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| Book Name: | **Plasmas Afterglows with N2 for Surface Treatments synthesis 2024** |
| Manuscript Number: | **Ms\_BPR\_** **3686.9** |
| Title of the Manuscript:  | **N2 Active Species in Microwave Plasma and Early Afterglows at Low Gas Pressure** |
| Type of the Article | **Book chapter** |

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| PART 1: Review Comments |
| Compulsory REVISION comments | Reviewer’s comment | 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. Why do you like (or dislike) this manuscript? A minimum of 3-4 sentences may be required for this part.** | The manuscript titled “N2 Active Species in Microwave Plasma and Early Afterglows at Low Gas Pressure. The study investigates N2 microwave discharges and their afterglows. The focus is on the production of N2+ ions and excited N2 species. A self-consistent theoretical model is developed to explain the observed phenomena. It provides insights into the complex mechanisms involved in N2 discharges and the influence of experimental conditions on plasma properties.Minor revisions, including renumbering figures and tables and addressing the raised questions, are required. Detailed feedback is provided in the manuscript file |  |
| **Is the title of the article suitable?****(If not please suggest an alternative title)** | yes |  |
| 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. | Yes |  |
| **Are subsections and structure of the manuscript appropriate?** | Yes |  |
| **Please write a few sentences regarding the scientific correctness of this manuscript. Why do you think that this manuscript is scientifically robust and technically sound? A minimum of 3-4 sentences may be required for this part.** | The manuscript focuses on the following :* Dominant production of N2+ ions by electron collisions in the plasma and early afterglow.
* Significant increase in the intensity ratio of N2+(B)/N2(C) from plasma to pink afterglow.
* Variation in gas temperature along the discharge tube.
* Impact of added Ar-NOext gas mixture on N-atom destruction and emission intensities.
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| **Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.****-** | Sufficient but not recent. Add more recent refernces |  |
| Minor REVISION commentsIs the language/English quality of the article suitable for scholarly communications? | It could be better, there are some mistakes. |  |
| 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: | **Suleiman Elhamali** |
| Department, University & Country | **Libyan Center for Plasma Research, Libya** |