Review of: "Numeric Structure of Genetic Code in Natural Evolution: Energy Grounds"

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Potential competing interests: No potential competing interests to declare.

The paper provides an intriguing energy-centric perspective on the origin and structure of the genetic code. While it offers valuable theoretical insights, its lack of empirical grounding, limited discussion of biochemical factors, and oversimplified evolutionary dynamics diminish its broader applicability. Future work integrating this energy framework with biochemical and evolutionary data would strengthen its impact. The paper introduces a novel approach to understanding the numerical structure of the genetic code (GC) using physical and mathematical principles tied to energy evolution. The central hypothesis is that the structure of the GC—characterized by numerical patterns such as 3 (triplets), 4 (nucleotides), 20 (amino acids), and 64 (codons)—stems from energy conservation and evolutionary bifurcation processes. This provides a framework for linking abiogenesis and biogenesis through energy mechanisms and mathematical combinatorics.

Suggestions for Improvement

1. Include computational simulations or experimental evidence linking energy phase transitions to codon structures.
2. Provide deeper mathematical analysis to substantiate the combinatorial model and its implications.

Furthermore, the paper would benefit from the inclusion of more updated references to strengthen its relevance and reliability. Integrating recent studies and findings related to the topic will demonstrate the author's awareness of current developments in the field and ensure that the paper remains up-to-date.

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These enhancements will contribute to the overall quality and impact of the paper, enhancing its value to the academic community and readers interested in the subject matter.