

Review of: "Trigonometric Approximation of the Three-Body Problem: A Double Centroid Approach"

Mushtaq Ahmad¹

¹ FAST - National University of Computer and Emerging Sciences (NUCES)

Potential competing interests: No potential competing interests to declare.

The paper introduces a novel method, the Double Centroid Approximation, to tackle the Three-body problem using trigonometric approaches. It aims to simplify the complex gravitational interactions in a system of three celestial bodies by calculating their dynamic center of mass both without and with motion. This method is based on the author's previous work, the Superconducting Field Theory. However, here are a few comments/questions:

1. Your approach relies heavily on the Superconducting Field Theory. Could you provide a more detailed explanation and validation of this theory within the context of your current work? How does this theory specifically support the assumptions and approximations made in the Double Centroid Approximation method?
2. The paper mentions that initial deviations in Lagrange points are not significant and can be adjusted for universally. Can you provide a detailed error analysis to quantify these deviations and their impact on the accuracy of the centroid calculations? Additionally, how do you propose to handle real-world complexities such as non-spherical bodies and space dust in practical applications of your method?
3. How does your Double Centroid Approximation compare with other existing methods for solving the Three-body problem in terms of accuracy, computational efficiency, and applicability? Could you provide a comparative analysis or case study demonstrating the advantages and limitations of your method relative to traditional approaches?