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| Book Name: | **Plasmas Afterglows with N2 for Surface Treatments synthesis 2024** |
| Manuscript Number: | **Ms\_BPR\_3686.27** |
| Title of the Manuscript: | **RF and Microwave Afterglows in N2 Gas Mixtures for Surface Nitriding of TiO2 Films** |
| 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.** | I like the quality of scientific work presented in the manuscript. It is important to the scientific community that this manuscript presents the fundamental differences in the two types of gas discharges- RF and microwave. The manuscript has a thorough data set to show differences in the nitriding species between the two that influence the nitrided layer on TiO2. So it probes the fundamental plasma chemistry in the two types of discharges and also the physical properties for e.g the length of plasma column in the two. Thus I recommend this paper as important to the plasma science and material coating community. |  |
| **Is the title of the article suitable?**  **(If not please suggest an alternative title)** | Yes, I think the title is suitable for the contents of the manuscript. It is concise. |  |
| 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 the abstract seems suitably comprehensive. It gives well a synopsis of the findings as presented in the later sections of the manuscript, concisely highlighting the important findings, and in a well connected flow. |  |
| **Are subsections and structure of the manuscript appropriate?** | Yes the structure and the subsections are deemed appropriate. |  |
| **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 compares the densities of the active species of N and C for nitriding applications. Nitriding is a very important process and technique of surface hardening which finds application in a large domain of industries for eg. aerospace, nuclear, and instrumention industries, automobiles and automotives, etc. It improves wear resistance, and also corrosion resistance of alloy for eg. steels, stainless steels, Ti, etc. Nitriding process engineering is a subject of industrial research. As this paper throws light on the active species generation, and how they affect surface nitriding characterisitcs, the knowledge presented therein is of good quality relevant to applied scientists and engineers in the field of surface engineering. Thus the manuscript is deemed scientifically and technically sound. |  |
| **Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.**  **-** | The reference list is found to be sufficient, with many recent references. |  |
| Minor REVISION commentsIs the language/English quality of the article suitable for scholarly communications? | While there is no problem with the language quality, minor grammatical corrections are recommend before publishing. There are many lines which can be bettered to form correct English language statements. I recommend minor spell and grammar checks. |  |
| Optional/General comments | NA |  |

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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:** | **Jeet Vijay Sah** | | | |
| **Department, University & Country** | **India** | | | |