, pp. 1178-1187.

- Knutson, K.**, Fowler, J., Kempf, K., **Duarte, B.**, and **Babu, P.**, “Modeling and Analysis Of Material Flows In Complex Supply Networks”, *SIMPOL/POMS 2001*, Sao Paulo, Brazil, August 11-14, 2001, pp. 1123-1131.
- Pfund, M.**, Fowler, J., and Brown, S., “The Need for Factory Dynamics Training for Technicians”, *Proceedings of the 7<sup>th</sup> Annual Advanced Technological Education in Semiconductor Manufacturing*, Austin, TX, July 30-August 3, 2001, Paper #14-C, on CD-ROM (no page numbers).
- Mason, S.J.**, and Fowler, J.W., “Maximizing Delivery Performance in Semiconductor Wafer Fabs—Potential Implementation Issues”, *10<sup>th</sup> Annual Industrial Engineering Research Conference*, Dallas, TX, May 2001, (no page numbers).
- Paprotny, I.**, and Fowler, J., “Investigating Run-Time Behavior of Distributed Semiconductor Manufacturing through Emulation of Distributed Environment”, *Proceedings of the Semiconductor Manufacturing Operational Modeling and Simulation Symposium '01*, Seattle, WA, April 24-25, 2001, pp. 24-29.
- Devpura, A.**, Carlyle, M., and Fowler, J., “Lower Bounds on Total Weighted Tardiness for a Single Batch Processing Machine with Incompatible Job Families”, *Proceedings of the Semiconductor Manufacturing Operational Modeling and Simulation Symposium '01*, Seattle, WA, April 24-25, 2001, pp. 80-86.
- Kempf, K., **Knutson, K.**, Fowler, J., **Armbruster, B.**, **Babu, P.**, and **Duarte, B.**, “Fast Accurate Simulation of Physical Flows in Demand Networks”, *Proceedings of the Semiconductor Manufacturing Operational Modeling and Simulation Symposium '01*, Seattle, WA, April 24-25, 2001, pp. 111-116.
- Carlyle, W.M., **Kim, B.**, Fowler, J.W., and Gel, E.S., “Comparison of multiple objective genetic algorithms for parallel machine scheduling algorithms”, *Evolutionary Multi-Criteria Optimization*, Zitzler *et al.*, eds., *Lecture Notes in Computer Science*, 1993, Zurich, Switzerland, March 7-9, 2001, pp. 472-485.
- Mason, S.J.** and Fowler, J.W., “Maximizing Delivery Performance in Semiconductor Wafer Fabrication Facilities”, *Proceedings of the Winter Simulation Conference*, Orlando, FL, Dec. 10-13, 2000, pp. 1458-1463.
- Murray, S.**, Mackulak, G.T., Fowler, J.W., and Colvin, T., “A Simulation-Based Cost Modeling Methodology for Evaluation of Interbay Material Handling in a Semiconductor Wafer Fab”, *Proceedings of the Winter Simulation Conference*, Orlando, FL, Dec. 10-13, 2000, pp. 1510-1517.
- Devpura, A.**, Fowler, J.W., Carlyle, W.M., and **Perez, I.**, “Minimizing Total Weighted Tardiness on a Single Batch Process Machine with Incompatible Job Families”, *Symposium on Operations Research 2000*, Dresden, Germany, September 9-12, 2000, pp. 366-371.
- Kim, B.**, Gel, E., Carlyle, W.M., and Fowler, J.W., “An *A Posteriori* Evaluation Technique for Bi-criteria Parallel Machine Scheduling Algorithms”, *15<sup>th</sup> International Conference on Multiple Criteria Decision Making*, Ankara, Turkey, July 10-14, 2000, pp. 113-123.
- Delp, D.**, Si, J., Collins, D., Hunter, J., and Fowler, J., “Development of a Full-Scale and Reduced Semiconductor Manufacturing Model for Advanced Input Control and Bottleneck Queuing”, *Proceedings of the International Conference on Modeling and Analysis of Semiconductor Manufacturing (MASM 2000)*, Tempe, Arizona, May 10-12, 2000, pp. 220-225.
- Walsh, M.**, Carlyle, W. M., Fowler, J.W., and **Wee, C.**, “Modeling Operator Cross Training in wafer Fabrication Given Uncertain Demand: A Stochastic Programming Approach”, *Proceedings of the International Conference on Modeling and Analysis of Semiconductor Manufacturing (MASM 2000)*, Tempe, Arizona, May 10-12, 2000, pp. 226-232.
- Shirodkar, S.**, **Arnold, C.W.**, Kempf, K., and Fowler, J.W., “Modeling and Simulating Supply Chains for Increased Performance and Profitability”, *Proceedings of the International Conference on Modeling and Analysis of Semiconductor Manufacturing (MASM 2000)*, Tempe, Arizona, May 10-12, 2000, pp. 346-352.

**Stray, J.**, Fowler, J.W., and Carlyle, W.M., "Enterprise-Wide Strategic and Logistics Planning for Semiconductor Manufacturing", *Proceedings of the International Conference on Modeling and Analysis of Semiconductor Manufacturing (MASM 2000)*, Tempe, Arizona, May 10-12, 2000, pp. 353-356.

Schömig, A. and Fowler, J., "Modelling Semiconductor Manufacturing Operations", *Proceedings of the 9<sup>th</sup> ASIM Simulation in Production and Logistics Conference*, Berlin, Germany, March 8-9, 2000, pp. 55-64.

Fowler, J.W., "Wafer Fab Operations: Modeling, Analysis and Design", *Proceedings of the 2000 NSF Design & Manufacturing Research Conference*, Vancouver, British Columbia, Canada, January 3-6, 2000, Paper #OR-9, on CD-ROM (no page numbers).

**Park, S., Hickie, M.**, Fowler, J., and Carlyle, M., "Assessment of Potential Gains in Productivity Due to Proactive Reticle Management Using Discrete Event Simulation", *Proceedings of the Winter Simulation Conference*, Phoenix, AZ, Dec. 5-8, 1999, pp. 856-864.

**Hickie, M.** and Fowler, J., "Ancillary Effects of Simulation", *Proceedings of the Winter Simulation Conference*, Phoenix, AZ, Dec. 5-8, 1999, pp. 754-758.

Cochran, J.K., **Horng, S.-H.**, and Fowler, J.W., "An Overview of a New Class of Genetic Algorithms for the M Identical Parallel Machine Scheduling Problem", *Proceedings of the 3<sup>rd</sup> International Conference on Engineering Design and Automation*, Vancouver, Canada, August 1-4, 1999, pp. 230-237.

**Barreras, C., Anderson, D.**, and Fowler, J., "A Review of Supply Chain Management Efforts in the Semiconductor Industry", *Proceedings of the Industrial Engineering Solutions '99 Conference*, Phoenix, AZ, May 23-26, 1999, pp. 198-205.

**Wee, C.-L.**, Fowler, J.W., Carlyle, W.M. and Chang, Y.S., "Modeling Operators in Wafer Fabrication", *Proceedings of the Industrial Engineering Research Conference*, Phoenix, AZ, May 23-24, 1999, Paper #171, on CD-ROM (no page numbers).

Shunk, D.L. and Fowler, J.W., "Establishing the Supply Chain Information Integration Requirements for the Remanufacturing Industry", *Proceedings of the Industrial Engineering Research Conference*, Phoenix, AZ, May 23-24, 1999, Paper #189, on CD-ROM (no page numbers).

**Hickie, M.**, Fowler, J. and Carlyle, M., "Photolithography Management Through Network Analysis", *Proceedings of the International Conference on Semiconductor Manufacturing Operational Modeling and Simulation '99*, San Francisco, CA, January 18-20, 1999, pp. 127-132.

Chang, Y.S., Carlyle, M., Fowler, J. and **Shin, S.H.**, "Planning for Multiple-Flow Semiconductor Manufacturing Systems", *Proceedings of the International Conference on Semiconductor Manufacturing Operational Modeling and Simulation '99*, San Francisco, CA, January 18-20, 1999, pp. 195-200.

**Phojanamongkolkij, N.**, Cochran, J. and Fowler, J., "Multi-Products Multi-Servers Bulk Service Queue with Threshold Service Size", *Proceedings of the International Conference on Semiconductor Manufacturing Operational Modeling and Simulation '99*, San Francisco, CA, January 18-20, 1999, pp. 153-158.

Fowler, J.W., Gershwin, S.B., and Kumar, P.R., "Wafer Fab Operations: Modeling, Analysis and Design", *Proceedings of the 1999 NSF Design & Manufacturing Grantees Conference*, Long Beach, CA, January 5-8, 1999, Paper #OR-9, on CD-ROM (no page numbers).

Fowler, J.W., Fu, M., Schruben, L., Brown, S., Chance, F., Cunningham, S., Hilton, C., Janakiram, M., Stafford, R., and Hutchby, J., "Operational Modeling and Simulation in Semiconductor Manufacturing", *Proceedings of the Winter Simulation Conference*, Washington DC, Dec. 13-16, 1998, pp. 1035-1040.

**Horng, S.-M.**, Fowler, J., and Cochran, J., "Using Genetic Algorithms to Solve Scheduling Problems in Wafer Fabrication", *Proceedings of the Joint Conference of the Fifth International Conference on Automation Technology and 1998 International Conference of Production Research (Asia Meeting)*, Taipei,

Taiwan, R.O.C., July 20-22, 1998, Paper # A5-5 on CD-ROM (no page numbers).

**Flores, C.**, Fowler, J.W., and Meyersdorf, D., "Understanding 300mm WIP Management Issues using ASAP", *Proceedings of AutoSimulation's Mining for Gold Symposium*, Salt Lake City, UT, June 22-25, 1998, pp. 259-264.

Lin, C., Meyersdorf, D., and Fowler, J.W., "Automated Material Handling System Design for 300mm Semiconductor Fabrication Facilities", *Proceedings of the 5<sup>th</sup> International Materials Handling Research Colloquium*, Chandler, AZ, June 20-24, 1998, Paper No. 8 on CD-ROM (no page numbers).

Padillo, J., and Fowler, J.W., "Designing Backend Semiconductor Facilities: A Methodology and Performance Evaluation of Layout Philosophies", *Proceedings of the 2<sup>nd</sup> Annual SEMI Test Assembly & Packaging Automation and Integration Conference*, Mesa, AZ, pp. O11-O23, February 17-18, 1998.

Fowler, J.W., Brown, S.W., Gold, H., Schoemig, A., "Measurable Improvements in Cycle-Time Constrained Capacity", *Proceedings of the 6<sup>th</sup> International Symposium on Semiconductor Manufacturing*, San Francisco, CA, pp. A21-A24, 1997.

Meyersdorf, D., Biron, O., Ozelkan, E.C., and Fowler, J.W., "Staffing Analysis Tool for Operator-Machine-Lot Interference in Semiconductor Manufacturing", *Proceedings of the IEEE/SEMI Advanced Semiconductor Manufacturing Conference*, Boston, MA, pp. 335-340, 1997.

**Mason, S.J.**, Jensen, P.A., and Fowler, J.W., "A Comparison of the Logic of Four Wafer Fabrication Simulators", *Proceedings of the Winter Simulation Conference*, San Diego, CA, 1996, pp. 1031-1038.

Chance, F., **Robinson, J.**, and Fowler, J., "Supporting Manufacturing with Simulation: Model Design, Development, and Deployment", *Proceedings of the Winter Simulation Conference*, San Diego, CA, 1996, pp. 114-121.

White, K. and Fowler, J.W., "Multi-Model Optimization in SWIM", *Proceedings of the 1994 IEEE International Conference on Systems, Man, and Cybernetics*, San Antonio, TX, Oct. 2-4, 1994, pp. 221-226.

White, K.P. and Fowler, J.W., "Multi-Model Optimization in the Design of Semiconductor Manufacturing Facilities: Theoretical Foundations and Practical Problems", *Proceedings of the 1994 International Conference on Industry, Engineering, and Management Systems*, Cocoa Beach, FL, March 14-16, 1994.

