

## Mathematical optimization of water networks

Martin, Alexander, author

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### Abstrak

The research presented here, opening up space for synergies and innovation. It is directly applicable for relevant practical problems and has been carried out in cooperation with utility and dumping companies, infrastructure providers and planning offices. A close and direct connection to the practice of water management has been established by involving application-oriented know-how from the field of civil engineering. On the mathematical side all necessary disciplines were involved, including mixed-integer optimization, multi-objective and facility location optimization, numerics for cross-linked dynamic transportation systems and optimization as well as control of hybrid systems. Most of the presented research has been supported by the joint project „Discret-continuous optimization of dynamic water systems“ of the federal ministry of education and research (BMBF).