

Review of: "Protection of Complex Network Systems From Targeted Attacks and Non-Target Lesions"

Ferda Ozdemir Sonmez¹

¹ Imperial College London

Potential competing interests: No potential competing interests to declare.

Reviewer Comments

Title and Abstract

1. **Title:** The word "From" in the title should be lowercase.
2. **Abbreviation:** The abbreviation "NC" used in the abstract should be explained at its first occurrence.

Introduction

3. **Global Problems:** At the start of the Introduction Section, labeling the Russian-Ukrainian War as a global problem while not mentioning other ongoing conflicts is concerning. Consider making this sentence more generic.
4. **Examples of Lesions:** The first paragraph of the introduction discusses global issues like AIDS and global warming. While these are long-standing problems, they might not be the best examples for network security. I suggest finding more relevant examples.
5. **Focus:** The introduction lacks focus, covering three different subjects:
 - Researchers focus on system protection.
 - Creation of attack scenarios is neglected.
 - Even intact structures can be destabilized by unpredictable attacks.
6. **Protection Context:** The protection of important nodes can include protection from internal activities. Clarify the context by specifying "from external attacks" to distinguish from operational scenarios.

Literature Review and Methodology

7. **Theory of Complex Networks:** The statement about researchers focusing on protection strategies in complex networks theory needs a reference. Also, move the third point to a separate paragraph and elaborate.
8. **Structural Approach:** The term "structural approach" is introduced abruptly without explanation. Define this term before discussing its shortcomings and relation to unpredictable attacks.
9. **Assortative Networks:** Introducing terms like "assortative networks" without explanation adds confusion. Ensure all terms are defined before use.

Organization and Content

10. **Scope and Contributions:** The introduction should clearly define the scope and contributions of the study. End the section with a description of the paper's structure.
11. **Section Headings:** Improve the organization of the paper. Section headings like "Attacks on the structure of network systems" are unclear. Use established categories like passive and active attacks for better clarity.
12. **Literature Review:** The literature review is poorly integrated, mixing the author's contributions with existing studies. Clearly delineate background information and the current paper's position among related works.
13. **Research Details:** Add a specific section detailing the research contributions and methodology. Clearly introduce and elaborate on the metrics used.

Figures and Formulas

14. **Figures:** All figures look good but lack explanations about their origin, creation process, and the principles used. If they are a main contribution, they should be better explained.
15. **Formulas:** Inline formulas are hard to read and not properly referenced. Clearly distinguish between original and cited formulas, and ensure proper formatting.

Conclusion

16. **Conclusion Aim:** The sentence from the conclusion, "Understanding the structural and functional importance of system components allows us to choose objects that require priority protection or blocking," seems to summarize the aim of the paper. However, the paper does not demonstrate this effectively.

Overall Decision: Reject

This paper lacks novelty and contribution, is poorly written, and fails to demonstrate a clear scientific methodology. It should not be published in its current form.