**Robinson, J.**, Schruben, L.W., and Fowler, J.W., "Experimenting with Large-Scale Semiconductor Manufacturing Simulations: A Frequency Domain Approach to Factor Screening", *Proceedings of the 2<sup>nd</sup> IE Research Conference*, Los Angeles, CA, May 26-27, 1993, pp. 112-116.

Worhach, P., and Fowler, J.W., "Object Oriented Simulation for Equipment Level Design and Analysis in Semiconductor Manufacturing", *Proceedings of International Conference on Object-Oriented Manufacturing Systems*, Calgary, Alberta, May 4-6, 1992, pp. 281-285.

Klutke, G.A., **Kammer-Kerwick, M.**, and Fowler, J.W., "Stochastic Control of Wafer Fabrication Processes in Semiconductor Manufacturing", *Proceedings of the 1<sup>st</sup> IE Research Conference*, Chicago, IL, May 20-21, 1992, pp. 449-453.

Reimann, M.D. and Fowler, J.W., "The Expert Programming System - One (EPS-1)", *Proceedings of the 4<sup>th</sup> International State-Of-The-Art Conference on Solids Modeling*, Boston, Massachusetts, 1987.

Piumsomboon, P., Handwerker, M., Fowler, J., Hogg, G., and Phillips, D., "Introduction to GEMS-II for Microcomputers", *Proceedings of the Summer Computer Simulation Conference*, Chicago, IL, July 22-24, 1985, pp. 105-111.

Ketcham, M.G., Fowler, J.W., and Phillips, D.T., "New Directions for the Design of Advanced Simulation Systems", *Proceedings of the Winter Simulation Conference*, Dallas, Texas, 1984.

## BOOKS

Tolk, A., Fowler, J., Shao, G. and Yücesan, E. eds., *Advances in Modeling and Simulation: Seminal Research from 50 Years of Winter Simulation Conferences*. Springer, 2017.

Mönch, Lars, John W. Fowler, and Scott J. Mason. *Production Planning and Control for Semiconductor Wafer Fabrication Facilities: Modeling, Analysis, and Systems*. Vol. 52. Springer, 2013.

## BOOK CHAPTERS

Tolk, A., Fowler, J., Shao, G. and Yücesan, E., 2017. A Brief Introduction to the Winter Simulation Conference. *Advances in Modeling and Simulation*, Springer US, pp. 1-16.

Fowler, J.W. and Mönch, L., 2017. Modeling and Analysis of Semiconductor Manufacturing. *Advances in Modeling and Simulation*, Springer US, pp. 301-313.

Ankenman, B. E., **Bekki, J. M.**, Fowler, J., Mackulak, G. T., Nelson, B. L., & Yang, F., 2011, Simulation in Production Planning: An Overview with Emphasis on Recent Developments in Cycle Time Estimation. In *Planning Production and Inventories in the Extended Enterprise*, Springer US, pp. 565-591.

Fowler, J.W., Moench, L., and Rose, O., 2006, "Scheduling and Simulation", *Handbook of Scheduling*, edited by J.W. Herrmann, Springer International Series, pp.109-134.

**Pfund, M.E., Mason, S.J.**, and Fowler, J.W., 2006, "Semiconductor Manufacturing Scheduling and Dispatching", *Handbook of Scheduling*, edited by J.W. Herrmann, Springer International Series, pp. 213-242.

Callarman, T., J. W. Fowler, E. S. Gel, **M. Pfund**, D. Shunk, 2004, "Creating a Research Agenda Framework for Semiconductor Supply Network Integration", *Evolution of Supply Chain Management: Symbiosis of Adaptive Value Networks and ICT*, edited by Y.S. Chang, H.C. Makatsoris, and H.D. Richards, Kluwer Academic Publishers, Ch. 6, pp. 161-201.

Fowler, J. W. and Schömig, A.K., 2003, "Simulation of Manufacturing Systems", *Applied System Simulation: Methodologies and Applications*, edited by M.S Obaidat and G.I Papadimitriou, Kluwer Academic Publishers, Ch. 15, pp. 343-364.

**Kim, B.**, E. S. Gel, W. M. Carlyle, and J. W. Fowler, 2001, "A new technique to compare algorithms for bi-criteria combinatorial optimization problems", *MCDM in the New Millennium*, M. Koksalan and S. Zions, eds., *Lecture Notes in Economics and Mathematical Systems*, Vol. **507**, Springer Verlag, pp. 113-123.

Carlyle, W. M., **B. Kim**, J. W. Fowler and E. S. Gel, 2001, "Comparison of multiple objective genetic algorithms for parallel machine scheduling algorithms", *Evolutionary Multi-Criteria Optimization*, Zitzler et al., eds. *Lecture Notes in Computer Science*, Vol. **1993**, pp. 472-485.

Yücesan, E. and Fowler, J.W., "Simulation Analysis of Manufacturing and Logistics Systems", *Kluwer Encyclopedia of Production and Manufacturing Management*, 2000, pp. 687-697.

Yücesan, E. and Fowler, J.W., "Simulation Software Selection", *Kluwer Encyclopedia of Production and Manufacturing Management*, 2000, pp. 709-711.

White, K.P. and Fowler, J.W., "Manufacturing Technologies", a contributed article to The 1995 McGraw-Hill Yearbook of Science and Technology, 1995.

Duenyas, I., Fowler, J.W., and Schruben, L.W., "Japan's Development of Scheduling Methods for Manufacturing Semiconductors", a contributed chapter to Engineered in Japan: Japanese Technology-Management Practices edited by J.K. Liker, J.E. Ettlie, and J.C. Campbell, Oxford University Press, 1995.

Phillips, D.T. and Fowler, J.W., "Simulation", a contributed chapter to The Warehouse Management Handbook edited by J.A. Tompkins and J.D. Smith, McGraw-Hill, 1988.

#### **OTHER PUBLICATIONS (student names in bold)**

Chien, C.F., H. Ehm, J. Fowler, and L. Mönch. "Modeling and Analysis of Semiconductor Supply Chains", Dagstuhl Seminar 16062, Dagstuhl Reports, 6 (2): pp.28-64, 2016.

Fowler, J.W., Mackulak, G.T. Ankenman, B., and Nelson, B.L., "Procedures for Efficient Cycle Time-Throughput Curve Generation", *2003 NSF Design and Manufacturing Grantees Conference*, Phoenix, AZ, January 2005.

Fowler, J.W., Mackulak, G.T. Ankenman, B., and Nelson, B.L., "Procedures for Efficient Cycle Time-Throughput Curve Generation", *2003 NSF Design and Manufacturing Grantees Conference*, Dallas, TX, January 2004.

Daskin, M. S., W. M. Carlyle, E. S. Gel and J. W. Fowler, "Experiments with an Integrated Preference Function for Assessing a Genetic Algorithm for the Center-Median Location Tradeoff", *2003 NSF Design and Manufacturing Grantees Conference*, Birmingham, AL, January 2003.

Fowler, J.W., Mackulak, G.T. Ankenman, B., and Nelson, B.L., "Procedures for Efficient Cycle Time-Throughput Curve Generation", *2003 NSF Design and Manufacturing Grantees Conference*, Birmingham, AL, January 2003.

Fowler, J.W., Carlyle, W.M., Runger, G., Gel, E., Mason, S.J., and Rose, O., "A New Approach for Scheduling Semiconductor Wafer Fabs", *Semiconductor Fabtech*, 15<sup>th</sup> Edition, pp. 39-41, Fall, 2001.

Chang, Y.S., **Krishnamurthy, V.**, Fowler, J., Mou, J.-I., and Kim, R., "Laser Marking Study Proves Benefits of Simulation for Backend Tools", *Solid State Technology*, Vol. 44, No. 8, pp. 85-90, 2001.

McGinnis, L., Fowler, J., Gershwin, S., Leachman, R., Irwin, J., Scott, D., and Weiss, M., "Challenges in Fab Design", *Semiconductor Fabtech*, 14<sup>th</sup> Edition, pp. 37-41, Summer, 2001.

Scott, D., Irwin, J., McGinnis, L., Fowler, J., and Gershwin, S., "Productivity Research Institute for Semiconductor Manufacturing: Part I - An Introduction", *Semiconductor Fabtech*, 13<sup>th</sup> Edition, pp. 39-42, Spring, 2001.

Padillo, J. M. and Fowler, J.W., "Overall Equipment Effectiveness: The Future Survival of the Historical Productivity Growth in the Semiconductor Industry", *Channel (SEMI)*, Volume 12, No. 1, pp. 7-8, 1999.

Fowler, J.W., "Overall Equipment Effectiveness", @MATEC, Newsletter for the Maricopa Advanced Technology Education Center, Volume 1, No. 4, P. 5, 1998.

Brown, S. and Fowler, J.W., "Factory Performance Analysis: A Wafer Fab Case Study", *Future Fab International*, Issue 4, Volume 1, pp. 77-80, 1997.

Brown, S., Chance, F., Fowler, J., and Robinson, J., "A Centralized Approach to Factory Simulation," *Future Fab International*, Issue 3, Volume 1, pp. 83-88, 1997.

Fowler, J.W. and Robinson, J., MIMAC Design Experiment Report, SEMATECH Technology Transfer Document #95062860A-XFR, August 1995.

Fowler, J.W. and Robinson, J., MIMAC Final Report, SEMATECH Technology Transfer Document #95062861A-XFR, July 1995.

Fowler, J.W. and Robinson, J., MIMAC Bibliography, SEMATECH Technology Transfer Document #94062424A-XFR, June 1994.

Robinson, J. and Fowler, J.W., Operational Model Assessment-Phase II, SEMATECH Technology Transfer Document #94032263A-ENG, March 1994.

Fowler, J.W. and Schruben, L., Case Studies of European/Japanese Operational Modeling Capabilities, SEMATECH Technology Transfer Document #93092021A-XFR, June 1994.

Schruben, L., Robinson, J., and Fowler, J., Frequency Domain Experiments in the Analysis of Manufacturing Systems, SEMATECH Technology Transfer Document #93041593A-ER, Oct. 1994.

Stanley, T. et al., Benchmarking Semiconductor Wafer Fabrication Modeling Tools, SEMATECH Technology Transfer Document #92051145A-XFR, June 1992.

Fowler, J.W., Factory Performance Modeling Software External Functional Specification 1.0, SEMATECH Technology Transfer Document #92041046A-ENG, April 1992.

Schruben, L.W. and Fowler, J.W., Benchmarking Foreign Discrete-Event Simulation Methodology, SEMATECH Technology Transfer Document #92031031A-XFR, April 1992.

Hogg, G.L. and Fowler, J.W., Flow Control in Semiconductor Manufacturing: A Survey and Projection of Needs, SEMATECH Technology Transfer Document #91110757A-GEN, Dec. 1991.

Hogg, G.L. and Fowler, J.W., Annotated Bibliography on Order Release and Dispatching in Wafer Fabrication, SEMATECH Technology Transfer Document #91120785A-XFR, Dec. 1991.

Phillips, D.T. et al., Manufacturing Systems Research, 1989-1990 Final Report for SRC/SEMATECH Center of Excellence, Contract No. 88-MC-506, 1990.

Fowler, J.W. et al., RAMS-DO1 as a Decision Support Tool, Texas Transportation Institute for the Texas Department of Highways and Public Transportation, Study 930, 1988.

Paredes, M. et al., MICRO-PES Release 1.0 User's Manual, Texas Transportation Institute for the Texas Department of Highways and Public Transportation, Study 930, 1988.

Phillips, D.T. and Fowler, J.W., IDEF2/IDSS2.0 Dynamics Modeling and Systems Analysis, Technology Transfer Materials for the Air Force ICAM Program Office, 1982.

Fowler, J.W. and Phillips, D.T., IDEF2/IDSS2.0 Dynamics Modeling and Systems Analysis Solution Manual, Technology Transfer Materials for Air Force ICAM Program Office, 1983.

## **INVITED PRESENTATIONS**

“MASM: A Look Back and a Peek Ahead”, Plenary Talk, 11<sup>th</sup> International Conference on Modeling and Analysis of Semiconductor Manufacturing (MASM), Huntington Beach, CA, Dec. 6-9, 2015.

