

Associate Professor (Research) Yan Qiao

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PhD. Supervisor

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Academic Qualification:

June, 2015: Ph. D. degree in Mechanical Engineering, Guangdong University of Technology, Guangzhou, China

June, 2009: B. S. degree in Industrial Engineering, Guangdong University of Technology, Guangzhou, China

Teaching Area

Intelligent Control Technology

Introduction to Algorithm Theory

Operations Research

Research Area

Semiconductor manufacturing systems, scheduling and control, discrete event systems, Petri nets

Working Experience

July 2022 Present: Associate Professor at the Institute of Systems Engineering, Macau University of Science and Technology, Macao

Jan. 2018 June 2022: Assistant Professor at the Institute of Systems Engineering, Macau University of Science and Technology, Macao

Jan. 2016 Dec. 2017: Postdoctoral Fellow at the Institute of Systems Engineering, Macau University of Science and Technology, Macao

Sep. 2014 Sep. 2015: Visiting student at the department of Electrical and Computer Engineering, New Jersey Institute of Technology, USA

Research Grants

Control and Scheduling of Cluster Tools with Complex A National Natural Science Foundation of China under Grant 61803397, Jan. 2019 Dec. 2021;

B-twin driven scheduling and control of wafer Science and Technology development fund (FDCT), Macau SAR (file No. 0018/2021/A1), Sep. 2021 Sep. 2024;

Representative publications (Complete publication refer to my webpage)

Y. Qiao, Y. J. Lu, J. Li, S. W. Zhang, N. Q. Wu, and @ J efficient binary integer programming model for residency time-constrained cluster tools with chamber cleaning *IEEE Transactions on Automation Science and Engineering*, vol. 19, no. 3, pp. 1757-1771, July 2022.

Y. Qiao, A, X L, O, U X, U, J O, F, X A -down optimization for single-arm cluster tools subject to wafer residency time *IEEE Transactions on Systems, Man, and Cybernetics: Systems*, vol. 51, no. 11, pp. 6792-6807, November 2021.

- Y. Qiao**, S. W. Zhang, N. Q. Wu, M. C. Zhou, Z. W. Li, and T. Qu, C approach to failure response of process module in dual-arm cluster tools with wafer residency time *IEEE Transactions on Systems, Man, and Cybernetics: Systems*, vol. 51, no. 3, pp. 1612-1629, March 2021.
- Y. Qiao**, S. W. Zhang, N. Q. Wu, X. Wang, Z. W. Li, M. C. Zhou, R, O B -driven approach to optimal control of ACC systems and layout design in large rooms with thermal comfort consideration by using NQM *Journal of Cleaner Production*, vol. 236, DOI: 10.1016/j.jclepro.2019.07.053, 2019.
- Y. Qiao**, N. Q. Wu, F. J. Yang, M. C. Zhou, Q. H. Zhu, R, O P scheduling of time-constrained dual-arm cluster tools with wafer revisiting and activity time *IEEE Transactions on Systems, Man, and Cybernetics: Systems*, vol. 49, no. 6, pp. 1228-1240, June 2019.
- Y. Qiao**, N. Q. Wu, F. J. Yang, M. C. Zhou, and Q. H. Zhu, U sojourn time fluctuation analysis of time-constrained dual-arm cluster tools with wafer revisiting and activity time *IEEE Transactions on Systems, Man, and Cybernetics: Systems*, vol. 48, no. 4, pp. 622-636, April 2018.
- Y. Qiao**, M. C. Zhou, N. Q. Wu, and Q. H. Zhu, Q and control of startup process for single-arm cluster tools with residency time *IEEE Transactions on Control Systems Technology*, vol. 25, no. 4, pp. 1243-1256, July 2017.
- Y. Qiao**, A, P, N L, O, U, A, X P -arm *IEEE Transactions on Automation Science and Engineering*, vol. 12, no. 3, pp. 1125-1139, July 2015.
- Y. Qiao**, N. Q. Wu, and M. C. Zhou, Q and scheduling analysis of dual-arm cluster tools with wafer revisiting and residency time constraints based on a novel *IEEE Transactions on Systems, Man, and Cybernetics: Systems*, vol. 45, no. 3, pp. 472-484, March 2015.
- Y. Qiao**, N. Q. Wu, Q. H. Zhu, and L. P. Bai, A time analysis of dual-arm cluster tools for wafer *Computers Operations Research*, vol. 53, pp.252-260, January 2015.
- Y. Qiao**, L, O, U A, P, N, A, X F module failure in residency time-constrained single- *IEEE Transactions on Semiconductor Manufacturing*, vol. 27, no. 4, pp. 462-474, Nov. 2014.
- Y. Qiao**, N. Q. Wu, and M. C. Zhou, Q of dual-arm cluster tools with wafer revisiting and residency *IEEE Transactions on Industrial Informatics*, vol. 10, no. 1, pp. 286-300, Feb. 2014.
- Y. Qiao**, N. Q. Wu, and M. C. Zhou, Petri net based novel scheduling approach and its cycle time analysis for dual-arm cluster tools with wafer *IEEE Transactions on Semiconductor Manufacturing*, vol. 26, no. 1, pp. 100-110, Feb. 2013.
- Y. Qiao**, N. Q. Wu, and M. C. Zhou, P -time scheduling of single-arm cluster tools subject to residency time constraints and bounded activity time *IEEE Transactions on Automation Science and Engineering*, vol. 9, no. 3, pp. 564-577, July 2012.
- Y. Qiao**, N. Q. Wu, and M. C. X N net modeling and wafer sojourn time analysis of single-arm cluster tools with residency time constraints and activity time *IEEE Transactions on Semiconductor Manufacturing*, vol. 25, no. 3, pp. 432-446, August 2012.

Professional Certification and Awards

Senior Member of IEEE

Best Paper Award in Application, for the paper virtual wafer-based scheduling method for dual-arm cluster tools with chamber cleaning by Y. Qiao, J. Li, Y. J. Lu, S. W. Zhang, N. Q. Wu, and B. Liu, IEEE International Conference on Networking, Sensing and Control, Xiamen, China, December 3-5, 2021;

The 2018 Science and Technology Award of Jiangxi Province of China-The Second Prize of Natural Science Award;

2018 BOC (Bank of China) Excellent Research Award

The 2018 Science and Technology Award of Macau-The Third Prize of Natural Science Award

Journal Editorship

Special Issue Guest Editor of IEEE Robotics and Automation Magazine, Machine Learning for Industry 4.0, 20

Personal Website

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