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| Book Name: | **Plasmas Afterglows with N2 for Surface Treatments synthesis 2024** |
| Manuscript Number: | **Ms\_BPR\_3686.14** |
| Title of the Manuscript:  | **Determination of N and O-atoms, of N2(A) and N2 (X,v>13) Metastable Molecules and N2+ Ion Densities in the Afterglows of N2-H2, Ar-N2-H2 and Ar-N2-O2 Microwave Discharges** |
| Type of the Article | **Complete 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 title of this chapter suggests a detailed investigation into the densities of nitrogen species and ions in various plasma afterglows, indicating a highly specialized study in plasma physics and chemistry. Here's a possible comment you could give:"This chapter title indicates a comprehensive exploration of the dynamics of metastable nitrogen molecules and ion densities in complex plasma systems. The focus on N2​(A), N2​(X,v>13), and N2+​ in the afterglows of N2​-H2, Ar-N2​-H2​, and Ar-N2-O2microwave discharges underscores its relevance to understanding the fundamental mechanisms governing plasma kinetics and energy transfer. This research is likely pivotal for applications such as plasma-assisted combustion, atmospheric pressure plasma processing, and the development of plasma-based materials." |  |
| **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. | **Needs improvement/ addition concept**  |  |
| **Are subsections and structure of the manuscript appropriate?** | **It needs more subsection depending on the pages of book chapter allowed.**  |  |
| **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.** |  |  |
| **Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.****-** |  |  |
| Minor REVISION commentsIs the language/English quality of the article suitable for scholarly communications? | No as such  |  |
| Optional/General comments | **COMMENTS** 1. In your abstract try to focus on your topic rather than any other theories expanded. 2. Under experimental setup at least you have to put the experimental setup rather than referring it. 3. All figures Looks like snap tool taken. Try to cite the source and if yours clarify it.The title of the chapter is already informative and specific, but it could be refined for clarity and readability. Here’s a recommendation for the contents of the title:1. **Context**: Mention the type of study or analysis being conducted (e.g., experimental, theoretical, or computational).

Example: *"Experimental Determination of..."*1. **Key Species**: Retain the mention of key species like N2 (A), N2​(X,v>13), and N2+since these are central to the study.
2. **Application or Scope**: Highlight why this study is important-does it aims to understand plasma dynamics, afterglow chemistry, or specific applications?
3. **Gas Mixtures and Conditions**: Clearly state the systems (e.g., N2​-H2​, Ar-N2-H2​, Ar-N2-O2​) and the type of plasma (e.g., microwave discharges).

**Suggested Revised Title if possible to do***"Analysis of Metastable N2​(A) and N2(X,v>13) Molecules and N2+ Ion Densities in the Afterglows of N2-H2, Ar-N2-H2, and Ar-N2-O2 Microwave Discharges"* |  |

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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)*** |  |
| **Reviewer Details:** |
| **Name:** | **Yonas Etafa Tasisa** |
| **Department, University & Country** | **Wollega University, Ethiopia** |