

Peer Review

Review of: "Fundamental Issues and Measurement Problem in Quantum Mechanics"

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Extent of Improvement from Version 2 → Version 3

1. Overall conceptual architecture

Improvement: Minimal

Version 3 is almost entirely a stylistic and editorial refinement of version 2. The conceptual architecture remains the same. The author has not added new arguments, clarifications, or philosophical scaffolding to stabilize the framework.

The previous critique that the conceptual stance is “somewhere between operationalism and realism” still applies. Version 3 does not articulate its philosophical commitments more clearly.

Example from v3:

“Real dynamical variables...are observables. These observables are reality.”

This sentence is unchanged in substance from v2 and still asserts rather than argues.

2. Strengths

2.1 Operational grounding

Improvement: Slight

The descriptions of MIJs, MCPs, CCDs, and cloud chambers are essentially unchanged, but the prose is slightly cleaner. The physics remains the strongest part of the manuscript.

2.2 Type A / Type B distinction

Improvement: None

The definitions are nearly verbatim between v2 and v3. No new justification or nuance is added.

2.3 Many-boson systems

Improvement: None

The treatment of occupation numbers, BECs, and many-boson ensembles is unchanged.

2.4 Mott problem

Improvement: None

The text is nearly identical, with only minor wording adjustments.

3. Weaknesses — Has Version 3 Addressed Them?

3.1 Status of eigenstates is underdeveloped

Improvement: None

The same assertion appears in v3:

“It is wrong to imagine that the eigenstate persists after a quantum jump.”

But the manuscript still does not explain *why* eigenstates lack reality while operators and eigenvalues possess it. No ontological clarification is added.

My critique stands unchanged.

3.2 Rejection of wave function collapse is not new

Improvement: None

Version 3 repeats the same claim:

“Our conclusion is that the wave function never collapses.”

But it still does not engage with Everett, decoherence, ensemble interpretations, or operationalist frameworks. No literature comparison is added.

3.3 MIJ framework resembles decoherence

Improvement: None

The author still rejects decoherence in one sentence without addressing the structural similarity. No new argument is added to distinguish MIJ from decoherence.

3.4 Type A / Type B distinction risks circularity

Improvement: None

The definitions are unchanged. The philosophical stance (operationalism vs realism) remains implicit.

3.5 RQFT and wave function “reality” discussion is speculative

Improvement: None

Version 3 does not expand the RQFT discussion. The same brief remarks appear, and the manuscript still does not address Haag’s theorem, interacting QFT, or the lack of a single-particle Hilbert space.

4. Comparison with Major Interpretations

Improvement: None

Version 3 does not add any discussion of how the proposed framework relates to Copenhagen, Everett, decoherence, Bohmian mechanics, QBism, or ensemble interpretations. Your comparative analysis remains fully applicable.

5. Recommendations for Improvement

Addressed in v3?

- Clarify ontological commitments → **No**
- Engage with existing interpretations → **No**
- Strengthen argument against collapse → **No**
- Develop RQFT discussion → **No**
- Explain novelty → **No**

None of the recommended improvements appear in version 3.

6. Summary: How Much Has Version 3 Improved?

Substantive conceptual improvement: 0%

Stylistic/organizational improvement: ~10%

Addressing previous critiques: 0%

Version 3 is essentially a lightly edited rewrite of version 2. It corrects some phrasing, smooths transitions, and tightens sentences, but **it does not address any of the conceptual, philosophical, or interpretive issues that were identified previously.**

The manuscript remains:

- Physically grounded
- Operationally clear
- Conceptually under-argued

- Philosophically ambiguous
- Insufficiently engaged with existing interpretations
- Unchanged in its treatment of eigenstates, collapse, and RQFT

In short: **Version 3 is cleaner, but not deeper.**

Declarations

Potential competing interests: No potential competing interests to declare.