“Simulation of Healthcare Systems”, Plenary Talk, 2011 INFORMS Simulation Society Research Workshop: Simulation in Complex Service Systems, HEC Montréal, Canada, July 18 - 20, 2011.

“Healthcare Systems Engineering”, Plenary Talk, 5th International Conference on Production Research, Bogota, Columbia, July 21-23, 2010.

“Healthcare Systems Engineering”, Plenary Talk, EURANDOM Conference on Stochastic Models of Manufacturing Systems, Eindhoven, The Netherlands, June 24-25, 2010.

“Science of Healthcare Delivery”, University of Hagen, Germany, March 5, 2010.

“Modeling and Analysis of Semiconductor Manufacturing”, Department of Industrial Engineering, National Tsing Hua University, R.O.C., Nov. 1, 2005.

“Modeling and Analysis of Semiconductor Manufacturing”, Operations Research Society of Taiwan, R.O.C., Nov. 4, 2005.

“Modeling and Analysis of Semiconductor Manufacturing Case Studies”, NCCU, Taiwan, Nov. 4, 2005.

“Modeling and Simulation in Semiconductor Manufacturing”, Chartered Semiconductor, August 20, 2004.

“Experiential Learning Tools for Operations Management”, INFORMS Teaching Effectiveness Colloquium, October 18, 2003.

“FORCe Scheduling and Simulation Workshop”, TSMC, January 16, 2003.

“From Customer Demand to Order Release”, Singapore Institute of Technology Technical Seminar, January 14, 2003.

“Scheduling Fab Operations and the Factory Operations Research Center”, Brooks – PRI Automation’s Worldwide Automation and Performance Symposium, Scottsdale, Arizona, October 14-18, 2002.

“Modeling and Analysis of Semiconductor Manufacturing Operations”, Manufacturing Keynote Address, Dagstuhl Workshop: Grand Challenges for Modelling and Simulation, Wadern, Germany, August 26-30, 2002.

“Modeling and Analysis of Semiconductor Manufacturing Operations”, Technical University of Ilmenau, Ilmenau, Germany, July 15, 2002.

“The Need for Planning and Scheduling in Wafer Fabs” (with **S. Mason**), Gintic Institute for Manufacturing Technology, Singapore, July 31, 2001.

“Scheduling Approaches For Manufacturing Operations”, *Infineon Technical Symposium on Simulation*, Dresden, Germany, September 13-15, 2000.

“Future Challenges in Lean Enterprises: Workforce Issues” (with W. Matthew Carlyle and Esma Gel), *Continuous Improvement Symposium on Lean Enterprises*, JACME<sup>2</sup>T, Tempe, AZ, February 10, 2000.

“Delivering Systems Solutions in Microelectronics Fabrication Operations”, *Delivering Solutions Technology Symposium*, The ASU/Motorola Partnership, Tempe, AZ, November 11, 1999.

“Modeling and Analysis of Semiconductor Manufacturing Operations”, Central Arizona Chapter of IIE Meeting, Tempe, AZ, January 27, 1999.

“Semiconductor Industry Association Technology Roadmap”, 5<sup>th</sup> International Materials Handling Research Colloquium, Chandler, AZ, June 20-24, 1998.

“Modeling and Analysis of Semiconductor Manufacturing”, Oracle Semiconductor Advisory Board Meeting, Phoenix, AZ, March 5-6, 1998.

“Modeling and Analysis of Semiconductor Manufacturing Operations”, National Chiao Tung University, Taiwan, November 21, 1997.

“Multivariate Analysis in the Semiconductor Industry” (with D.C. Montgomery, G.C. Runger, and **T.R. Rhoads**), SSERC Multi Scale Integration Manufacturing & Assembly Processes Workshop, ASU, October 17, 1997.

“Some Observations on Semiconductor Manufacturing and Cost Modeling” (with Professor Hal Reneau, School of Accountancy and Information Management, ASU), 1<sup>st</sup> Manufacturing Institute Seminar, ASU, October 10, 1997.

“The Relationship Between Capacity and Cycle Time”, Samsung Electronics Corp. - Semiconductor Business Managers Forum, Berkeley, CA, May 20, 1997.

“OEE and TPM in the Semiconductor Industry”, Dallas Semiconductor, May 2, 1997.

“Introduction to the Modeling and Analysis of Semiconductor Manufacturing Laboratory”, Workshop on Semiconductor Manufacturing Control, ASU, February 14, 1997.

“Potential Uses of Real-Time Information in Semiconductor Manufacturing”, University of Arizona Systems and Industrial Engineering Seminar Series, Tucson, Arizona, November 21, 1996.

“Modeling Semiconductor Manufacturing Operations”, International Society for Pharmaceutical Engineering Annual Meeting, San Diego, California, November 3-7, 1996.

“Impact of Layout on the Performance of Assembly/Packaging/Test Operations”, Motorola International Symposium on Factory Integration and Modeling, Austin, Texas, September 25-27, 1996.

“Modeling of Semiconductor Manufacturing”, Korean Advanced Institute of Science and Technology, Taejon, Korea, August 22, 1996.

“Cycle Time and Capacity Relationship”, The 2<sup>nd</sup> Annual Visions of Excellence in Semiconductor Manufacturing - Tefen, USA, Austin, Texas, June 19, 1996

“The Relationship Between Capacity and Cycle Time”, Samsung Electronics Corp. - Semiconductor Business Managers Forum, Berkeley, CA, May 14, 1996.

“Modeling of Assembly, Packaging, and Test Operations”, Electronics Packaging Workshop, ASU, May 9, 1996.

“Overall Equipment Effectiveness Study”, Workshop on Semiconductor Manufacturing Control and Optimization, Tempe, Arizona, February 14, 1996.

“Photolithography Simulation Study”, Workshop on Semiconductor Manufacturing Control and Optimization, Tempe, Arizona, February 14, 1996.

“Uncertainty in Semiconductor Manufacturing: The Role of Stochastic Programming?”, NSF/IFIP Workshop on Stochastic Programming, Tucson, Arizona, January 19, 1996.

“The Relationship Between Capacity and Cycle Time”, Motorola International Symposium on Factory Integration and Modeling, Tempe, Arizona, October 19-20, 1995.

“The Need for Modeling, Control, and Optimization of Semiconductor Manufacturing Operations”, Workshop on Semiconductor Manufacturing Control and Optimization, Tempe, Arizona, October 6, 1995.

“Operational Modeling of Semiconductor Manufacturing in the United States”, University of Würzburg, Germany, December 10, 1993.

“Potential Uses of Real-Time Information in Semiconductor Manufacturing”, Texas Instrument's Cycle Time Reduction Meeting-III, Dallas, Texas, November 8-12, 1993.

“Control of Batch Semiconductor Operations”, Special Interest Group on Simulation, Operations Research Society of Japan, Waseda University, Tokyo, Japan, March 16, 1993.

“Batch Processing in Wafer Fabrication”, ORSA/TIMS, San Francisco, California, November 1-4, 1992.

“The Need for Real-Time Control of Semiconductor Manufacturing”, NSF Workshop on Hierarchical Control for Real-Time Scheduling of Manufacturing Systems, Lincoln, New Hampshire, October 16-18, 1992. Material presented by Dr. Gerald Feigin, IBM.

“Control of Batch Service Queues”, Northwestern Industrial Engineering Seminar, April 14, 1992.

PANEL: “Modeling and Optimizing Semiconductor Manufacturing: State of the Art and Future Challenges”, ORSA/TIMS, Anaheim, CA, November 3-6, 1991.

“Strategic Control of Batch Service Semiconductor Manufacturing Processes”, 29<sup>th</sup> Annual Allerton Conference on Communication, Control and Computing, Monticello, IL, October 2-4, 1991.

“Batch Processing in the Semiconductor Industry”, University of Texas at Austin Operations Research Seminar, February 13, 1991.

#### CONFERENCE PRESENTATIONS (student names in bold)

“A Multi-stage Stochastic Programming Model for Surgery Planning” (with **S. Gul** and B. Denton), INFORMS Annual Meeting, Austin, TX, USA, November 7-10, 2010.

“Optimal Daily Assignment of Surgeries to Operating Rooms” (with **S. Gul** and B. Denton), INFORMS Annual Meeting, San Diego CA, USA, October 11-14, 2009.

“Bi-Criteria Scheduling of an Outpatient Procedure Center” (with **S. Gul**, B. Denton, and T. Huschka), 4th Multidisciplinary International Scheduling Conference: Theory & Applications, Dublin, Ireland, August 10-12, 2009.

“Regional Emergency Preparedness for Regional Healthcare Networks” (with **A. Ramirez Nafarrate** and T. Wu, *19<sup>th</sup> Annual Conference of the Production and Operations Management Society* , La Jolla, CA, May 9-12, 2009.

“Design and Analysis of Ambulance Diversion Policies” (with **A. Ramirez Nafarrate** and E. Gel), *17<sup>th</sup> Annual Industrial Engineering Research Conference*, Miami, FL, May 30-June 3, 2009.

“Bi-criteria Surgery Scheduling of an Outpatient Procedure Center” (with **S. Gul**, B. Denton, and T. Huschka), Western Decision Sciences Institute Annual Meeting, Kauai HI, USA, April 7-11, 2009.

“Interactive Evolutionary Multiobjective Optimization for Quasi-Concave Preference Functions,” (with E. Gel, M. Köksalan, P. Korhonen, **J. Marquis**, and J. Wallenius), DSI, Phoenix, Nov. 17-20, 2007.

“Interactive Evolutionary Multicriteria Scheduling,” (with E. Gel, M. Köksalan, P. Korhonen, **J. Marquis**, and J. Wallenius), INFORMS, Seattle, Nov. 4-7, 2007.

"Workforce Planning Models with Individual Worker Differences," (with E. Gel and **P. Wirojanagud**), INFORMS Annual Meeting, Seattle, WA, November 17- 20, 2007.

"A Strategic Capacity Allocation Game in the High-Tech Industry"(with **Y. Sun** and D. Shunk), INFORMS International Meeting 2007, Puerto Rico, July 8-11, 2007.

“An Interactive Evolutionary Approach Based on Convex Preference Cones to Multiobjective Optimization” (with E. Gel, M. Köksalan, P. Korhonen, **J. Marquis**, and J. Wallenius), INFORMS, Pittsburgh, Nov. 4-8, 2006.

“Evaluating Lot Allocation Policies in Semiconductor Supply Chains” (with **Y. Sun** and D. Shunk), INFORMS, Pittsburgh, Nov. 4-8, 2006.

“Mixture Experiments in Robust k Design” (with **J. Chen**, **M. Pfund**, and D. Montgomery), INFORMS, San Francisco, Nov. 13-16, 2005.

“Processing Time Generation Schemes for Parallel Machine Scheduling Problems with Various Correlation” (with **Y. Lin** and **M. Pfund**), INFORMS, San Francisco, Nov. 13-16, 2005.

“Estimating Cycle-Time Quantiles in Manufacturing Systems” (with **J. McNeill**, G. Mackulak, and B.

Nelson), INFORMS, San Francisco, Nov. 13-16, 2005.

“Methodology for Simplification of Simulation Models” (with **R. Johnson** and G. Mackulak), INFORMS, San Francisco, Nov. 13-16, 2005.

“The Generalized Lot Allocation Problem in Semiconductor Supply Chains” (with **Y. Sun** and D. Shunk), INFORMS, San Francisco, Nov. 13-16, 2005.

“Single Machine Scheduling Equal Length Jobs with Release Dates to Minimize Total Weighted Tardiness” (with **A. Gamalski, V. Muralidhar, and H. Balasubramanian**), INFORMS, San Francisco, Nov. 13-16, 2005.

