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| Book Name: | [Current Research Progress in Physical Science](https://www.bookpi.org/bookstore/product/current-research-progress-in-physical-science-vol-1/) |
| Manuscript Number: | **Ms\_BPR\_4620** |
| Title of the Manuscript:  | **On Unstable Spatial Modes and Patterns in Cellular and Graph Neural Circuits** |
| Type of the Article | **BOOK CHAPTER** |

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| PART 1: Comments |
|  | Reviewer’s comment**Artificial Intelligence (AI) generated or assisted review comments are strictly prohibited during peer review.** | Author’s Feedback *(Please correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)* |
| **Please write a few sentences regarding the importance of this manuscript for the scientific community. A minimum of 3-4 sentences may be required for this part.** | This manuscript offers valuable insights into the synthesis of graph-based networks with unstable spatial modes. Its relevance lies in the application of these concepts in fields like circuit design, pattern formation, and the broader domain of network theory. The approach of incorporating prescribed eigenvalues and eigenvectors for detecting unstable modes holds potential for enhancing computational and physical systems, making it an important contribution to both theoretical and applied research in the field. |  |
| **Is the title of the article suitable?****(If not please suggest an alternative title)** | Yes, the title accurately reflects the focus of the manuscript. |  |
| Is the abstract of the article comprehensive? Do you suggest the addition (or deletion) of some points in this section? Please write your suggestions here. | The abstract provides a good overview of the manuscript's content. However, it would benefit from briefly stating the specific application or potential implications of the work. For example, mentioning its relevance in fields such as circuit design or computational models of dynamic systems could make it clearer to readers unfamiliar with the niche topic. |  |
| **Is the manuscript scientifically, correct? Please write here.**  | Yes, the manuscript presents scientifically sound concepts based on established theoretical frameworks. The synthesis of graph-type networks with prescribed spatial modes and eigenvalues is rigorously explained. The application of decoupling techniques and the proposed proof of concept align with the theoretical models and have been effectively tested in the examples. |  |
| **Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.****-** | The references are sufficient and mostly recent, covering key concepts and prior work in this area. However, to strengthen the manuscript, I would suggest including more recent studies on similar applications of graph theory in pattern formation and dynamical systems, especially those related to active circuits and neural networks. For instance, adding references related to recent advancements in graph-based machine learning techniques could be beneficial. |  |
| Is the language/English quality of the article suitable for scholarly communications? | The language is generally clear, but some sections could benefit from minor revisions for clarity and conciseness. Specifically, a few sentences are somewhat complex and could be streamlined for better readability. I recommend a careful proofreading to improve sentence flow and avoid repetition. |  |
| Optional/General comments | Overall, the manuscript is well-written and addresses a novel and interesting aspect of network dynamics and circuit design. The clarity of the explanation, especially in relation to eigenvectors and unstable modes, is commendable. I would recommend the authors address the minor language issues and include more specific real-world applications of the proposed concepts to strengthen the manuscript further.This manuscript presents a promising concept and includes a thorough analysis, but revisions are needed to improve clarity, enhance some sections. After these changes, the manuscript should be ready for publication. |  |

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| **PART 2:**  |
|  | **Reviewer’s comment** | **Author’s comment** *(if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)* |
| **Are there ethical issues in this manuscript?**  | *(If yes, Kindly please write down the ethical issues here in details)* |  |

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| **Reviewer Details:** |
| Name: | **R. KRISHNA KUMARI** |
| Department, University & Country | **Srm Institute of Science and Technology, India** |