

Review of: "On n-Dimensional Maxwell and Dirac Equations in Curved Space-Time and Its Applications in $SO(P,Q)$ Group Theoretic Image Processing"

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Potential competing interests: No potential competing interests to declare.

Subject: Review of Manuscript "On n-Dimensional Maxwell and Dirac Equations in Curved Space-Time and Its Applications in $SO(p,q)$ Group Theoretic Image Processing" by Romulus Breban

Dear Editor of Qeios,

I am writing to provide a review of the manuscript titled "On n-Dimensional Maxwell and Dirac Equations in Curved Space-Time and Its Applications in $SO(p,q)$ Group Theoretic Image Processing" by Romulus Breban.

There are several shortcomings in the manuscript that need to be addressed before considering it for publication. Firstly, the title suggests a focus on image processing, yet this aspect is not sufficiently elaborated upon within the paper. The motivation behind the generalizations presented in the manuscript, particularly in relation to image processing, remains unclear, and this lack of discussion is a notable concern. Furthermore, the introduction of the manuscript lacks references to previous physics literature, giving the impression that the topics are being introduced for the first time. This omission is seen as unfair to readers who expect a clear link to existing research in the field.

The discussion on each $S(p,q)$ group having a minimal cover lacks depth in terms of exploring representations of such covers. Additionally, the joint solving of field equations and geodesic equations is mentioned without delving into previous research and key results, which is considered insufficient. Moreover, the reviewer notes that the discussion on Green's functions is inadequate compared to the existing literature in physics and mathematics. There is also a suggestion to explore the general case of radiation by accelerating charges in (p, q) dimensional space-times, rather than focusing solely on the $(1, n-1)$ case, as it may offer more intriguing insights. Lastly, Section 8, which addresses the electromagnetic field in curved geometry, is criticized for making unnecessary assumptions about the metric to develop a perturbative approach. The lack of connection to existing literature and explanation of its relevance to image processing is highlighted as a significant drawback.

In light of these criticisms, I recommend that the author revises the manuscript to address the concerns raised by the reviewer. By enhancing the clarity, depth, and connection to existing research in the field, the manuscript can potentially offer valuable contributions to the scientific community.