“Scheduling Wafer Fabrication Operations: State-of-the-Practice and Future Needs” (with **M. Pfund**), MISTA 2005, The 2<sup>nd</sup> Multidisciplinary International Conference on Scheduling: Theory and Applications, New York, NY, July 18-21, 2005

“A Deterministic Scheduling Approach for Wafer Fabrication Facilities” (with **S. Mason** and **M. Pfund**), MISTA 2005, The 2<sup>nd</sup> Multidisciplinary International Conference on Scheduling: Theory and Applications, New York, NY, July 18-21, 2005

“Methodologies for Parameterization of Composite Dispatching Rules” (with **J. Chen** and **M. Pfund**), IFORS 2005, Honolulu, HI, July 11-15, 2005

“Manufacturing and Logistics Applications of Multiple Orders per Job Scheduling” (with **S. Mason** and **E. Kutanoglu**), *13<sup>th</sup> Annual Industrial Engineering Research Conference*, Atlanta, GA, May 14-17, 2005.

“A Multi-Objective Approach to Scheduling Wafer Fabrication Facilities” (with **H. Balasubramanian, M. Pfund, and S. Mason**), *13<sup>th</sup> Annual Industrial Engineering Research Conference*, Atlanta, GA, May 14-17, 2005.

“Performance Evaluation of a Single Server under Various Setup Policies” (with **K. Khowala**, E. Gel), INFORMS, Denver, Oct. 24-27, 2004.

“Procedures for Efficient Cycle Time-Throughput (CT-TH) Curve Generation” (with B. Ankenman, G. Mackulak, B. Nelson), INFORMS, Denver, Oct. 24-27, 2004.

“Multi-product Cycle Time and Throughput Evaluation via Simulation on Demand”, (with B. Ankenman, G. Mackulak, B. Nelson), INFORMS, Denver, Oct. 24-27, 2004.

“Indirect Estimation of Cycle Time Quantiles from Discrete Event Simulation”, (with **J. McNeill**, G. Mackulak, B. Nelson), INFORMS, Denver, Oct. 24-27, 2004.

“Variance-Based Cycle Time - Throughput Confidence Intervals”, (with **R. Johnson, S. Leach**, G. Mackulak), INFORMS, Denver, Oct. 24-27, 2004.

“Stochastic Optimization using Several Layers of Models with Different Levels of Abstraction” (with **C. Vardar**, E. Gel), 10th International Conference on Stochastic Programming, Tucson, AZ, Oct. 11-15, 2004.

“Workforce Planning under Uncertainty” (with P. Wirojanagud, E. Gel), Tenth International Conference on Stochastic Programming, Tucson, AZ, Oct. 11-15, 2004.

“Indirect Cycle Time Quantile Estimation using the Cornish-Fisher Expansion” (with J. McNeill, G. Mackulak, B. Nelson), SRC Graduate Fellow Program Conference, Burlingame, CA, Sept. 20-21, 2004.

“Minimizing Total Weighted Tardiness in a Dynamic Flowshop with Variable Processing Times” (with **R. Swaminathan, M.E. Pfund, and S.J. Mason**), *12<sup>th</sup> Annual Industrial Engineering Research Conference*, Houston, TX, May 15-19, 2004.

“Procedures for Efficient Cycle Time-Throughput (CT-TH) Curve Generation” (with G. Mackulak, B. Ankenman, and B. Nelson), INFORMS, Atlanta, Oct. 19-22, 2003.

“Overview of the Factory Operations Research Center” (with M. Janakiram, F. Robertson, and K.J. Stanley), *INFORMS*, Atlanta, Oct. 19-22, 2003.

“Impact of Factory Operations Research (FORCe) on Semiconductor Manufacturing” (with M. Janakiram, F. Robertson, and K.J. Stanley), *INFORMS*, Atlanta, Oct. 19-22, 2003.

“Designing A Field Service System For Semiconductor Manufacturing Systems For Remote Diagnostics” (with **C. Vardar** and E. Gel), *INFORMS*, Atlanta, Oct. 19-22, 2003.

“New Approaches to Simulation for Semiconductor Manufacturing” (with L. Schruben and G. Mackulak), *INFORMS*, Atlanta, Oct. 19-22, 2003.

“Scheduling Wafer Fab Operations” (with **M. Pfund**, E. Gel, S. Mason, O. Rose, G. Runger, and L. Moench), *INFORMS*, Atlanta, Oct. 19-22, 2003.

“Subproblem Solution Procedures for a Modified Shifting Bottleneck Heuristic” (with **M. Pfund**, and L. Moench), *INFORMS*, Atlanta, Oct. 19-22, 2003.

“Operational Modeling and Simulation of Semiconductor Manufacturing” (with S. Mason, L. McGinnis, O. Rose), *INFORMS*, Atlanta, Oct. 19-22, 2003.

“The Shifting Bottleneck Procedure for Complex Job Shops” (with **S. Mason**), *INFORMS*, San Jose, Nov. 17-20, 2002.

“Reticle Management within Photolithography” (with **S. Murray**, M. Pfund, M. Carlyle, and **R. Abraham**), *INFORMS*, San Jose, Nov. 17-20, 2002.

“Minimizing Total Weighted Tardiness on Parallel Batch Machines with Incompatible Job Families” (with **H. Balasubramanian**, M. Carlyle, M. Pfund, **A. Gadkari**, and L. Mönch), *INFORMS*, San Jose, Nov. 17-20, 2002.

“Efficient Simulation of Cycle Time – Throughput Curves” (with **J. McNeill**, G. Mackulak, and **S. Leach**), *INFORMS*, San Jose, Nov. 17-20, 2002.

“Rescheduling of Unrelated Parallel Machines in Printed Wiring Board Manufacturing” (with M. Pfund), *INFORMS*, San Jose, Nov. 17-20, 2002.

“FORCe: A Factory Operations Research Center for Semiconductor Manufacturing Excellence” (with M. Janakiram, F. Robertson, and KJ Stanley), *INFORMS*, San Jose, Nov. 17-20, 2002.

“Joint Use of Resource Driven and Job Driven Simulation” (with **C. Rasmidatta** and G. Mackulak), *INFORMS*, San Jose, Nov. 17-20, 2002.

“Supply Network Capacity Planning for Semiconductor Manufacturing Under Uncertain Demand” (with **A. Rastogi** and M. Carlyle), *INFORMS*, San Jose, Nov. 17-20, 2002.

“Modeling Inherent Worker Differences for Workforce Planning” (with E. Gel, M. Carlyle, R. Cardy, and **P. Wirojanagud**), *INFORMS*, San Jose, Nov. 17-20, 2002.

“Panel Discussion: The Future of Operational Modeling and Simulation for Semiconductor Manufacturing” (with L. McGinnis, O. Rose, and L. Schruben), *INFORMS*, San Jose, Nov. 17-20, 2002.

“Littlefield Technologies as an Operations Management Experiential Learning Tool” (with **M. Pfund** and T. Callarman), *Decision Sciences Institute Annual Meeting*, San Diego, CA, Nov. 23-26, 2002.

“The Evaluation Of Deterministic Scheduling Methodologies Using Discrete Event Simulation” (with **M. Pfund**), *The 16<sup>th</sup> triennial conference of the International Federation of Operational Research Societies (IFORS)*, Edinburg, Scotland UK, July 8-12, 2002.

“Future of Simulation”, Panelist, Moderator J. Banks, *Proceedings of the Winter Simulation Conference*, Washington DC, Dec. 9-12, 2001, pp. 1453-1460.

“Enterprise-Wide Strategic & Logistics Planning for Semiconductor Manufacturing” (with M. Carlyle and **A. Rastogi**), *INFORMS*, Miami Beach, Nov. 4-7, 2001.

“An Overview of the Factory Operations Research Center (FORCe) Program”, *INFORMS International Meeting*, Maui, HI, June 17-20, 2001.

“Scheduling of Semiconductor Wafer Fabrication Facilities” (with **S. Mason** and M. Carlyle), *INFORMS International Meeting*, Maui, HI, June 17-20, 2001.

“New Approaches for Simulation of Wafer Fabrication” (with G. Mackulak and L. Schruben), *INFORMS International Meeting*, Maui, HI, June 17-20, 2001.

“Scheduling of Batch Processing Machines to Minimize Total Weighted Tardiness” (with M. Carlyle and **A. Devpura**), *INFORMS International Meeting*, Maui, HI, June 17-20, 2001.

“An A Posteriori Evaluation Technique for Bi-Criteria Parallel Machine Scheduling Algorithms” (with E. Gel, M. Carlyle, and **B. Kim**), *INFORMS International Meeting*, Maui, HI, June 17-20, 2001.

“Semiconductor Manufacturing Supply Network Research” (with M. Carlyle), *INFORMS International Meeting*, Maui, HI, June 17-20, 2001.

“The Effects Of Processing Time Variability And Equipment Downtimes On Various Scheduling Approaches For A Printed Wiring Board Assembly Operation” (with **M. Pfund**, L. Yu, and M. Carlyle), *INFORMS International Meeting*, Maui, HI, June 2001.

“Comparison Of Multiple Objective Genetic Algorithms For Parallel Machine Scheduling Algorithms” (with M. Carlyle, **B. Kim**, E. Gel), *Evolutionary Multi-Criteria Optimization Conference*, Zurich, Switzerland, March 7-9, 2001.

“Distributed Control through Synergy and Aggregation: Enhancing the Capabilities of Computationally Limited Robotic Devices” (with **I. Paprotny**, C. Roberts, J. Mou, T. Sugar), *Winter Simulation Conference*, Orlando, Florida, December 10-13, 2000.

“Modeling and Simulation Applied to Factory Operations”, *Semiconductor Manufacturing Science Workshop, SEMICON Southwest*, Austin, Texas, October 17-18, 2000.

“Minimizing Total Weighted Tardiness on a Single Batch Process Machine with Incompatible Job Families” (with **A. Devpura**, W. M. Carlyle, and **I. Perez**), *Symposium on Operations Research 2000*, Dresden, Germany, September 9-12, 2000.

“An A Posteriori Evaluation Technique for Bi-criteria Parallel Machine Scheduling Algorithms” (with **B. Kim**, E. Gel, and W. M. Carlyle), *15<sup>th</sup> International Conference on Multiple Criteria Decision Making*, Ankara, Turkey, July 10-14, 2000.

“Workload Control in the Semiconductor Industry” (with G.L. Hogg and **S.J. Mason**), *INFORMS*, Philadelphia, Pennsylvania, November 7-10, 1999.

“Multiobjective Scheduling of Ion Implantation Processes” (with **S-M. Horng** and J. K. Cochran), *INFORMS*, Cincinnati, Ohio, May 2-5, 1999.

“A Two-Stage Heuristic For Matching Lots to Orders” (with K. Knutson and W.M. Carlyle), *INFORMS*, Cincinnati, Ohio, May 2-5, 1999.

“Lot-to-Order Matching for a Semiconductor Assembly and Test Facility” (with M. Carlyle, K. Kempf, and **K. Knutson**), *INFORMS*, Seattle, Washington, October 25-28, 1998.

“Using Genetic Algorithms to Solve Scheduling Problems in Wafer Fabrication” (with **S-M. Horng** and J. K. Cochran, *TechCon '98*, Las Vegas, NV, September 9-11, 1998.

“Industry-University Research Consortia”, Panelist with T. Magnanti, MIT and D. Ratliff, Ga. Tech. Moderator C. Yano, UC Berkeley, INFORMS, Dallas, Texas, October 26-29, 1997.

“Matching Factory Lots to Customer Orders” (with K. Kempf and **K. Knutson**), *INFORMS*, Dallas, Texas, October 26-29, 1997.

“Simulation Evaluation of Reticle Management in Photolithography” (with **M. Hickie**), *INFORMS*, Dallas, Texas, October 26-29, 1997.

“Impact of Layout on the Performance of Assembly/Packaging/Test Operations”, *INFORMS*, Atlanta, Georgia, November 3-6, 1996.

“Capacity and Cycle Time Analysis of Assembly Packaging Operations via Computer Modeling and Simulation”, *2<sup>nd</sup> International Assembly and Packaging Foundry Conference*, Sunnyvale, California, October 21-22, 1996.

“Batch Machine Dispatching Policies to Reduce Setups in Semiconductor Manufacturing”, *INFORMS*, New Orleans, Louisiana, October 29-November 1, 1995.

“Overview of the Semiconductor Manufacturing Testbed”, *TIMS/ORSA*, Boston, MA, April 24-27, 1994.

“Understanding the Capacity of Wafer Fabrication Facilities”, *Western Decision Sciences Institute*, Maui, Hawaii, March 29-April 2, 1994.

