
*** CANCELED *** Route design for mixed fleet of hydrogen and conventional vehicles

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Abstract

In this study, a new variant of green vehicle routing problem named as hydrogen and mixed fleet based green vehicle routing problem with recharging station (H-MFGVRPRS) is considered. The study is motivated from the global concerns about environmental sustainability challenges and subsequent CO₂ limit imposed for the businesses. Associated with real-life scenarios, a pragmatic energy consumption method and its CO₂ emission models of the vehicles is considered as non-linear function of vehicles travel distance. The models incorporate the realistic variation of vehicle speed and cargo load on the arc while calculating CO₂ emission. Overall, it is a new GVRP of a mixed fleet and heterogeneous vehicles consists of fuel cell hydrogen vehicle and conventional internal combustion vehicle with alternative refuel stations (AFSs). For the problem, new datasets are generated and utilized for computation experiments in this study. The problem is mathematically formulated as mixed integer programming (MIP) and a meta-heuristic algorithm is designed to solve the problem.

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