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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 paper contributes neural circuit dynamics with a unifying framework based on unstable spatial modes and mode decoupling. It investigates the connection between the extended graph Laplacian and nodal equations, allowing neural architectures to be designed with bespoke dynamics. The introduced spatial comparator for the identification of hidden spatial modes has theoretical and practical relevance in CMOS technology, making the connection between computational neuroscience and engineering.** |  |
| **Is the title of the article suitable?****(If not please suggest an alternative title)** | **It can be further improved** |  |
| 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. | **It is concise but can be made to highlight more the spatial comparator under consideration and its applications. It should also highlight more briefly the significance of the simulation findings.** |  |
| **Is the manuscript scientifically, correct? Please write here.**  | **Introduction is a good summary of pattern formation. An improvement in clarity can be achieved with a clearer research question and precise contribution statement.****Add clear Methodology section in the manuscript.****Results and simulations are good but Cite figures in the text from Figure 9 to onward.****Also add Discussion section and implications of the study** **Add one line of applications of results produced and also mention future work** |  |
| **Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.****-** | **References are very out dated, should add latest references from the year 2022 to 2024** |  |
| Is the language/English quality of the article suitable for scholarly communications? | **Need to improve the grammar of the manuscript**  |  |
| Optional/General comments |  |  |

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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: | **Muhammad Ibrar** |
| Department, University & Country | **New Mexico Highlands University, USA** |