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Editor-in-Chief
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Dear Editor and Reviewers,

I am resubmitting the manuscript entitled **"Phi-RFT: A Golden-Ratio Resonance Transform for Hybrid Classical-Quantum Computing"** for consideration in IEEE Transactions on Emerging Topics in Computing. This revised submission comprehensively addresses all concerns raised in the previous review.

Scope Fit for IEEE TETC

This work directly aligns with IEEE TETC's mission to publish research on emerging computing paradigms:

- **Emerging Computing Paradigm:** Phi-RFT introduces a novel mathematical transform leveraging golden-ratio (φ) properties for quantum-classical hybrid computing—an approach not addressed by existing FFT, DCT, or wavelet methods.

- **Hardware-Software Co-Design:** We present a complete RTL implementation (2,700+ lines SystemVerilog) with synthesis evaluation on Xilinx Artix-7, demonstrating practical realizability for emerging quantum simulation accelerators.

- **Cross-Disciplinary Impact:** The transform addresses quantum simulation, signal processing, and cryptographic applications—all active TETC topic areas.

- **Patent-Protected Innovation:** USPTO Patent Application No. 19/169,399 (filed April 3, 2025) establishes the novelty and commercial relevance of this work.

Revisions Addressing Previous Rejection

We have made substantial revisions to address each reviewer concern:

1. Figure Readability ("Unreadable PNG images")

All figures have been completely regenerated with:

- Publication-quality 600 DPI resolution
- IEEE-compliant font sizes (Title: 14pt, Labels: 12pt, Ticks: 10pt)
- Single-panel layouts replacing dense multi-panel grids
- Vector PDF format with PNG fallback
- Figure count reduced from 16 to 7 for clarity

2. Appendices in Body ("Appendices appear in manuscript body")

All appendices are now correctly placed *after* the References section, following IEEE TETC formatting guidelines. The main body contains only primary methodology and results.

3. State-of-the-Art Comparison ("Missing SOTA comparison")

A new dedicated section (Section V: State-of-the-Art Comparison) provides:

- Quantitative benchmarks against FFT (FFTW 3.3), DCT, and Haar wavelets
- Explicit acknowledgment of FFT's $O(N \log N)$ complexity advantage for general-purpose transforms
- Clear positioning of Phi-RFT's advantages: phase coherence (> 0.9 vs. < 0.7 for FFT), unitarity (10^{-14} error), and quantum simulation fidelity
- Honest discussion of limitations in Section VI (Limitations)

4. Additional Improvements

- **Abstract:** Trimmed to $\sim$200 words per TETC guidelines
- **References:** Updated to include recent works (2016–2017) and ensured all citations are properly referenced
- **Hardware Claims:** Carefully worded to distinguish RTL simulation results from on-board FPGA measurements
- **AI Disclosure:** Added transparency statement per IEEE policy
- **Keywords:** Updated to include "emerging computing paradigms"

Summary of Contributions

This manuscript presents three novel contributions suitable for IEEE TETC:

1. **Mathematical Foundation:** A unitary transform achieving 10^{-14} unitarity error with proven golden-ratio phase coherence properties.
2. **Hardware Architecture:** Complete RTL design with synthesis metrics (8-point core: 847 LUTs, 512 FFs, 4 DSP48E1s at 125 MHz on Artix-7).
3. **Application Validation:** Demonstrated quantum simulation fidelity exceeding 0.99 for hydrogen-chain Hamiltonians, with open-source reproducibility.

All source code, benchmarks, and verification scripts are available in the accompanying repository, enabling full reproducibility of reported results.

Confirmation

I confirm that:

- This manuscript is not under consideration elsewhere
- All authors have approved the submission
- The work complies with IEEE ethical guidelines

- AI tools were used for coding assistance with human verification (disclosed in manuscript)

Thank you for considering this revised submission. I believe the improvements fully address the previous concerns and that Phi-RFT represents a genuine contribution to emerging computing paradigms.

Respectfully submitted,

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