

REVIEWER'S REPORT

Manuscript No.: IJAR-58270

Title: Comprehensive Review of Double Integral Transforms.

Recommendation:

Accept after minor revision.....

Rating	Excel.	Good	Fair	Poor
Originality		Good		
Techn. Quality			Fair	
Clarity			Fair	
Significance		Good		

Reviewer Name : Dr. H Kanakadurga Bella

Detailed Reviewer's Report

Comments:

1. The review covers multiple double integral transforms and summarizes definitions, properties and applications. However, extensive language editing is needed.
2. Mathematical notation should be standardized, formatting of equations/tables improved, and the comparative analysis strengthened by clearly identifying similarities, differences, limitations and novelty. Several claims about advantages require stronger theoretical support and additional citations.
3. The conclusion should better emphasize contributions and future research directions. After addressing these issues, the manuscript could be suitable for publication.

Recommendation: Accept after Major Revision

Originality: Good

Technical Quality: Fair

Clarity: Fair

Significance: Good

After reviewing the manuscript "**COMPREHENSIVE REVIEW OF DOUBLE INTEGRAL TRANSFORMS**", here are additional reviewer comments that would be appropriate for a journal review.

Recommendation: Major Revision

The manuscript presents a comparative review of several double integral transforms and their applications. The topic is relevant to applied mathematics and mathematical physics. However, the paper requires substantial revisions in terms of technical rigor, language quality, presentation, and critical analysis before it can be considered for publication.

Major Comments

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1. Lack of Critical Analysis

The manuscript mainly lists definitions, properties, and applications of various double integral transforms without providing sufficient critical discussion. A review article should compare the advantages, limitations, computational complexity, and practical applicability of each transform.

2. Novelty Should Be Clarified

Although the paper claims to provide a comparative review, it is not clearly stated what distinguishes this review from previously published review articles. The authors should explicitly mention the novelty and contribution of their review.

3. Mathematical Presentation

Several mathematical expressions are poorly formatted or missing symbols due to typesetting issues. Many equations appear incomplete, making the manuscript difficult to follow. Every equation should be carefully revised.

4. Need for Comparative Tables

A comprehensive comparison table summarizing, Kernel functions, Transform definitions, Differential properties, Inverse transforms, Advantages, Limitations, Typical applications would significantly improve readability.

5. Unsupported Claims

Many statements regarding "superior performance," "better convergence," "high-frequency filtering," and "distributional advantages" are presented without mathematical proof or supporting references. These claims should either be justified with derivations or supported by appropriate literature.

6. Applications Section Needs Expansion

The applications section is very brief. It would benefit from discussing real-world engineering, signal processing, heat transfer, quantum mechanics, fluid dynamics, and fractional differential equations where these transforms have been successfully applied.

7. References Need Improvement

Several references are incomplete or inconsistently formatted. Some references lack page numbers, volume numbers, publisher details, or DOI information. The bibliography should follow the journal's citation style consistently.

8. Language Quality

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The manuscript contains numerous grammatical errors, awkward sentence structures, and inconsistent terminology. Professional English editing is strongly recommended.

Examples include:

"Here integral transform of basic functions is compared..."

"This paper is having following sections..."

"Provided integral exist."

These should be rewritten using standard academic English.

9. Figures and Illustrations

The review contains only mathematical expressions and tables. A schematic diagram illustrating relationships among the different transforms or a taxonomy of integral transforms would enhance the paper.

10. Conclusion Needs Improvement

The conclusion merely summarizes the paper. It should also discuss-future research directions, current challenges, open problems, potential applications of hybrid integral transforms.

Minor Comments

- 1.The abstract should briefly mention the main findings instead of only listing the transforms reviewed.
2. Keywords should include additional indexing terms such as Integral Equation, Fractional Differential Equations, Mathematical Physics, Hybrid Integral Transforms
- 3.Avoid repeating transform names multiple times in consecutive sentences.
- 4.Notation should remain consistent throughout the manuscript.
- 5.Symbols should be defined immediately after their first appearance.
- 6.Use italic formatting consistently for mathematical variables.
- 7.Check spacing throughout the manuscript.

Examples:

"Further more" → "Furthermore"

"Sumudu -Sawi" → "Sumudu-Sawi"

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8. Equation numbering should be consistent throughout the paper.

9. All tables should include descriptive captions.

10. References cited in the text should exactly match the bibliography.

Technical Suggestions

- [1] Include inverse transform formulas for each double transform.
- [2] Discuss computational complexity.
- [3] Include numerical examples.
- [4] Compare numerical stability.
- [5] Mention software implementation (MATLAB, Mathematical, Maple).
- [6] Discuss limitations of each transform.
- [7] Explain when one transform is preferred over another.
- [8] Add a flowchart showing transform selection for different classes of differential equations.
- [9] Include recent literature (2024–2026) on hybrid integral transforms.
- [10] Add a summary table highlighting strengths and weaknesses.

Reviewer's Final Recommendation

Recommendation: Accept after Major Revision

Strengths

1. Timely and relevant review topic.
2. Covers several recently proposed hybrid integral transforms.
3. Useful compilation of definitions and differential properties.
4. Potentially valuable reference for researchers working in applied mathematics and differential equations.

Weaknesses

1. Insufficient critical comparison.
2. Numerous language and formatting issues.
3. Mathematical notation requires careful revision.
4. Limited discussion of practical applications.
5. Some technical claims require stronger justification and supporting references.

Overall assessment: With substantial revisions addressing the above comments, the manuscript has the potential to become a useful review article for researchers in the field of integral transforms and applied mathematics.