

Contribution ID: 265

Type: Oral Presentation

## A continuous flow model for long-term production scheduling and reactive replanning.

Thursday 9 October 2025 08:50 (20 minutes)

In the steel industry, most companies operate in a competitive national and international market, with prices determined by competition. To enhance profits, firms must focus on reducing production and commercial costs. Those unable to adapt their strategies may lose their competitive edge. Effective scheduling of resources is crucial to achieving goals such as increasing production and minimising completion time. However, most scheduling problems are NP-hard, meaning their solutions become exponentially complex with size. Production scheduling in the steel industry is particularly challenging due to multiple production steps, resource requirements, and potential disruptions, such as breakdowns and order cancellations. This paper presents a continuous flow model approach for long-term production scheduling that is efficient to solve. It can calculate an approximate time for the production schedule over one month. It can also determine the material mix needed to fulfil the production targets, and it is so fast that, as soon as the situation in the factory changes, a new plan can be calculated reactively.

Primary author:WOLFF, Andreas (VDEh-Betriebsforschungsinstiut)Presenter:WOLFF, Andreas (VDEh-Betriebsforschungsinstiut)Session Classification:Process Optimization & Control

Track Classification: Digital tranformation