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| Journal Name: | [**Asian Research Journal of Mathematics**](https://journalarjom.com/index.php/ARJOM) |
| Manuscript Number: | **Ms\_ARJOM\_139693** |
| Title of the Manuscript: | **Global convergence in non-relativistic limits for the non-isentropic Euler-Maxwell system near non-constant equilibrium** |
| Type of the Article | **Research Article (Theoretical/Mathematical Physics)** |

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| **PART 1: Comments** | | |
|  | **Reviewer’s comment**  **Artificial Intelligence (AI) generated or assisted review comments are strictly prohibited during peer review.** | **Author’s Feedback** (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. A minimum of 3-4 sentences may be required for this part.** | This manuscript is significant importance to the scientific community as it addresses the global convergence behaviour of the non-relativistic limit in the Euler-Maxwell system near non- constant equilibrium states, a problem with wide applications in plasma physics and semiconductor modeling. By rigorously analyzing the transition from the Euler-Maxwell system to the Euler-Poisson system, the study provides deeper insights into the interplay between fluid dynamics and electromagnetic fields, which is crucial for understanding complex physical phenomena. The results also contribute to the mathematical theory of hyperbolic systems, offering new tools and estimates for handling such nonlinear problems. Furthermore, the work bridges theoretical and applied mathematics, with potential implications for engineering and technology, particularly in the design of plasma-based  devices and semiconductor systems. |  |
| **Is the title of the article suitable?**  **(If not please suggest an alternative title)** | **"Global Convergence in the Non-Relativistic Limit for the Compressible Euler-Maxwell System Near Non-Constant Equilibrium States."** |  |
| **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.** | The abstract is comprehensive but could better emphasize the novelty of the work by explicitly stating that the study handles non-constant equilibrium states without requiring small perturbations of a constant vector, which distinguishes it from prior results. Additionally, a brief mention of the key mathematical techniques (e.g., energy estimates, Moser-type inequalities) would strengthen the methodological contribution. |  |
| **Is the manuscript scientifically, correct? Please write here.** | The manuscript appears scientifically correct, as it rigorously derives and analyzes the non- relativistic limit of the Euler-Maxwell system using well-established mathematical tools (e.g., energy estimates, Sobolev inequalities) and aligns with prior literature in the field. |  |
| **Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.** | The references are generally sufficient and include key works, but adding more recent studies (e.g., from the last 5 years) on non-relativistic limits or Euler-Maxwell systems, such as **"Global solutions for the relativistic Euler-Maxwell system in 3D" (2021) by Peng et al.**, could further strengthen the literature support. |  |
| **Is the language/English quality of the article suitable for scholarly communications?** | The language and English quality of the article are suitable for scholarly communication, though minor refinements in conciseness and technical phrasing (e.g., replacing passive voice where clarity benefits) could further enhance readability.  (Example: "The analysis is performed" → "We analyze" for directness.) |  |
| **Optional/General** comments | This manuscript makes a valuable contribution to the field with rigorous analysis, but would benefit from a clearer highlight of its novel aspects and a slight refinement in language for broader accessibility. |  |

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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:**

**Olufemi Adesola Adedayo, University of Massachusetts Amherst, USA**