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| Book Name: | **Plasmas Afterglows with N2 for Surface Treatments synthesis 2024** |
| Manuscript Number: | **Ms\_BPR\_3686.26** |
| Title of the Manuscript: | **The Iron Nitriding in N2 and N2-H2 Afterglows** |
| 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.** | **Thermochemical processes in plasma are of great theoretical and practical interest** |  |
| **Is the title of the article suitable?**  **(If not please suggest an alternative title)** | **It is appropriate** |  |
| 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. | **It is far too simplistic.**  **It does not provide more information than the title of the paper** |  |
| **Are subsections and structure of the manuscript appropriate?** | **In principle, YES, but they are insufficiently developed** |  |
| **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.** | **In my opinion, the problems related to the kinetics of the process, the comparative analysis with the classical version of nitriding are insufficiently substantiated. There are also mistakes in the use of terms: it is nitrocarburizing (or low temperature carbonitriding) and not carbonitriding at 550C.; the disappearance of the prime gamma phase under these conditions is not explained** |  |
| **Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.** | **They are not enough and not very recent** |  |
| Minor REVISION commentsIs the language/English quality of the article suitable for scholarly communications? | It is appropriate |  |
| Optional/General comments | In my opinion, the work requires multiple explanations: statements are made without being justified/in-depth  Carbonitriding is not a variant of the nitriding process. Nitrocarburizing, or in other words low temperature carbonitriding, can be compared in results to hard nitriding. |  |

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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: | **Mihai Ovidiu Cojocaru** |
| Department, University & Country | **National University of Science and Technology, Romania** |