

Abstract Submitted
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Which Route Will You Choose to Use For Driving Home Tonight in Rush-Hour Traffic?¹ BOGDAN DANILA, YUDONG SUN, KEVIN BASSLER, University of Houston — The best answer to the question posed in the title for a city of drivers requires knowing the optimal routes for congested traffic flow on complex networks. This is known to be an NP-hard problem. Despite this fact, we will present answers calculated in only polynomial time using extensions of a recently introduced heuristic algorithm [Danila, et al., PRE 74, 046106 (2006)] that, at least, scale optimally with network size. Using the optimal routes allows a network to support the maximum traffic load and significantly reduces the average travel time in congested traffic. The results presented apply to vehicular traffic and to traffic on wireless communication networks.

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