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基于蚁群优化的多弹协同目标分配算法(PDF)

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Title: Cooperative Target Assignment Algorithm of Multiple Missiles Based on Ant Colony Optimization

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摘要: 为了提高对目标群的打击效果，研究了多弹编队系统中存在的目标分配决策问题。首先，利用弹间共享信息，综合考虑导弹性能、目标特性以及弹目之间的态势关系，建立弹目之间优势矩阵模型；然后，利用贪心算法及蚁群优化提出了一种简单有效的一轮拍卖及其改进算法以在规定时间内得到单弹的次优目标分配方案，并以此得到整个弹群的分配结果。最后，仿真结果证实了所提出方法的有效性。

Abstract: In order to better strike target group, the weapon target assignment problem of multimissile formation system was studied. Firstly, by using the information shared between the missiles, the dominance matrix was modeled based on the performance of missiles, the character of targets and the relationship between the missiles and targets. Then, in order to obtain target assignment result of individual missile in desired time, the simple and effective auction algorithm around a circle and its improved algorithm were presented based on greedy algorithm and ant colony optimization. The final result of the missiles formation

could be obtained based on the result of individual missile. Finally, the simulation results show the effectiveness of the proposed approach.

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