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| Book Name: | **Proceedings of the 8th International Conference on Solidification and Gravity** |
| Manuscript Number: | **Ms\_BPR\_** **3590.1** |
| Title of the Manuscript: | **Flow and concentration stratification, segregation channels, and sliding-down of crystalline regions in a solidifying aqueous ammonium chloride solution** |
| Type of the Article | **BOOK CHAPTER** |

**General guidelines for the Peer Review process:**

This Book’s peer review policy states that **NO** manuscript should be rejected only on the basis of ‘**lack of Novelty’**, provided the manuscript is scientifically robust and technically sound.

To know the complete guidelines for the Peer Review process, reviewers are requested to visit this link:

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**Important Policies Regarding Peer Review**

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Benefits for Reviewers: <https://r1.reviewerhub.org/benefits-for-reviewers>

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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 is significant for the scientific community as it provides insights into the complex dynamics of phase transitions in a solidifying aqueous ammonium chloride solution. By exploring phenomena like flow and concentration stratification, segregation channels, and crystalline sliding, it deepens our understanding of crystallization processes relevant in fields such as materials science, geology, and environmental science. These findings could enhance the design of industrial processes and contribute to natural system modeling. I appreciate this manuscript for its detailed exploration of intricate phenomena and the potential applications of its findings, though I would value a clearer explanation of the experimental methods to ensure reproducibility. |  |
| **Is the title of the article suitable?**  **(If not please suggest an alternative title)** | The title of the manuscript," is informative but could be refined for clarity and focus. While it captures the key aspects of the research, it is somewhat lengthy and might benefit from more concise phrasing to enhance readability and impact. it could be revised to something like: "Concentration Stratification and Crystal Dynamics in Solidifying Ammonium Chloride Solutions." |  |
| 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. | Add Results Summary: While the abstract discusses the optimization of process parameters, it would be helpful to briefly mention the key findings, such as how much improvement was achieved in terms of properties. |  |
| **Are subsections and structure of the manuscript appropriate?** | The structure and subsections of the manuscript are generally appropriate, but there are a few areas where improvement can be made to enhance clarity and flow. |  |
| **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.** | This manuscript appears scientifically robust and technically sound as it combines both experimental observations and numerical simulations to investigate complex solidification phenomena. The use of an aqueous ammonium chloride solution as a model system is appropriate, offering a well-understood analogue for studying solutal buoyancy and segregation in alloys |  |
| **Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.** | There is a notable lack of more recent studies in the field , especially considering advancements in materials science in the last two decades. |  |
| Minor REVISION commentsIs the language/English quality of the article suitable for scholarly communications? | The language of the article is generally understandable, but it requires improvement for scholarly communication. |  |
| Optional/General comments | The conclusion requires significant revision regarding to ensure readers' understanding. |  |

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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: | **Hamid Mohammed Mahan** |
| Department, University & Country | **Middle Technical University, Iraq** |