

## 军用系统分析

### 基于组织自愈机制的空间信息网络抗毁路由技术研究方法

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摘要:

抗毁路由技术是确保空间信息网络长期稳定运行的关键技术之一。提出了一套借助机体组织病理自愈机制展开空间信息网络抗毁路由技术研究的思路与方法: 结合现代病理学研究, 分析机体组织疾病自主调理机理, 总结形成适应天基信息网络路由故障自愈机制研究的启发性结论。据此分析天基信息网络业务特征、组网结构、路由过程、路由影响因素及故障产生条件与原因, 构建并深入分析天基信息网络路由故障自愈调控策略与模型, 设计满足自愈调控实施的包括分群管理、链路修补、增量修正等天基信息网络路由故障主动调控技术。最后, 设计满足天基信息网络路由故障自愈的抗毁路由算法, 借助相关的仿真平台与工具, 设计适应本文研究需求的天基信息网络路由故障自愈仿真框架与环境, 对提出的天基信息网络组网结构、路由故障自愈机制、抗毁路由算法进行仿真分析与评估。

关键词: 组织自愈 星座分群 通信链路 抗毁路由

### Research on survivable routing technology of space information network based on mechanism of organization self-conditioning

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Abstract:

Survivable routing technology is one of the key technologies to ensure the long term stable operation of space information networks. Using the pathological self-healing mechanism with the body for reference, a set of ideas and methods are presented to explore the space information network survivability routing technology. The self-healing mechanism of space-based information network routing failure is concluded through combing a research of modern pathology and analysis of body tissue disease self-conditioning mechanism. And then, the operational characteristics of network structure, routing process, routing and fault factors and the causes of space-based information networks are analyzed, the self-healing routing failures control strategies and models of space-based information networks are constructed, routing fault active control technologies, which includes clustering, link repair, incremental correction, are designed. Finally, a survivable routing algorithm of space based information networks routing failures is designed, and the space-based information network self-healing routing fault simulation frame and environment are developed to evaluate the network structure, routing fault self-recovery mechanism and the survivable routing.

Keywords: organization self-conditioning constellations grouping link survivable routing

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