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Peer Review

Review of: "Heat Transfer in Composite Materials: Mechanisms and Applications"

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The study of heat transfer in composite materials is crucial to improve their performance in critical industrial applications such as aerospace, automotive, renewable energy, and construction. This review highlights the different heat transfer mechanisms within composite materials, with emphasis on the influence of their composition and structure on these processes. Current analytical and numerical modeling techniques are also reviewed, as well as experimental methods for measuring thermal properties.

I have reviewed the manuscript thoroughly, and while the topic and depth of analysis are commendable, I believe there are several areas that require refinement to enhance the clarity and overall quality of the paper. Below are my specific comments and suggestions:

1 - The abstract should be revised to highlight the key findings and results from the reviewed studies, including relevant numerical values and percentages to emphasize the main outcomes.

2 - The titles of the figures are too long. It is recommended to shorten the titles and include the detailed descriptions within the figure itself, ensuring the title remains concise.

3 - The paper discusses various numerical solution methods, but it is necessary to include the relevant equations for the methods used. This will provide a clearer understanding of the mathematical framework behind the approaches discussed.

4 - It is suggested to revise the abstract in bullet point format and include some of the main results from the reviewed studies, with relevant numbers and percentages to emphasize key findings.

5 - In the conclusions section, the statement (Integrating computational and experimental approaches will further enhance the understanding and optimization of heat transfer in composites)

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needs further clarification.

6 - The authors have included brief statements with multiple sources in most sections of the paper. It is recommended to mention one or two key studies per sentence to maintain focus and avoid over-citation. This will enhance the clarity and impact of the references while ensuring the key studies are highlighted.

7 - The paper contains few figures. It is suggested to add more figures, particularly for important studies, to provide better clarity and visual support for the key concepts and findings discussed in the paper.

8 - The language is generally good, but there is room for improvement. It is recommended to review the manuscript for language accuracy and fluency, making necessary adjustments to enhance clarity and readability.

9 - Add the following recent research papers to enhance the paper:

1 - NanoCoating Preparation to Improve Heat Dissipation
of a Heat Sink Inside an Enclosure for Power Electronic
Devices

2 - A comprehensive review of the influence of various parameters
on convection in different enclosures and heat sinks

3 - The Influence of Slots in Heat Sink Fins within a Cavity,
with/without Internal Bodies, Filled with a Hybrid Nanofluid

4 - Optimizing Heat Sink Performance by Replacing Fins from Solid to Porous
inside Various Enclosures Filled with a Hybrid Nanofluid

5 - Thermal Design and Heat Transfer Analysis of Heat Sinks and Enclosures: A Review

6 - Improving the natural convection of the heat
sink inside an enclosure by fin perforation for
electronic applications

Declarations

Potential competing interests: No potential competing interests to declare.