

## OPTIMAL INFLOW CONTROL IN SUPPLY SYSTEMS WITH UNCERTAIN DEMANDS

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### Abstract

We are concerned with optimal control strategies subject to uncertain demands. Taking uncertainty into account becomes more and more important in many areas. In the context of supply chain management, a need for control strategies taking these uncertainties into account naturally arises when it comes to production planning. Deviations from the demand actually realized need to be compensated, which might be very costly and should be avoided. To this end, we consider different approaches to control the produced amount at a given time to meet the stochastic demand in an optimal way (see [1]). Supply chains are represented by transport equations and stochastic differential equations of Ornstein-Uhlenbeck-type are used to model the uncertain demand. Finally, the approaches will be compared in a numerical simulation study.

### Academic Career

09/09 - 03/16: Bachelor- and Master

studies at the University of Mannheim

- Semester abroad at the Université Nice

Sophia Antipolis, France

- Since 06/16: PhD student at the Chair of Scientific Computing, University of Mannheim

Supervisor: Prof. Dr. Simone Gottlich • Research interests:

- Numerical simulation, SDEs

- Uncertainty quantification

- Hyperbolic supply systems, stochastic optimal control

Hosted by: Hao Yan