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论文

放射形专用线取送车模型及算法

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摘要：

为了解决放射形专用线取送作业的合理取送顺序、取送时机和取送次数问题,用定性与定量相结合的方法,建立了取送车模型,设计了求解模型的蚁群遗传算法.模型及其算法适用于求解多种到发车流形式的放射形专用线取送车问题,并可自适应地生成各种取送作业组织方式,实现了取送方案的整体最优,克服了固定取送作业方式的缺陷.算例仿真结果表明,取送次数从传统方法的30次减少到18次,减小了作业车的总车小时消耗.

关键词： 取送车 放射形专用线 蚁群遗传算法 云模型

M odel and Algorithm for Taking out and Placing inW agons in Shunting Operation on RadialPrivate Lines

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Abstract:

To find the reasonable sequence, momen,t and batch number of taking out and placing in wagons in shunting operation on radial private lines, a model forwagons'taking-out and placing-in operation on radialprivate lineswasbuiltby combining qualitative and quantitative analysis. Then, the methods to construct and compute the solution of the model were elaborated, and an effective ant colony genetic algorithm (ACGA) was designed to search the optimal solution. The model and its algorithm are suitable to solve the problem of taking out and placing in wagons on radial private lines with various kinds ofwagon flows, and they can generate adaptive organizationmodes of taking-outand placing-in operations to achieve a globally optimal operation scheme, which overcomes the shortcomings in the shunting operation using a fixed organizationmode. An example simulation shows that the batch numberof taking-outand placing-in operationswas reduced from 30 to 18, and that the total time that eachwagon spends at the stationwas saved effectively.

Keywords: taking out and placing inwagons; radial private line; ACGA cloudmodel

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