



**VORTRAG 22.03.2018 10.00 Uhr SE 3**

“Branch & Price based algorithms for some variants of the Two-Echelon Vehicle Routing Problem with Time Windows“

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This presentation discusses the two-echelon capacitated vehicle routing problem with time windows. The first echelon consists of transferring freight from depots to intermediate facilities (i.e., satellites), while the second echelon consists of transferring freight from these facilities to the final customers, within their time windows. We propose two path-based mathematical formulations for our problem: (1) in one formulation, paths are defined over both first and second echelon tours, and (2) in the other one, the first and second echelon paths are decomposed. Branch-and-price based algorithms are developed for both formulations. We compare both formulations and solution methods on a comprehensive set of instances and are able to solve instances upto 5 satellites and 100 customers to optimality. One extension towards multi-commodity products is also discussed in detail.