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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 minimumof 3-4 sentences may be required for this part.** | This chapter describes experimental work on RF and Microwave Afterglows in N2 Gas Mixtures for Surface Nitriding of TiO2 Films. In indeed, this research provides the useful information for the readers working in this field. This chapter is written almost with all the minute details regarding topic and results are well described. Still the content of the manuscript requires minor revisions for its further improvement. After that it can be accepted. |  |
| **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. | **There should not be any short name in abstract. write full form of RF.** |  |
| **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 minimumof 3-4 sentences may be required for this part.** | The authors have well described all experimental methods with photos and figures. They have covered all variables in proper range and also described results in detail. The variation of the [C]/[N] density ratio with the amount of CH4 at the position is optimized. Active species densities of the N2, N2/H2 and N2/CH4 microwave afterglows have been examined using emission spectroscopy for the use in surface nitriding of oxide materials such as TiO2 in mind and results are justified. Many useful conclusions have been drawn after broad experimental work. These results deliver an important meaning in devising process conditions especially for selective nitrogen or carbon doping into a skin-depth layers of oxide materials, which is desired in the case of preparing functional films for photoelectric and photocatalytic applications. |  |
| **Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.**  **-** | **Only one 2021 research work is cited. It is recommended to refer 2022, 2023 /2024 research work.** |  |
| Minor REVISION commentsIs the language/English quality of the article suitable for scholarly communications? | Yes |  |
| Optional/Generalcomments | Introduction: It only contained review of work done in past. Introduction should start with importance of research and area where it is useful. Problem should be defined and then as solution methods should be developed. Justification for thin film modification is to be included. |  |

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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:** | **Darshana T. Bhatti** | | | |
| **Department, University & Country** | **VVP Engineering College, India** | | | |