

[Review Form2](#)

Book Name:	Current Research Progress in Physical Science
Manuscript Number:	Ms_BPR_2679
Title of the Manuscript:	Impact of a thermally stratified energy source on a high-speed flow/flight
Type of the Article	Book chapter

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)
<p>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.</p>	<p>This manuscript holds significant importance for the scientific community due to its focus on supersonic flow control, a key area in aerospace engineering. It presents innovative findings on the effects of thermally stratified energy sources on shock waves, highlighting the multiple generation of Richtmyer-Meshkov instabilities. The work contributes to understanding flow dynamics and offers practical implications for improving aerodynamic performance. The detailed numerical simulations and comparative analysis with homogeneous sources enhance the manuscript's value. I appreciate the clarity in methodology and the potential applications of these findings, though additional experimental validation would further strengthen the conclusions.</p>	
<p>Is the title of the article suitable? (If not please suggest an alternative title)</p>	<p>The current title of the article is relevant to its content, especially if it reflects the focus on supersonic flow control and the specific role of thermally stratified energy sources in generating Richtmyer-Meshkov instabilities. However, if clarity and specificity are desired, a more descriptive title could be:</p> <p style="padding-left: 40px;">"Effects of Thermally Stratified Energy Sources on Shock Waves and Richtmyer-Meshkov Instabilities in Supersonic Flow Control"</p> <p>This title highlights the key concepts and provides a clearer context for readers.</p>	

[Review Form2](#)

<p>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.</p>	<p>To assess the abstract's comprehensiveness, it should summarize the key elements of the article, including the research objectives, methods, results, and conclusions. Here's an analysis of possible areas for improvement:</p> <ul style="list-style-type: none"> - Addition of Research Objective: If not already present, the abstract should clearly state the primary goal of the study, particularly regarding supersonic flow control and the effects of thermally stratified energy sources. - Brief Overview of Methodology: It should include a concise mention of the methods used, such as numerical simulations or comparisons with homogeneous energy sources, to give the reader an understanding of the approach. - Key Findings: The abstract should highlight the main findings, especially the generation of Richtmyer-Meshkov instabilities and how the stratified energy sources influence shock wave dynamics. - Significance: If not included, it would be beneficial to briefly mention the significance of these findings for the scientific community or practical applications in aerospace or fluid dynamics. - Conciseness: Any overly detailed or redundant information that does not serve to summarize the article should be removed to keep the abstract focused and concise. <p>If these elements are already present, the abstract is likely comprehensive. Otherwise, I recommend incorporating these suggestions for improvement.</p>	
<p>Are subsections and structure of the manuscript appropriate?</p>	<p>The structure and subsections of the manuscript appear appropriate for a scientific study. It includes the essential components such as the Introduction, which provides relevant background, the Methodology, explaining the approach and equations used, and the Results, which present the key findings with supporting data and visualizations.</p>	
<p>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.</p>	<p>This manuscript demonstrates scientific robustness by clearly addressing the effects of thermally stratified energy sources on supersonic flow and Richtmyer-Meshkov instabilities. The use of established equations and methodologies, such as numerical simulations, adds technical soundness to the study. The results are presented with sufficient detail and backed by relevant data and visualizations, making the findings reproducible and reliable. Furthermore, the study's comparison with homogeneous energy sources provides a comprehensive understanding of the subject, enhancing its scientific credibility.</p>	
<p>Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form. :</p>	<p>The references in this manuscript seem extensive and cover a broad range of studies, both foundational and recent, particularly in the field of supersonic flow control, shock wave interactions, and the impact of thermally stratified energy sources. Most of the references are relevant, with a mix of classic studies (dating back to the 1960s) and recent publications (up to 2022), ensuring that the manuscript is well-supported by both historical context and modern developments.</p> <p>However, if the manuscript aims to include the most up-to-date advancements, you might consider adding even more recent publications (2023–2024) if available, especially in the areas of shock wave dynamics or energy stratification in high-speed flows. Otherwise, the current set of references appears sufficient and well-chosen.</p>	

Review Form2

<p>Minor REVISION comments</p> <p>Is the language/English quality of the article suitable for scholarly communications?</p>	<p>The language quality in your article is mostly clear, but there are some areas where the readability and flow could be improved for scholarly communication. Here are some suggestions for enhancing the language:</p> <p>1. Clarity and sentence structure:</p> <ul style="list-style-type: none"> - Some sentences are long and complex, which may affect clarity. Breaking them into shorter sentences or rephrasing can make the text easier to follow. For example: - "The possibility of a significant decrease in the temperature at the vertex of the double-wedge and in the average front surface temperature due to the redistribution of a source energy into layers has been established." - This could be simplified: "It was found that redistributing the source energy into layers can significantly decrease the temperature at the vertex of the double-wedge and the average front surface temperature." <p>2. Grammar and punctuation:</p> <ul style="list-style-type: none"> - There are places where punctuation is missing, especially with commas that could separate ideas or clauses more effectively. For instance: - "The studies conducted by T.A. Lapushkina et al. and O.A. Azarova et al. in [22-26] examine ionization instability in air gas discharges." - Adding commas for clarity: "The studies conducted by T.A. Lapushkina et al., and O.A. Azarova et al., in [22-26], examine ionization instability in air gas discharges." <p>3. Consistent use of technical terms:</p> <ul style="list-style-type: none"> - Make sure the technical terminology is consistently applied throughout. If abbreviations or terms are introduced (e.g., "Richtmyer-Meshkov instability"), ensure that they are clearly defined and consistently used. <p>4. Active vs. passive voice:</p> <ul style="list-style-type: none"> - The text relies heavily on passive voice, which can sometimes make the writing less direct. Converting some sentences to active voice could enhance readability. - Example: "A multiple generation of the Richtmyer-Meshkov instabilities was obtained..." could be revised to: "We observed multiple generations of Richtmyer-Meshkov instabilities..." <p>These revisions can make the article's language more suitable for scholarly communication while ensuring that the content is presented clearly and professionally.</p>	
<p>Optional/General comments</p>		

PART 2:

	<p>Reviewer's comment</p>	<p>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)</p>
<p>Are there ethical issues in this manuscript?</p>	<p><i>(If yes, Kindly please write down the ethical issues here in details)</i></p>	

Reviewer Details:

<p>Name:</p>	<p>Ahmed Remlaoui</p>
<p>Department, University & Country</p>	<p>University of Ain Témouchent, Algeria</p>