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| Book Name: | **Plasmas Afterglows with N2 for Surface Treatments synthesis 2024** |
| Manuscript Number: | **Ms\_BPR\_3686.17** |
| Title of the Manuscript: | **Plasmas Afterglows in 𝐍𝟐 − 𝐎𝟐 Discharges** |
| 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.** | This article provides critical insights into the interactions of N and O atoms in plasma afterglow conditions. The findings on the quenching effects of O-atoms on N2 active species in early and late afterglows are essential for understanding plasma dynamics. Furthermore, the study compares species densities across different plasma pressures, offering valuable knowledge for optimizing plasma-based applications in material processing and chemical synthesis. |  |
| **Is the title of the article suitable?**  **(If not please suggest an alternative title)** | The title “Plasmas Afterglows in N2 − O2 Discharges” is appropriate but appears more general in nature. It could be improved by emphasizing a significant result from the study. |  |
| 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 study, including key parameters and results. However, it could benefit from additional context to better highlight the significance of these findings, such as their implications for plasma applications or a brief mention of the methodologies used. Additionally, the language could be refined for clarity, and the inclusion of specific comparisons or trends in the results could enhance its comprehensiveness. No deletion is necessary, but these additions would make the abstract more impactful and informative |  |
| **Are subsections and structure of the manuscript appropriate?** | The sections and structure of the manuscript are appropriate and logically organized, effectively guiding the reader through the study. Each subsection is relevant and contributes to a clear understanding of the research objectives, methodology, results, and conclusions. No major changes are necessary |  |
| **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.** | This manuscript is scientifically robust and technically sound as it provides detailed experimental data and analysis of plasma afterglows in N₂-O₂ discharges. The study is based on well-defined parameters, such as pressure, flow rate, and power, ensuring reproducibility and reliability of the results. The findings, including the density variations of reactive species and the quenching effects of O-atoms, are consistent with the established understanding of plasma chemistry. Furthermore, the manuscript thoroughly compares results across different plasma conditions, demonstrating a strong methodological approach and contributing valuable insights to the field |  |
| **Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.**  **-** | References are sufficient. |  |
| Minor REVISION commentsIs the language/English quality of the article suitable for scholarly communications? | The English quality of the article is suitable for scholarly communication. However, the presentation and sentence structure may pose challenges for readers who are new to the field. Including a basic introduction to the field would enhance accessibility and understanding for a broader audience. Additionally, improving the quality and clarity of the figures would further support the effective communication of the research findings. |  |
| 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: | **Radhika T. P** |
| Department, University & Country | **Indian Institute of Technology Delhi, India** |