Séminaire de Prof. Shijin Wang (Tongji University, China, Chine), le 5 September 2019 à 10h, site IBGBI: Titre : « Identical Parallel Machine Scheduling with the Promise of Maximum Waiting Time for an Emergency Job»

Résumé:

Currently, customer satisfaction plays a more and more vital role in both manufacturing and service industry. Promise of an acceptable waiting time for customers has been considered as an effective approach to improve the customer satisfaction. In this study, an identical parallel machine scheduling problem with the promise of maximum waiting time for an emergency job is investigated. A mixed integer programming enhanced with symmetry-breaking constraints is formulated. Two objectives, makespan and total completion time, are considered separately. For the case of makespan, the worst-case approximation ratios of classical heuristic rules are deduced. For the case of total completion time, efficient bounds are provided and the NP-hardness of the problem is proved. Heuristic methods based on the classical dispatch rules are developed for both cases. Extensive computational experiments are conducted, through which the performance of the formulation and heuristics are compared, the relationship between objective values and the promised maximum waiting time for an emergency job are explored, and some observations and managerial insights are obtained.

About talker:

Dr. Shijin Wang now has an associate professor position in School of Economics & Management, Tongji, Shanghai, China. He received his Ph. D. in Industrial Engineering from Shanghai Jiao Tong University, Shanghai, China, in 2009 and B.S in Industrial Engineering in Zhejiang University of Technology, Hangzhou, China, in 2002. He was a visiting scholar in the center for intelligent maintenance system (IMS) of University of Cincinnati, USA, during the period of April, 2007 to April, 2008. His current research focuses production planning and scheduling, integrated optimization of scheduling and energy, maintenance. His research outputs have been published in many international journals including *International Journal of Production Research*, *Computers & Operations Research*, *Journal of Cleaner Production* and *Computers & Industrial Engineering.* He is currently working on several research projects funded by National Natural Science Foundation of China (NSFC). He also services as reviewers *for European Journal of Operational Research, International Journal of Production Research、 Computers & Operational Research、 Journal of Scheduling、 IEEE Transactions on Intelligent Transportation Systems and Computers & Industrial Engineering.*