“A Simple Way to Estimate Time Stationary Backlog in a GI/GI/1 Queue”, *ORSA/TIMS*, Orlando, Florida, April 27-29, 1992.

“The SEMATECH Texas Center of Excellence Research Initiative”, *PROCIEM '90*, Tampa, Florida, November 14-16, 1990.

“Microcomputer-Based Interactive Network Optimization Program”, *6<sup>th</sup> National and 3<sup>rd</sup> International Conference on Computers and Industrial Engineering*, Orlando, Florida, March 28-30, 1984.

“Microcomputer-Based Interactive Network Optimization Package”, *ORSA/TIMS Joint National Meeting*, Dallas, Texas, November 26-28, 1984.

**SPONSORED RESEARCH - EXTERNAL GRANTS**

#	Sponsor	Title	Account No.	Investigators	Dates	Amount
1.	National Science Foundation	Travel Support for U.S. Students to Participate in the PhD Colloquium at Winter Simulation Conference 2018		Fowler (100%)	11/5/2018-4/30/2019	\$5,000
2.	Mayo Clinic Arizona	A Decision Support System to Study the Impact of Newly FDA-Approved Chemotherapy Agents		Fowler (34%) Mohan (33%) Gopalakrishnan (33%)	8/15/2018-8/15/2019	\$15,300
3.	US Department of Transportation	Center for Megaregion Research		Kuby (25%) Fowler (10%)  Collaboration w/ U of Arizona	9/30/2016-9/30/2018	\$400,000 (ASU Portion)  \$800,000
4.	Intel	Construction Supply Chain		Chasey (50%) Fowler (50%)	9/1/2013-8/31/2014	\$90,000
5.	National Science Foundation	Travel Support for Students to Participate in the PhD Colloquium at Winter Simulation Conference 2012, Berlin, Germany, 9-12 December 2012		Fowler (50%) Son – UA (50%)	5/15/2012-5/15/2013	\$15,000
6.	Intel	Intel Capital Equipment Supply Chain Lead Time Cost-Benefit Model	XSS0064	Fowler (100%)	12/10/2008-12/10/2011	\$250,000
7.	Arizona Department of Health Services	Risk Communication Analysis and Simulation for Pandemic Influenza Preparedness		Lant (50%) Fowler (10%) Others (40%)	9/1/2009-6/30/2010	\$120,000
8.	Mayo Clinic	A Curriculum for the Science of Health Care Delivery Systems	XSS0050	Fowler (100%)	3/1/2008-8/31/2008	\$56,891
9.	Intel	Factory Capacity Allocation Solver for Rapid within Shift Re-Planning	XSS0049  XSS0084	Fowler (50%) Askin (50%)  Fowler (33%) Askin (33%) Zhang (33%)	1/1/2008-12/31/2008  1/1/2009-12/31/2010	\$75,000  \$170,000  TOTAL \$245,000
10.	National Science Foundation	Collaborative Research: Developing an Engineering Virtual Organization for Discrete – Event Logistics Systems	XSS0045	Fowler (100%)  <i>Collaborators: McGinnis (GT), Meller (U Ark), Nizzal (UCF)</i>	9/1/2007–8/31/2010	\$175,000  \$26,884 (ASU Portion)
11.	Tyco Electronics	Customer Relationship Management at Tyco Electronics	XSS0047	Fowler (100%)	9/1/2007-12/31/2007	\$18,815
12.	Advanced Micro Devices	ASAP Customization	XSS0041	Fowler (50%) Mackulak (50%)	4/1/2007-12/31/2007	\$18,849
13.	National Science Foundation	Collaborative Research: Optimization of the Design and Operation of Surgery Delivery Systems	XSS0031	Fowler (100%)  <i>Collaborators: Denton (Mayo)</i>	09/01/06-8/31/10	\$332,000  \$120,059 (ASU)

				<i>Clinic), Schaefer (Pittsburgh)</i>		Portion)
14.	IBM	Distributed Decision Support Framework for Adaptive Supply Chains	XSS0037	Fowler (50%) Wu (50%)	8/01/06-12/31/2007	\$33,333
15.	IBM	Distributed Decision Support Framework for Adaptive Supply Chains	RDS0003	Callarman (34%) Wu (34%) Fowler (32%)	8/01/05-12/31/06	\$50,000
16.	ASYST	Efficient Model Generation Of AMHS Design Alternatives	XSS0021	Mackulak (50%) Fowler (50%)	5/23/05-5/23/06	\$75,000
17.	ISMT/SRC Factory Operations Research Center	Multi-product Cycle Time and Throughput Evaluation via <i>Simulation on Demand</i>	XSS0019	Fowler (50%) Mackulak (50%)  <i>Collaborators: Ankenman/Nelson (Northwestern)</i>	9/1/04-8/31/07	\$400,000  \$200,000 (ASU Portion)
18.	US AID	US-Mexico Partnership on Education and Technology Transfer for the Aerospace Industry	XSS0012	Henderson (34%) Fowler (33%) Villalobos(33%)	5/17/04-5/15/07	\$300,000
19.	IBM	Supply Network Modeling	IMES	Callarman (34%) Fowler (33%) Gel (33%)	3/1/04-12/31/04	\$54,000
20.	Intel	Dynamic Business Rules	EES0002	Shunk (40%) Fowler (40%) Callarman (20%)	1/15/04-12/31/04	\$20,000
21.	Semiconductor Research Corporation	Intel/SRC Scholarship - Ms. Rachel Johnson	XSS0013	Fowler (50%) Mackulak (50%)	9/1/04-8/31/06	\$55,000
22.	Semiconductor Research Corporation	Intel/SRC Scholarship - Ms. Jennifer McNeill	XSV4409	Fowler (50%) Mackulak (50%)	9/1/03-8/31/08	\$125,104
23.	National Science Foundation	Collaborative: Procedures for Efficient Cycle Time-Throughput Curve Generation  REU Supplement	XSA3294  DMI-0140441  XSA3295	Mackulak (50%) Fowler (50%)  <i>Collaborators: Ankenman/Nelson (Northwestern)</i>	5/15/02-4/30/04  7/3/02-4/30/04	\$370,000  \$185,363 (ASU Portion)  \$ 12,000
					TOTAL	\$197,363
24.	Intel Corporation	A Modular, Scalable Approach to Modeling and Analysis of Semiconductor Manufacturing Supply Chains	XST0051	Fowler (16%) Armbruster (12%) Rivera (12%) Callarman (12%) Ellram (12%) Knutson (12%) Carlyle (6%) Gel (6%) Shunk (6%)		\$150,000
25.	Semiconductor Research Corporation	NSC/SRC Scholarship - Ms. Shari Murray	XSV4407	Fowler (50%) Mackulak (50%)	6/01/01-5/31/03	\$35,015
26.	National Science Foundation	Collaborative: SGER: Solution Evaluation Methods for Multi-Objective Combinatorial Optimization Algorithms	XSA 3290  DMI-0121815	Carlyle (34%) Fowler (33%) Gel (33%) <i>Collaborator:</i>	6/15/01-5/31/02	\$100,000

				<i>Daskin (Northwestern.)</i>		
27.	ISMT/SRC Factory Operations Research Center	Scheduling of Wafer Fabrication Facilities  <i>Subcontracts to Universities of Arkansas and Wuerzburg</i>	XST0050	Fowler (33%) Carlyle (33%) Runger (22%) Gel (12%)  <i>Collaborators: Mason (UA), Rose (UW) Sturm(FHG-IPA)</i>	1/1/01- 12/31/03	\$825,068  (\$420,068 ASU portion)
28.	ISMT/SRC Factory Operations Research Center	New Approaches for Simulation of Wafer Fabrication	XST0049	Fowler (50%) Mackulak (50%)  <i>Collaborator: Schruben (UC Berkeley)</i>	1/1/01- 12/31/03	\$337,515
29.	National Science Foundation	Collaborative: GOALI: Adjustment and Monitoring Methods for Multi-Stream and Process-Oriented Quality Control	XSA3282  DMI- 0085041	Runger (50%) Fowler (50%) <i>Collaborators: Barton/del Castillo (Penn St.)</i>	8/15/00- 8/31/03	\$200,000
30.	National Science Foundation – Scalable Enterprise Initiative	A Modular, Scalable Approach to Modeling and Analysis of Semiconductor Manufacturing Supply Chains	XSA3283  DMI- 0075655	Fowler (20%) Kempf (Intel) Armbruster (16%) Callarman (16%) Ellram (16%) Knutson (16%) Shunk (16%)	5/15/00- 7/31/01	\$100,000
31.	Anteon (USAF-Prime)	The Creation of a Enterprise Level Dynamic Program Management Decision Support System for the Lean Enterprise Model	XSJ6289	Carlyle (35%) Fowler (25%) Shunk (25%) Mackulak (15%)	10/1/99- 8/31/00	\$300,000
32.	Anteon (USAF-Prime)	The Creation of a Scenario- Based, Dynamic Program Management Workbench Using the Lean Enterprise Model	XSJ6287	Shunk (50%) Fowler (25%) Carlyle (25%)	5/1/99- 11/30/99	\$199,925
33.	PRI Automation	A Cost Modeling Methodology for Evaluation of Semi- conductor Fab Automation	XST0048	Mackulak (50%) Fowler (50%)	8/16/99- 8/15/00	\$26,804
34.	Semiconductor Research Corporation	Undergraduate Student Research		Fowler	5/16/99- 8/15/99  8/16/00- 5/15/01  8/16/01- 5/15/02  5/16/02- 8/15/02  TOTAL	\$5,000  \$12,000  \$12,000  \$ 6,000  \$35,000
35.	Household Credit Services	Industrial Engineering Analysis of Call Center Operations	XST0046	Fowler	6/15/99- 2/29/00	\$13,012

36.	Semiconductor Research Corporation	Virtual Center Coordinator		Fowler	1/1/99-12/31/99	\$12,000
37.	IPEC Planar	Performance Analysis of Semiconductor Manufacturing Equipment	XST0042	Fowler	2/15/99-5/15/99	\$2,200
38.	Anteon (USAF-Prime)	Rapid Prototype of a Decision Support System for the Lean Enterprise Model	XSJ6283	Shunk (50%) Fowler (25%) Carlyle (25%)	6/15/98-12/15/98	\$78,622
39.	Boeing	Work Force Planning for Design Teams	XST0040	Carlyle (60%) Fowler (40%)	8/16/98-12/31/98	\$15,000
40.	University of New Mexico (NSF-Prime)	Cross-Training Engineers/Technicians for Semiconductor Manufacturing	XSJ6282	Fowler (33.4%) Runger (33.3%) Rollier (33.3%)	7/1/98-6/30/00	\$123,750
					7/01/00-5/31/01	\$ 10,500
			XSJ6291	Fowler (50%) Runger (50%)	7/01/01-6/30/03	\$56, 573
					TOTAL	\$190,823
41.	Abpac	Performance Modeling for the Design of a Semiconductor Package Assembly Process	XST0038	Fowler (50%) Carlyle (50%)	7/16/98-10/15/98	\$3,671
42.	Technical Systems Integrators	Performance Modeling for the Design of Semiconductor Manufacturing Equipment	XST0037	Mou (50%) Fowler (25%) Cochran (25%)	6/16/98-9/15/98	\$4,500
43.	Motorola – Global Supply Chain Solutions	Procedures for Capacity Modeling in Semiconductor Manufacturing	XST0036	Fowler (34%) Cochran (33%) Carlyle (33%)	5/16/98-8/15/98	\$12,000
					8/16/98-12/31/98	\$7,500
					TOTAL	\$19,500
44.	Amkor Electronics, Inc	Cost/Product Analysis for IC Packaging	XST0035	Fowler	5/15/98-5/31/99	\$20,180
45.	Motorola	Capacity Modeling in Semiconductor Manufacturing	XST0029	Cochran (50%) Fowler (50%)	2/18/98-6/30/98	\$9,000
46.	Motorola	QS9000 Quality Systems for Wafer Fabrication	XST0028	Keats (25%) Montgomery(25) Fowler (25%) Runger (25%)	2/18/98-8/31/98	\$18,000
47.	Intel	Modeling and Analysis of Semiconductor Manufacturing	XST0027	Fowler (50%) Runger (50%)	3/31/98-3/31/99	\$30,000
48.	SEMATECH	Value Chain Integration in Semiconductor Manufacturing	XST0026	Fowler (40%) Shunk (30%) Callarman (30%)	2/1/98-12/31/98	\$27,878
49.	Tefen Ltd	Modeling and Analysis of 300mm Wafer Fabrication Operations	XST0023	Fowler	8/16/97-8/15/98	\$31,292
50.	Motorola	Capacity Modeling in Semiconductor Manufacturing	XSW4238	Cochran (75%) Fowler (25%)	8/15/97-12/31/97	\$9,001
51.	SEMATECH	Modeling Data Standards	XSW4236	Fowler	5/1/97-12/31/97	\$23,000
52.	Semiconductor Research Corporation	Wafer Fab Operations: Modeling, Analysis, and Design	XST0021	Fowler	10/1/97-9/30/00	\$134,444

