



Anita Schöbel received her PhD in mathematics in 1998 and her habilitation in mathematics in 2003 in Kaiserslautern. From 2004 - 2018 she was professor for Optimization at the Georg-August University Göttingen.

Since January 2019, Anita Schöbel has been professor for Applied Mathematics at the University of Kaiserslautern-Landau and director of the Fraunhofer Institute for Industrial Mathematics ITWM. The ITWM has 550 employees organized in 11 departments all dealing with industrial research projects in applied mathematics. At Fraunhofer Society, Anita Schöbel is responsible for the strategic research area Next Generation Computing and vice spokesperson for the quantum computing competence network.

In 2019 and 2020 she has been president of the German Operations Research Society (GOR). Currently, she is president of EURO (Association of European Operational Research Societies). She is also member of the university steering committee (Hochschulrat) Kaiserslautern-Landau, in the senate of the national research data infrastructure (NFDI), and in the council for technology of the state Rhineland-Palatinate.

She has been involved in many industrial and research projects, among them the European projects ARRIVAL, EASIER and OptALI and cooperations with India. She also coordinated a research unit (Forschungsgruppe) on Integrated Transportation funded by the German Research Foundation (DFG) and currently coordinates a ministry-funded project on synchronizing different modes of transport.

In her research interests, Anita focuses on discrete optimization in public transport, robust and multi-objective robust optimization, quantum computing, and on several topics related to continuous facility location.

Titel und Abstract:

Sustainable public transport

Moving travelers efficiently, with low costs, and respecting environmental goals like CO<sub>2</sub> emissions is one of the challenging problems our society faces today. In this talk we sketch how optimization approaches can help to provide sustainable transport which reaches these goals.

A first goal is to make public transport more attractive such that travelers choose bus, tram, metro, or railway transportation instead of using their own cars. Here we focus on minimizing travel times, minimizing transfers and increasing reliability of public transport. In this context, we show that integrating different planning stages may help to further improve efficiency of public transport modes.

A second step is to make public transport modes themselves more energy-efficient. This can be done by using electric vehicles, but also by planning energy-efficient lines or using regenerative energy when designing a train timetable.

Finally, we argue that for providing sustainable transport for the society, we need also look at other modes of transport besides regular bus or metro transportation. This includes demand-responsive transport, individual cars, sharing modes and active modes like walking and biking. We sketch a first model in which such different transport modes are considered simultaneously.