



Online Scheduling of Bidirectional Traffic

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报告时间: 2019年11月5日 8:30-9:00

报告地点: 中德应用优化研究所会议室 (合肥学院南艳湖校区 53 栋 920)

摘要: We introduce, discuss, and solve a hard practical optimization problem that deals with routing bidirectional traffic. This situation occurs in train traffic on a single track with sidings, ship traffic in a canal, or bidirectional data communication. We have developed a combinatorial algorithm that provides a unified view of routing and scheduling that combines simultaneous (global) and sequential (local) solution approaches to allocate scarce network resources to a stream of online arriving vehicles in a collision-free manner. Computational experiments on real traffic data with results obtained by human expert planners show that our algorithm improves upon manual planning by 25%. This combination of routing and scheduling leads to a new class of scheduling problems, and we will also address some complexity and approximation results for this class. The lecture is based on joint work with Elisabeth Lübbecke and Marco Lübbecke, see <https://doi.org/10.1287/opre.2018.1814>

简介: Rolf Möhring, 合肥学院人工智能与大数据学院教授, 国际著名组合与交通优化专家, 在数学、交通、运筹及调度等领域有十分卓越的工作。在 JACM、MS、OR、Math. OR 等国际著名期刊发表文章 120 余篇, 其中单篇引用最高达 1200 余次。Rolf Möhring 教授曾担任“德国数学, 经济学和运筹学学会”会长, 柏林工业大学数学系主任、数学研究所所长, 2005 年获德国运筹学会科学奖, 2010 年获欧洲运筹学会金质奖章, 2004-2007 担任国际运筹学会和数学规划学会主席, 在多个国际著名学术杂志中担任编委, 在许多国际会议上被邀请做大会报告和主题演讲报告。