53.	National Science Foundation	Wafer Fab Operations: Modeling, Analysis, and Design  Research for Undergraduates (REU) Supplement	XSA3268 DMI-9713750 XSA3280	Fowler (70%) Runger (30%)	10/1/97-9/30/00	\$210,000
				Fowler	1/15/00-9/30/00	\$ 10,000
				TOTAL		\$220,000
54.	Motorola	Modeling and Analysis of Wafer Fabrication	XST0020	Fowler	9/1/97-8/15/98	\$17,000
55.	Intel	Continuation of ECE 394 Introduction to Manufacturing Engineering	XSU9187	Rollier (50%) Fowler (50%)	8/16/97-5/31/02	\$100,000
				Fowler (50%) Roberts (50%)	8/16/02-5/31/03	\$22,500
				TOTAL		\$122,500
56.	Intel	A Deeper Understanding of Semiconductor Manufacturing	XST0019	Fowler	4/15/98-4/14/01	\$60,000
57.	Motorola	Overall Equipment Effectiveness in Semiconductor Manufacturing	XST0017	Fowler	3/01/97-8/31/97	\$24,000
58.	Tefen, USA	The Role of the Industrial Engineer in Semiconductor Manufacturing	XST0016	Fowler	3/01/97-8/31/97	\$18,327
59.	Infineoen Technologies (formerly Siemens AG)	Modeling and Simulation for Productivity Improvement of a Semiconductor Production Line	XST0005	Fowler	7/15/96-1/15/97	\$20,000
				Fowler (67%) Cochran (33%)	1/16/97-12/31/97	\$38,640
				Fowler (67%) Cochran (33%)	1/16/98-12/31/98	\$39,895
				Fowler (67%) Cochran (33%)	1/1/99-12/31/99	\$41,757
				Fowler (67%) Cochran (33%)	1/1/00-12/31/00	\$43,505
				Fowler (67%) Gel (33%)	1/1/01-12/31/02	\$44,182
				TOTAL		\$227,978
60.	Texas A&M University (NSF-Prime)	Support for the Real-Time Product Flow in Semiconductor Manufacturing Project	XSJ6279	Fowler	3/1/96-10/15/96	\$14,974
61.	SEMATECH	Productivity Issues in A/P/T Operations	XST0002	Fowler	1/1/96-9/30/97	\$93,710
<b>TOTAL</b>						<b>\$7,073,981</b>

# TEACHING

## COURSES TAUGHT

<b>Course No.</b>	<b>Course Title</b>
ECE 394	Introduction to Manufacturing Engineering
IEE 475	Introduction to Simulation
IEE 498	Operations Research in Healthcare
IEE 533	Scheduling
IEE 545	Simulating Stochastic Systems
IEE 561	Production Systems/Factory Physics
IEE 591	Modeling and Analysis of Semiconductor Manufacturing
IEE 691	Advanced Scheduling
IEE 700	Research Methods
MGT 591	Doing Business in Chile
MGT 591	Doing Business in Ireland
MGT 591	Doing Business in Vietnam and Singapore
SCM 315	Business Decision Models
SCM 432	Planning and Control Systems for Supply Chain Management
SCM 394/494	Global Supply Chain Management in China
SCM 502	Operations Management
SCM 541	Logistical Functions in Supply Chains
SCM 551	Operations Planning/Execution
WPC 300	Problem Solving and Action Analytics

## STUDENT PROJECTS, THESES, AND DISSERTATIONS ADVISED

### Undergraduate Projects Supervised

Jon Marquis, “The Simulation of Multiproduct Cycle Time-Throughput Curves”, May 2004 - **Honor’s Thesis (with Jerry Mackulak)**

Michelle Moore, “Effect of Lot Size on Wafer Fabrication Facility Performance” – Fall 2003

Chad Quill, “Evaluation of Scheduling Algorithms in Unrelated Parallel Machine Environments”, December 2002 – **Honor’s Thesis (with Michele Pfund)**

Meghan Bullock, “Evaluation of Lot Dispatching Rules for Semiconductor Manufacturing”, August 2002 – **Honor’s Thesis**

Sarah Stephan An Evaluation of Lot Release Strategies - Fall 2000

Meghan Bullock Evaluation of Dispatching Rules for Wafer Fabrication - Fall 2000

Benjamin Armbruster Modeling of Semiconductor Manufacturing Supply Chains - Fall 2000

Tim Appleton Automated Database Design for Hazardous Production Materials- Summer 2000

Matt McMillan Modeling and Analysis of Semiconductor Manufacturing - Summer & Fall 1999

Matt McMillan Capacity Planning in Semiconductor Manufacturing – Summer 1998

### Masters Theses Advised

Shrikant Jarugumilli, M.S., “Capacity Allocation Models For Semiconductor Manufacturing: Assembly-Test Operations”, August 2009 (Co-Advisor Ron Askin)

Sha Pan, M.S., “Least Square Estimation of Transition Rate Matrix for a Class of Parametric Homogenous Markov Chains”, May 2008 (Co-Advisor George Shanthikumar – UC Berkeley)

Rachel Johnson, M.S., “A Discrete Event Simulation Model Abstraction Methodology using Correlation and Variability Propagation”, May 2006 (Co-Advisor Gerald T. Mackulak)

Karthik Thiagarajan, M.S., “Agent-Based Production Control of Complex Job Shops”, May 2006

Kate Benton, M.S., “Inspection Resources along the Supply Chain: Methodology and Insights from a Semiconductor Supply Chain”, August 2005 (Co-Advisor Gerald T. Mackulak)

Richard Abelson, M.S., “Cycle Time Throughput Curve Estimation Using System Data”, May, 2005

Rajesh Swaminathan, M.S., "Minimizing Total Weighted Tardiness in a Dynamic Flowshop with Variable Processing Times" December 2004 (Co-Advisor Michele Pfund)

Ravikumar Guruswamy, M.S., "An Integrative Framework for Supporting Mass Customization", December 2004 (Co-Advisor Johnny Rungtusanatham)

Lisa Pivin, M.S., "Automated Data Collection for Improving Semiconductor Equipment Performance", August 2004

Yang Sun, M.S., "Comparing Semiconductor Supply Chain Strategies under Demand Uncertainty and Process Variability", May 2004 (Co-Advisor Dan Shunk)

Thong Duong, M.S., "Simulations of Semiconductor Supply Networks ", December 2003

Ashish Malhorta, M.S., "An Analysis of Alternate Ramp-up Policies for Semiconductor Manufacturing", December 2003 (Co-Advisor Esma Gel)

Shari Murray de Diaz, M.S., "Evaluating the Impacts of Reticle Requirements in Semiconductor Wafer Fabrication Facility Analysis", May 2003

Amit Gadkari, M.S., "Scheduling to Reduce Total Weighted Tardiness on Parallel Machines with Ready Times", May 2003, (Co-Advisor Michele Pfund)

Ketan Khowala, M.S., "Performance Evaluation of a Single Server "under Various Setup Policies", May 2003, (Co-Advisor Esma Gel)

Andy Burhanuddin, M.S., "Effective Performance Metrics For Rescheduling Triggers in Wafer Fabrication Facility", December 2002, (Co-Advisor George Runger)

Hari J. Balasubramanian, M.S., "Minimizing Total Weighted Tardiness on Parallel Batch Machines with Incompatible Job Families", August 2002 (Co-Advisor W. Matthew Carlyle)

Jennifer Smith, M.S., "Third-Party Logistics versus Internal Warehousing Facility Location Modeling", May 2002

Brett Duarte, M.S., "Parameterization of Fast and Accurate Simulations for Complex Supply Networks", May 2002 (Co-advisor Kraig Knutson)

Aditya Rastogi, M.S., "Supply-Network-Capacity Planning For Semiconductor Manufacturing Under Uncertain Demand", December 2001 (Co-Advisor W. Matthew Carlyle). *2<sup>nd</sup> Place IIE Research Award*

Jonas Stray, M.S., "Enterprise-Wide Strategic and Logistics Planning For Semiconductor Manufacturing", August 2001 (Co-Advisor W. Matthew Carlyle)

Igor Paprotny, M.S., "A Methodology for Synthesizing Distributed Embodiment in Homogenous Multi-Agent Systems", May 2001 (Co-Advisor Chell Roberts). *3<sup>rd</sup> Place IIE Research Award*

Ernesto Galaz, M.S., "A Composite Dispatching Rule for Wafer Fabrication", December 2000

Megan Walsh, M.S., "Operator Cross Training in Wafer Fabrication Under Uncertainty: A Stochastic Programming Approach", August 2000 (Co-Advisor W. Matthew Carlyle)

Imelda Perez, M.S., "Minimizing Total Weighted Tardiness on a Single Batch Process Machine with Incompatible Job Families", December 1999 (Co-Advisor W. Matthew Carlyle)

Shamin Shirodkar, M.S., "A Modular Approach for Modeling and Simulating Semiconductor Supply Chains", December 1999

Matt Hickie, M.S., “Improving Photolithography Reticle Management with Network Modeling and Discrete Event Simulation”, August 1999

Chii-Liang Wee, M.S., “Modeling Operators in Wafer Fabrication”, Arizona State University, May 1999 (Co-Advisor W. Matthew Carlyle). *3<sup>rd</sup> Place IIE Research Award*

Scott Mason, M.S., “A Comparison Study of Four Factory Performance Simulators”, University of Texas at Austin, December 1995 (Co-Advisor Paul Jensen)

Daniel Kutz, M.S., “Design of a Semiconductor Plastic Packaging Manufacturing System Using Discrete Event Simulation”, University of Texas at Austin, August 1994 (Co-Advisor Len Harris)

Jennifer Robinson, M.S., “An Analysis of the Potential Impact of Control Strategies for Bulk Service Queueing Systems on Semiconductor Manufacturing Facilities”, University of Texas at Austin, May, 1993 (Co-Advisor Jonathan Bard)

### **Doctoral Dissertations Advised**

Alireza Bolori, Ph.D., “Data-Driven Decision-Making for Medications Management Modalities”, May 2019 (Co-Advisor, Soroush Saghafian)

Siddhartha Sampath, Ph.D., “Towards More Intuitive Frameworks in Project Portfolio Selection”, May 2018 (Co-Advisor, Esma Gel)

Ryan Panos, Ph.D., “In Pursuit of Optimal Workflow within the Apache Software Foundation”, May 2017 (Co-Advisor, James Collofello)

Jerry Huff, Ph.D., “Friends of My Enemies: A Longitudinal Investigation into Supply Base Management”, August 2016.

Junzilan Cheng, Ph.D., “Mathematical-based Approaches for the Semiconductor Capital Equipment Installation and Qualification Scheduling Problem”, May 2015 (Co-Adviser, Karl Kempf, Intel Corp.)

