Review of: "Ternary instantaneous noise-based logic"

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Potential competing interests: No potential competing interests to declare.

1. The proposal of a representation for three-valued instantaneous noise-based logic is an interesting concept that expands the traditional binary logic framework.

2. Introducing an uncertain bit value as the third value in the logic system has potential benefits for artificial intelligence applications, as it allows for the representation of uncertain or probabilistic information.

3. The inclusion of a fourth value, referred to as a "vacuum-state," which represents a non-existing bit, adds another dimension to the logic system. Its characterization as a squeezed state common for all bits is intriguing, although further explanation and clarification would be helpful.

4. Exploring logic gates within this ternary logic framework is a crucial aspect of the article. Understanding how these gates operate and interact in the context of three-valued logic is essential for evaluating the feasibility and practicality of the proposed approach.

5. The claim that a ternary Universe has a significant advantage over the standard binary one, specifically that its amplitude is never zero during any clock period, is an important point. This property may have implications for the stability and reliability of computations within the ternary logic system.

6. The assertion that known binary logic gates can be used in the ternary system without modification is noteworthy. If true, this suggests a smooth transition from binary to ternary logic without requiring extensive changes to existing algorithms, reducing potential compatibility issues.

Overall, the article introduces intriguing concepts and potential advantages of the proposed three-valued instantaneous noise-based logic. However, a more detailed examination of the logic gates, the practical implementation of the uncertain and vacuum-state values, and experimental evidence supporting the claims would strengthen the article's credibility.