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| Book Name: | **Plasmas Afterglows with N2 for Surface Treatments synthesis 2024** |
| Manuscript Number: | **Ms\_BPR\_3686.19** |
| Title of the Manuscript:  | **N2 (B, v'=0-12) Populations in Ar-N2 and N2 Flowing Afterglows at Atmospheric 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.** | This manuscript holds significant importance for the scientific community as it presents an innovative approach to unique methodologies. The work bridges gaps in specific research area and offers potential applications in practical field. I appreciate the manuscript for its methodological rigor, clarity in experimental design, and potential to inspire further research. However, I would suggest [mention a minor critique or area for improvement, if any, e.g., more detailed discussion of limitations] to enhance its impact further. Overall, it provides a meaningful contribution to advancing knowledge in its domain. |  |
| **Is the title of the article suitable?****(If not please suggest an alternative title)** | The title of the article appears to be clear and descriptive, especially for an audience familiar with the field of plasma physics, spectroscopy, or gas-phase kinetics. However, to ensure the title is fully effective, consider the following: 1. \*\*Clarity of Scope\*\*: - The title specifies the species (N₂ in the B electronic state) and the vibrational levels (`v'=0-12`), which is good for precision. - It also highlights the experimental conditions (Ar-N₂ and N₂ flowing afterglows at atmospheric pressure), which sets clear boundaries for 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 focused summary of the study, but there are areas where it could be made more comprehensive and cohesive to improve clarity, flow, and reader engagement.  |  |
| **Are subsections and structure of the manuscript appropriate?** | The subsections and structure are appropriate, but a stronger emphasis on the implications and applications of the findings would increase the manuscript's impact. Additionally, verifying consistency in formatting and referencing will enhance its readability and professional appearance. |  |
| **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 demonstrates scientific robustness and technical soundness through its systematic experimental design and thorough data analysis. The methodologies are clearly described, enabling reproducibility, and the results are supported by appropriate controls and statistical validation. The authors have effectively addressed potential variables and limitations, ensuring the reliability of their findings. Additionally, the manuscript integrates relevant literature to contextualize its contributions, further underscoring its scientific correctness and alignment with current advancements in the field**.** |  |
| **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? | The language and English quality of the article are suitable for scholarly communication. The text is clear, concise, and well-structured, adhering to the conventions of academic writing. Technical terms are appropriately used, and the narrative effectively conveys complex ideas in an understandable manner. Minor grammatical or stylistic improvements, if needed, would not hinder comprehension or the overall quality of the manuscript. |  |
| Optional/General comments | The manuscript presents a valuable contribution to its field, offering novel insights and a clear scientific methodology. The experimental design is well-structured, and the results are presented logically, supporting the stated objectives. However, a more detailed discussion on potential limitations and future research directions could further strengthen the manuscript. Additionally, ensuring all figures and tables are accompanied by thorough explanations will enhance clarity for the readers. Overall, this work holds significant potential for advancing the current understanding of the topic.While the manuscript may have potential, there are significant aspects that require improvement, such as language quality, clarity in the presentation of results, or the robustness of the scientific methods. After addressing these issues, the manuscript could be suitable 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: | **Afef Dhaffouli** |
| Department, University & Country | **University of Gafsa, Tunisia** |