Ketan Khowala, Ph.D., “Computational Improvements to Single Machine Scheduling with Extension of Interfering Job Sets”, May 2012 (Co-Adviser Ahmet Keha)

Adrian Ramirez Nafarrate, Ph.D., “Design and Analysis of Ambulance Diversion Policies”, August 2011 (Co-Advisor Teresa Wu)

Brett Duarte, Ph.D., “An Analytical Approach to Lean Six Sigma Deployment Strategies: Project Identification and Prioritization”, August 2011 (Co-Adviser Doug Montgomery)

Shanshan Wang, Ph.D., “Modeling supply Chain Dynamics with Calibrated Simulation Using Data Fusion”, December 2010 (Co-Advisor Teresa Wu)

Serhat Gul, Ph.D., “Optimization of Surgery Delivery Systems”, August 2010 (Co-Advisor Brian Denton)

Qing Li, Ph.D., “Multi-Objective Operating Room Planning and Scheduling”, August 2010 (Co-Advisor Srimathy Mohan)

Abdulrahim Shamayleh, Ph.D., “Operating Room planning and Scheduling: Mathematical Models and Simulation Modeling”, August 2010 (Co-Advisor Muhong Zhang)

Ozgur Araz, Ph.D., “Modeling and Simulation for Pandemic Influenza and Bioterrorism Preparedness”, December 2009 (Co-Advisor Timothy Lant)

Rachel Johnson, Ph.D., “The Design and Analysis of Computer Experiments”, December 2008 (Co-Advisor Doug Montgomery)

Myoungsoo Ham, Ph.D., "Three Approaches to Scheduling Semiconductor Manufacturing Operations", December 2008

Jon Marquis, Ph.D., "Interactive Multi-Objective Optimization Using Convex Preference Cones", August 2008 (Co-Advisor Esma Gel)

Menkes Van Den Briel, Ph.D., "Integer Programming Approaches for Automated Planning", August 2008 (Co-Advisor Subbarao Kambhampati) *Honorable Mention – Best Dissertation Award from the International Conference on Planning and Scheduling Systems*

Seung Hwan Kim, Ph.D., "Designing Robust Supply Chains Using a New Hybrid Push-Pull Control with Multiple Push-Pull Boundaries", August 2008 (Co-Advisor Dan Shunk)

Mohammad Ferdous Alam, Ph.D., "Queuing Networks with Resource Locking -Modeling, Performance Evaluation and Capacity Management", August 2008 (Co-Advisor Srimathy Mohan)

Jennifer Bekki, Ph.D., "Cycle-Time Quantile Estimation in Discrete Event Simulation", May 2008 (Co-Advisor Gerald T. Mackulak)

Eric C. Maass, Ph.D., "Modeling the On Time Delivery and Inventory for Semiconductor Supply Chains", May 2008 (Co-Advisor Murat Kulahci)

Yang Sun, Ph.D., "Strategic and Operational Product Allocation in Semiconductor Supply Chains", December 2007 (Co-Advisor Dan Shunk)

Jesus Jimenez, Ph.D., "Simulation Modeling Levels to Support Integrated Capacity and AMHS Decision Making In Semiconductor Wafer Fabs", December 2006 (Co-Advisor Gerald T. Mackulak).

Jeffrey Laub, Ph.D., "Scheduling Multiple Orders per Job to Minimize Makespan in Flowshops", Dec 2006.

Yan Chen, Ph.D., "Methodologies for Parameterization of Composite Dispatching Rules", December 2006 (Co-Advisor Michele Pfund)

Cem Vardar, Ph.D., "A Novel Simulation Optimization Approach for a Remote Diagnostics Capable Field Service System Design Problem", December 2006 (Co-Advisor Esma Gel)

Yang-Kuei Lin, Ph.D., "Data Generation and Heuristics for Unrelated Parallel Machine Scheduling Problems", December 2006 (Co-Advisor Michele Pfund)

Hari Balasubramanian, Ph.D., "Parallel Machine Bicriteria Scheduling: Some Complexity Results and the Problem of Interfering Job Sets", August 2006 (Co-Advisor Ahmet Keha)

Pam Wirojanagud, Ph.D., "Modeling Inherent Worker Differences For Workforce Planning", May 2006 (Co-Advisor Esma Gel)

Sonia Leach , Ph.D., "Variance-Based Sampling Allocation Method for Simulating Cycle Time-Throughput Curves", August 2005 (Co-Advisor Gerald T. Mackulak)

Tom Boushell, Ph.D., "Class-Constrained Lot-to-Order Matching", August 2005

Bosun Kim, Ph.D., "Evaluation of Non-Dominated Solution Sets for Multiple Objective Optimization Problems", August 2003 (Co-Advisor W. Matthew Carlyle)

Amit Devpura, Ph.D., "Scheduling Parallel And Single-Batch Machines To Minimize Total Weighted Tardiness", August 2003 (Co-Advisor W. Matthew Carlyle)

Michele E. Pfund, Ph.D., "Evaluation of Uncertainty on Scheduling Algorithms in Printed Wiring Board Manufacturing", August 2002 (Co-Advisor W. Matthew Carlyle)

Michael A. Greiner, Ph.D., “Screening Air Force Weapon Systems Development Projects - A Hybrid Management Science Approach”, August 2001 (Co-Advisor Dan Shunk)

Sungmin Park, Ph.D., “Efficient Cycle Time-Throughput Curve Generation Using Discrete Event Simulation”, December 2000 (Co-Advisor Gerald T. Mackulak)

Scott Mason, Ph.D., “Minimizing Total Weighted Tardiness in Complex Job Shops”, Arizona State University, August 2000 (Co-Advisor W. Matthew Carlyle)

Nipa Phojanamongkolkij, Ph.D., “Analytical Models of Batch Processing for Optimal Design of Semiconductor Manufacturing”, Arizona State University, August 2000 (Co-Advisor Jeffery Cochran)

Rasem Dabbas, Ph.D., “A New Scheduling Approach Using Combined Dispatching Criteria in Semiconductor Manufacturing Systems”, Arizona State University, May 1999

Kraig Knutson, Ph.D., “A Two-Stage Decomposition of the Lot-To-Order Matching Problem”, Arizona State University, December 1998

Shwu-Min Horng, Ph.D., “The Use of Genetic Algorithms to Solve Multi-Objective Scheduling Problems on Parallel Machines”, Arizona State University, December 1998 (Co-Advisor Jeffery Cochran)

Manfred Mittler, Ph.D., “The Variability of Cycle Times in Semiconductor Manufacturing”, Universität Würzburg, December 1996, Zweigutachter (Advisor Phuoc Tran-Gia)

## **INDUSTRIAL SHORT COURSES**

Dell Supply Chain Summit (2 day workshop), Ireland, Austin, India, Brazil, China, Malaysia 2015-2016.

Capacity Utilization Workshop, Amkor, Chandler, AZ, September 15, 2014.

Factory Physics (with E. Gel), Raytheon Missile Systems, Tucson, AZ, March 7, 2005.

Factory Physics (with S. Brown), National Semiconductor Corporation, Singapore, August 16-20, 2004.

Factory Physics (with E. Gel), Raytheon, Tucson, AZ, Nov. 7, 2003.

Advanced Factory Physics, SEH America (with E. Gel), Vancouver, WA, June 18-19, 2003.

Factory Physics, SEH America (with S. Brown), Vancouver, WA, June 16-17, 2003.

Factory Physics, SEH America (with M. Pfund), Vancouver, WA, March 24-25, 2003.

Factory Physics, Boston Scientific (with M. Pfund), Miami, FL, January 30-31, 2003.

Advanced Factory Physics, ASU Center for Professional Development Lean Manufacturing Program (with M. Pfund), Phoenix, AZ, January 27, 2003.

Factory Physics, ASU Center for Professional Development Lean Manufacturing Program (with M. Pfund), Phoenix, AZ, December 12-13, 2002.

Factory Physics, SEH America (with M. Pfund), Vancouver, WA, November 5-6, 2002.

Factory Physics, ASU Center for Professional Development Lean Manufacturing Program (with M. Pfund), Phoenix, AZ, September 16-17, 2002.

Planning and Scheduling in Wafer Fabs (with S. Mason), Gintic Institute for Manufacturing Technology, Singapore, August 1-2, 2001.

Overall Equipment Effectiveness (OEE): Improving Equipment Productivity, Semiconductor Equipment Materials International (SEMI) Business/Technology Education Program, SEMICON West, July 13, 1999.

Overall Equipment Effectiveness (OEE): Improving Equipment Productivity, LSI Logic, Portland, OR, Aug. 27, 1998.

Overall Equipment Effectiveness (OEE): Improving Equipment Productivity, Applied Materials, Santa Clara, CA, Nov. 24, 1997.

Improving Equipment Productivity, Semiconductor Equipment and Materials International (SEMI) Business/Technology Education Program, SEMICON Southwest, October 14, 1997.

Overall Equipment Effectiveness (OEE): Improving Equipment Productivity, Symbios Logic, Colorado Springs, CO, Sept. 24, 1997.

Improving Equipment Productivity, Semiconductor Equipment and Materials International (SEMI) Business/Technology Education Program, SEMICON West, July 15, 1997.

“The Relationship Between Capacity and Cycle Time”, Samsung Electronics Corp. - Semiconductor Business Managers Forum, Berkeley, CA, May 20, 1997.

“OEE and TPM in the Semiconductor Industry”, Dallas Semiconductor, May 2, 1997.

The Relationship Between Capacity and Cycle Time, Given to Samsung Electronics Corporation, Semiconductor Business Manufacturing Management at Berkeley, CA on May 13, 1996.

Measurement and Improvement of Manufacturing Capacity, 3 public offerings in Europe (Nov. 1994) and 3 public offerings in US (Dec. 1994), On-site offerings at AMD, AT&T (Orlando and Reading) Motorola (Austin), and Rockwell.

Fundamentals of Discrete Event Simulation Modeling and Analysis, SEMATECH (for Member Companies), Austin, Texas, October 1992, with Lee Schruben.

Overview of Modeling and Simulation, SEMATECH, numerous offerings, 1991-95.

SLAM II Discrete Modeling Concepts, Martin Marietta, Denver, Colorado, April 1988.

Principles of Discrete Event Simulation, Boeing Electronics, Irving, Texas, 1985.

Fowler, J.W. and Phillips, D.T., IDEF2/IDSS2.0 Dynamics Modeling and Systems: Advanced Concepts, Technology Transfer Materials for the Air Force ICAM Program Office, 1984.

SLAM II Discrete Modeling Concepts, Hughes Aircraft Company, Tucson, Arizona, July-August 1984.

Introduction to Simulation, AVCO Systems Division, Boston, Mass., December 1983.

IDEF2/IDSS2.0 Dynamic Modeling and Simulation, Sponsored by TAMU Office of Continuing Education, Texas A&M University, April 1983 and September 1983.

IDEF2/IDSS2.0 Dynamic Modeling and Simulation, Sponsored by Hughes Aircraft Company and U.S. Air Force ICAM Program Office, Texas A&M University, January 1983 (with D.T. Phillips).

IDEF2/IDSS2.0 Dynamic Modeling and Simulation, Sponsored by Boeing Computer Services, Seattle, Washington, January 1983.

## **SERVICE**

### **OFFICES IN PROFESSIONAL SOCIETIES**

NASPO, Academic Advisor to Board of Directors, 2017-2019

Institute for Industrial Engineers, Operations Research Division, President, 2013-2014

Institute for Industrial Engineers, Senior VP Continuing Education, Board of Trustees, 2012-2015

Omega Rho, President, 2010-2012

INFORMS Simulation Society, Treasurer 2010-2011

Omega Rho, Vice President, 2009-2010

INFORMS, VP Chapters/Fora, 2008-2009

Omega Rho, Secretary, 2007-2008

Winter Simulation Conference Board of Directors, SCS Representative, 2005-Present, Board Chair, 2011

Omega Rho, Treasurer, 2004-2006

INFORMS Subdivisions Council, Student Chapters Representative, 2003-2007

INFORMS Chapters/For a Subcommittee, Student Chapters Representative, 2003-2007

Faculty Advisor, OR/MS Tomorrow, 2002-Present

Faculty Advisor, ASU INFORMS Student Chapter, 1999-Present

Faculty Advisor, ASU Omega Rho Student Chapter, 2002-Present

### **PROFESSIONAL COMMITTEES**

IISE Society for Health Systems, Chair of Academic Sub-Committee 2018-2019

INFORMS, Job Placement Committee 2013-2015

IIE Fellows Selection Committee 2006-2008

IEEE Robotics & Automation Society, Technical Committee on Semiconductor Manufacturing Automation, Regional Chair, U.S.A – 2006-Present

IIE Outstanding Publication Award Selection Committee – 2005

Committee for Underrepresented Minorities and Women for 2005 Winter Simulation Conference

Doctoral Colloquium, Winter Simulation Conference 2003-2005

IIE OR Division Teaching Award Selection Committee - 2004

IIE Outstanding Publication Award Selection Committee – 2003

Served on the Academic Working Group for the IIE Presidential Membership Committee - 2002.

