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**Editorial**

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The airline industry is important for the global economy. Airports, in particular hub airports, are the backbone of air transportation. Efficient landing and departure procedures as well as optimized ground processes are key factors that increase the throughput of an airport. Operations research techniques are important to model, optimize and evaluate such systems. Following an International Conference on Airport Operations Management which took place in the year 2012 at the TUM School of Management in Munich, Germany, we distributed a call for papers on airport operations management. Sixteen papers were received and the following 3 papers made it into the special issue.

**Time-dependent performance approximation of truck handling operations at an air cargo terminal by Selinka, Franz and Stolletz**

In their paper, Selinka and co-authors provide an analytical solution for the time-dependent performance evaluation of truck handling operations at an air cargo terminal. The demand for loading and unloading operations is highly time-dependent and stochastic for two classes of trucks. Two heterogeneous handling facilities with multiple servers are available to handle trucks assuming exponentially distributed processing times. Trucks are routed to a handling facility depending on the current state of the system upon arrival. To approximate the time-dependent behavior of such heterogeneous queueing systems, the authors use a stationary backlog-carryover approach. A numerical study compares this approach with simulations and demonstrates its applicability to real-world input data.

**The impact of hub failure in hub-and-spoke networks: Mathematical formulations and solution techniques by Azizi, Chauhan, Salhi and Vidyarthi**

Hub facilities are subject to unpredictable disruptions caused, e.g., by severe weather condition, natural disasters and labor disputes. Disruptions in hubs result in excessive transportation costs and economic losses as customers initially served by these facilities must now be served by other hubs. The authors present a novel mathematical model that builds hub-and-spoke systems under the risk of hub disruption assuming that once a hub stops normal operations, the entire demand initially served by this hub is handled by a backup facility. The objective function of the model minimizes the weighted sum of transportation cost in regular situation and the expected transportation cost following a hub failure. Complementing the model, which only for small instances can be solved by off-the-shelf solvers, the authors propose a genetic algorithm.

**Reducing airport gate blockage in passenger aviation: models and analysis by Castaing, Mukherjee, Cohn, Hurwitz, Nguyen and Müller**

Flights are typically assigned to an arrival gate at their destination airport prior to their departure from their origin station. Although the gate is scheduled to be available when the flight arrives, this is not always the case in practice. Due to variability in departure and flight times, the arriving flight might arrive early, the previous flight departing from the gate might depart late, or both. When a flight arrives at its scheduled gate but has to wait because the preceding aircraft is still occupying that gate, this is referred to as “gate blockage”. Gate blockage can have many negative impacts, including passenger delays, missed connections, and increased fuel burn. The research of Castaing et al. focuses on incorporating the inherent stochasticity of the system

into the planning process to reduce the prevalence and impact of gate blockage. Specifically, an optimization problem to assign flights to gates so as to minimize the expected impact of gate blockage is formulated. The authors assess the solution approach by employing real-world data. We hope that this special issue inspires further research on airport operations management, a field for which operations research has already provided significant contributions. But there are still ample opportunities.

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