Review of: "Representation of physical quantities: From scalars, vectors, tensors and spinors to multivectors"

Krunal B. Kachhia[1]

1 Charotar University of Science and Technology

Potential competing interests: No potential competing interests to declare.

The article titled "Representation of physical quantities: From scalars, vectors, tensors, and spinors to multivectors" presents a comprehensive overview of mathematical representations of physical variables and operators, essential for the development of physical theories and understanding the relationships among different quantities in physical processes. The abstract outlines the scope of the article, highlighting the discussion on various mathematical systems such as scalars, vectors, tensors, quaternions, spinors, and the emerging field of geometric algebra.

The strength of the article lies in its systematic approach to categorizing and explaining different mathematical representations used in physics. By covering a wide range of mathematical frameworks, from basic scalars to more advanced multivectors, the article caters to readers with varying levels of mathematical proficiency, from beginners to advanced researchers. This inclusivity ensures that the article can serve as a valuable resource for a diverse audience interested in understanding the mathematical underpinnings of physics.

Furthermore, the article's emphasis on geometric algebra as a unifying framework for these mathematical systems adds value by showcasing its potential to provide a more coherent and elegant representation of physical quantities. By discussing how geometric algebra can integrate and generalize traditional mathematical structures, the article paves the way for readers to explore new approaches and insights in their studies of physics.

However, to enhance the clarity and accessibility of the article, it may be beneficial to provide more concrete examples and applications of the mathematical concepts discussed. Real-world examples illustrating the use of different mathematical representations in physics could help readers better grasp the significance and practical implications of these mathematical frameworks.

Overall, the article presents a thorough and informative overview of mathematical representations of physical quantities, culminating in a discussion of geometric algebra as a promising avenue for further exploration and study. With its broad scope and clear exposition, the article serves as a valuable resource for readers seeking to deepen their understanding of the mathematical foundations of physics.