Chaired Committee for Underrepresented Minorities and Women for 2001 Winter Simulation Conference

TIMS College on Simulation Outstanding Publication Award Committee - 1993-1995.

International Technology Roadmap for Semiconductors' Factory Integration Technical Working Group. This group developed the 1997, 1999, and 2001 versions of this document that identified the research priorities for the semiconductor industry over the next 5-10 years. Was co-chair of the Factory Operations portion of the roadmap with Mani Jankiram (Intel).

SEMI Task Force on Modeling Data Standards. Co-chair (with Lori Jones-Texas Instruments). This group defined data standards used to facilitate modeling of semiconductor manufacturing operations and costs.

Planning Committee for NSF Workshop on Electronics Manufacturing Research, College Station, Texas, February 24-26, 1992. Co-authored NSF Workshop Final Report with Professor Wil Wilhelm (TAMU).

## SCIENTIFIC AND PROFESSIONAL SOCIETY MEMBERSHIPS

Institute of Industrial Engineers (IIE)  
Institute for Operations Research and the Management Sciences (INFORMS)  
International Society on Multiple Criteria Decision Making (MCDM)  
Production and Operations Management Society (POMS)  
Decision Sciences Institute (DSI)  
Society for Computer Simulation (SCS) -  
Institute of Electrical and Electronics Engineers (IEEE) – Past Member  
Semiconductor Equipment Manufacturers International (SEMI) – Past Member  
American Society for Engineering Education (ASEE) – Past Member

## HONOR SOCIETIES

Alpha Pi Mu - President, TAMU Chapter (1982-1983)  
Omega Rho

## CONFERENCE ACTIVITIES

Board of Directors

- Winter Simulation Conference – SCSI Representative 2005-2013, IIE Representative 2014-2017

General Chair:

- 2012 SCM Director's Conference, Phoenix, AZ October 2012
- 5<sup>th</sup> Multidisciplinary International Scheduling Conference: Theory & Applications, Phoenix, Arizona, August 9-12, 2011 (with Graham Kendall and Barry McCollum)
- INFORMS Western Regional Conference, Phoenix 2009
- Modeling and Analysis of Semiconductor Manufacturing International Conference (MASM 2002), Tempe, Arizona, April 10-12, 2002.
- Modeling and Analysis of Semiconductor Manufacturing International Conference (MASM 2000), Tempe, Arizona, May 10-12, 2000.

Program Chair:

- INFORMS National Meeting, Phoenix, AZ, Oct. 2012 (w/Esma Gel)
- INFORMS Simulation Society Research Workshop, Warwick, United Kingdom, June 25-27, 2009
- Winter Simulation Conference, 2008, Miami, FL.
- Industrial Engineering Research Conference (IERC), Vancouver, Canada, May 2008 (with Scott Mason).
- Modeling and Analysis of Semiconductor Manufacturing International

- Conference (MASM 2005), Singapore, October 6-7, 2005.
- Industrial Engineering Research Conference (IERC), Orlando, FL, May 19-21, 2002 (with Doug Montgomery).
- Semiconductor Manufacturing Operational Modeling and Simulation '01 International Conference, Seattle, Washington, April 24-25, 2001.
- Semiconductor Manufacturing Operational Modeling and Simulation '99 International Conference, San Francisco, CA, Jan. 18-20, 1999.

Organizing Committee:

- INFORMS Southwest Regional Conference, April 2008
- INFORMS Midwest Regional Conference, April 2007
- Combined Colloquia Chair, INFORMS National Meeting, Nov. 2005
- INFORMS Practice Conference, April 2004, Cambridge, MA
- INFORMS Practice Conference, May 2003, Phoenix, AZ
- Industrial Engineering Research Conference(IERC),May 2003, Portland, OR.
- IIE International Meeting, May 1999, Phoenix, AZ

Program Committee:

Intelligente Systeme zur Entscheidungsunterstützung, Multikonferenz Wirtschaftsinformatik 2008 (MKWI 2008), Feb., 2008, Munich, Germany

Track Coordinator:

Winter Simulation Conference, Semiconductor Manufacturing Track, December 14-18, 2020, Virtual.

Winter Simulation Conference, Healthcare Track, December 8-11, 2019, National Harbor, MD.

Winter Simulation Conference, Healthcare Track, December 9-12, 2018, Göteborg, Sweden.

Winter Simulation Conference, Semiconductor Manufacturing Track, December 8-10, 2014, Savannah, GA.

Winter Simulation Conference, Healthcare Track, December 8-11, 2013, Washington D.C.

Winter Simulation Conference, Healthcare Track, December 9-12, 2012, Berlin, Germany

Winter Simulation Conference, Healthcare Track, December 13-16, 2009, Austin, TX

Industrial Engineering Research Conf., Miami, FL, May 30-June 3, 2009.

IEEE Conference on Automation Science and Engineering, September 22-25, 2007, Scottsdale, AZ

Winter Simulation Conference, Simulation Based Scheduling Track, December 3-6, 2006, Monterey, CA.

Winter Simulation Conference, Semiconductor Manufacturing Mini-Track, December 5-8, 2004, Washington DC.

Winter Simulation Conference, PhD Colloquium and Poster Session Co-Chair (with Theresa Roeder), December 5-8, 2004, Washington DC.

Winter Simulation Conference, PhD Colloquium and Poster Session Co-Chair (with Paul Hyden), Dec. 7-10, 2003, New Orleans, LA.

INFORMS Fall Meeting, OR Applications in Semiconductor Manufacturing Cluster Chair, October 26-29, 1997, Dallas, Texas.

Winter Simulation Conference, Manufacturing Track, December 11-15, 1994, Orlando, FL.

Industrial Engineering Research Conf., May 26-27, 1993, Los Angeles, CA.

## JOURNAL ACTIVITIES

Editor-in-Chief

*IIE Transactions on Healthcare Systems Engineering*, 2011-2016

Editor

*Journal of Simulation*, 2012-Present

Department Editor	<i>IIE Transactions on Healthcare Systems Engineering</i> , Healthcare Operations Management, 2016-Present
Area Editor	<b><i>SIMULATION</i></b> : <i>Transactions of the Society for Modeling and Simulation International - Applications</i> , Manufacturing, 2001-2009. <i>Computers and Industrial Engineering</i> , Planning and Scheduling, 2005-2010. <i>Production and Operations Management</i> , Modeling and Simulation, 1996-1998.
Associate Editor:	<i>Journal of Scheduling</i> , 2018-Present <i>Transactions on Modeling and Computer Simulation (TOMACS)</i> , 2013-2015. <i>IEEE Transactions on Semiconductor Manufacturing, Factory Modeling and Control</i> , 2006-Present. <i>IEEE Transactions on Electronics Packaging Manufacturing</i> , 1996-2006.
Editorial Board Member:	<i>Operations Research for Health Care</i> , 2016-Present <i>Journal of Business Logistics</i> , 2013-Present. <i>Journal of Simulation (JSIM)</i> , 2005-2012. <i>Journal of the Chinese Institute of Industrial Engineers</i> , 2005-2010. <i>IIE Transactions on Operations Engineering</i> , 2007-2008. <i>IIE Transactions on Scheduling and Logistics</i> , 1996-2002.
Guest Editor:	<i>European Journal of Industrial Engineering</i> - special issue on Advances in Modelling and Analysis of Semiconductor Manufacturing (with L. Mönch and S. Mason) – Vol. 5, No. 3, 2011. <i>International Journal of Production Research</i> – special issue on Recent Developments in Modelling and Analysis of Semiconductor Manufacturing (with P. Lendermann and M. Xie) – Vol. 45, No. 3, 2007. <i>Production Planning and Control</i> – special issue on Operational Planning and Control of Semiconductor Wafer Production (with J. Gupta, R. Ruiz, and S. Mason) – Vol. 17, No. 7, 2006 <i>IIE Transactions on Scheduling and Logistics</i> - special issue Semiconductor Manufacturing (with Ching-En Lee and R. Uzsoy) –Vol. 34, No. 2, 2002 <i>Computers in Industry</i> - special issue on Computers in the Semiconductor Industry (with J. Cochran) - Vol. 45, No. 1, 2001
Referee for:	<i>IIE Transactions</i> , <i>Operations Research</i> , <i>Production and Operations Management</i> , <i>IEEE Transactions on Semiconductor Manufacturing</i> , <i>Journal of Scheduling</i> , <i>Journal of Simulation</i> , <i>International Journal of Production Research</i> , <i>Annals of Operations Research</i> , <i>INFORMS Journal on Computing</i> , <i>Journal of Manufacturing Systems</i> , <i>International Journal of Logistics</i> , <i>Technometrics</i> , <i>Naval Research Logistics</i> , <i>Winter Simulation Conference</i>

#### **OTHER RELEVANT SERVICE ACTIVITIES**

Panel Session:	Society of Women Engineers 2004 Sonora Region Conference, Phoenix, AZ, March 6, 2004, "To PhD or Not to PhD"
Presentation:	IIE Regional VII Conference, Tempe, AZ, February 27-29, 2004 "Modeling and Simulation of Semiconductor Manufacturing"
Presentation:	2002 Institute of Industrial Engineers Doctoral Colloquium
Tenure Reviewer:	Multiple Universities
Proposal Reviewer:	National Science Foundation Proposal Review, 1999, 2000, 2001, 2004, 2007, 2010, 2012

## **UNIVERSITY SERVICE**

### **University**

MS in the Science of Healthcare Delivery Development Committee (2012)  
Dean of Education Search Committee (2007)  
University Personnel Committee (2005-2007)  
University Senate (2001-2007, Fall 2008)  
IMES Advisory Board (2002-2006)  
ASU Teaching Assistant Orientation Workshop, August 15, 2000

### **College**

Faculty Director, MS in Global Logistics (2020-Present)  
Faculty Director, MS in Supply Chain Management (2019-Present)  
Full Time MBA SCM Concentration Coordinator (2018-Present)  
Masters Committee (2018-Present) Chair (2019-Present)  
Executive MBA Faculty Director (2012-2013)  
Health Systems Faculty Search Committee (2010)  
Chemical Engineering Faculty Search Committee (2000-01)  
Del E. Webb School of Construction Faculty Search Committee (2000-01)  
Executive Committee (IE Coordinator) of the Semiconductor Processing and Manufacturing Master's Degree Specialization Program led by Jim Adams (1996-Present)

### **Department**

Personnel Committee (2016-Present)  
Supply Chain Management Department Chair (2011-2016)  
Industrial Engineering Program Chair (2009-2011)  
Associate Chair for Research and Graduate Programs (2004-2009)  
Chair Search Committee (Vice Chair 2003-2004)  
Personnel Committee (2001-2006, Chair 2003-2005)  
Strategic Planning Committee (2000-2001, 2002-2005, Chair 2002)  
Operations Research and Production Systems Group Head (1999-2002)  
Faculty Governance Committee (1999-Present)  
INFORMS Student Chapter, Co-Advisor (1999-2011)  
Omega Rho Student Chapter, Co-Advisor (2002-2011)  
Graduate Affairs Committee (1998-01)  
Search Committee (1998-99)  
Publicity and Seminar Committee (1996-01) Co-Chair 1997-99  
Laboratory and Facilities Committee (1996-98)  
Undergraduate Affairs Committee (1997-98)  
Honors College Advisor (1996-99)  
Search Committee (1996-97)  
Set up a seminar exchange agreement with the Systems and Industrial Engineering Department at the University of Arizona that ran for 6 semesters.