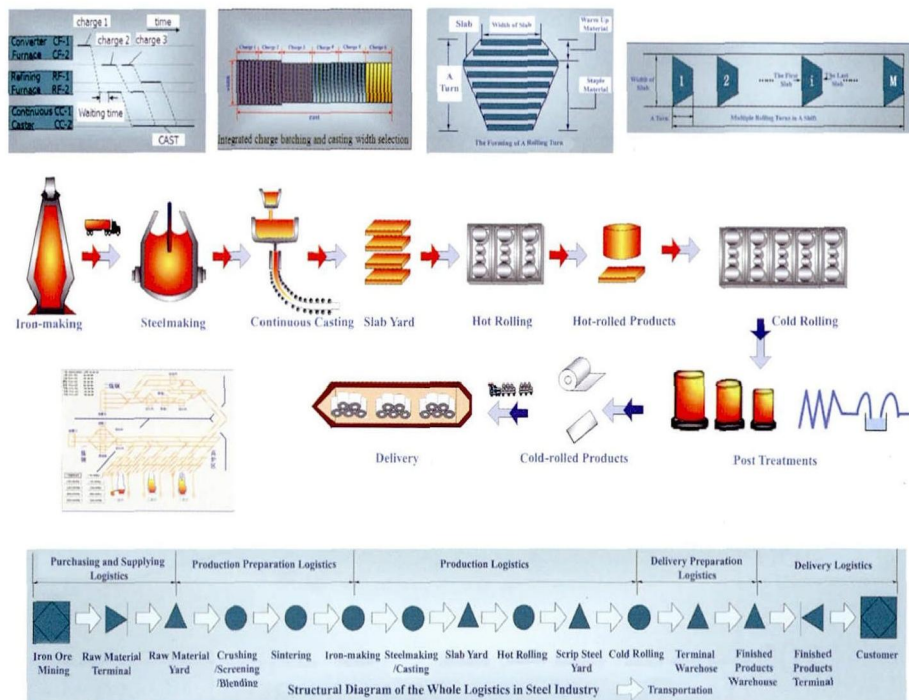


Research on theory and solution method of the production-logistics planning and scheduling in process industry

With the long-term support of NSFC, Professor Tang Lixin of Northeastern University and his research team have been working on the theory and application research of the vital production-logistic planning and scheduling problems arising from practical production management in the process industry. Taking steel production as background, they have creatively proposed an original theoretical system covering modeling, analysis, optimization and application. As part of the theoretical system, a number of novel optimization and sophisticated metaheuristic algorithms are developed. The work has provided systematic theory and methods for solving a series of challenging practical problems, including order/charge batching problems and scheduling problems in molten iron production, steelmaking-continuous casting production, and hot/cold rolling operations, that have been faced by most steel companies for a long time. They have published 88 papers in multiple internationally famous and top journals. These papers have attracted wide attention of both academic and industrial communities.

Based on the proposed original theoretical system, Professor Tang has collaborated with some large iron and steel companies (i. e. , Baosteel) in developing a number of decision support systems. Among that, the decision support system for slab allocation decisions has been praised as “Five Star Optimization Software” (top level) by Baosteel. The application of these systems is a successful example of using advanced optimization theory and techniques to improve the operations and logistics management capability in process industry.



Due to their outstanding research and application achievements on planning and scheduling to the iron and steel industry, Professor Tang Lixin and his research team received the “Franz Edelman Award Finalist”, which is the world’s most prestigious award in the field of operations research.