Paper 023

A Research Program for Maxwell-Compatible Projection Electromagnetism

Milestones, kill criteria, and technology transfers for a ten-paper frontier physics track

JMP0X1B Research Group

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Abstract

The existing JMP0X1B papers form a coherent track: mathematical projection models, admissible currents, scalar and boundary mechanisms, UHV null protocols, FEM discrimination, materials replication, energy-momentum closure, and practical superconducting subsystem translation. This paper turns that track into a managed research program with milestones, kill criteria, artifacts, and technology transfers. It is a governance paper for deciding what to build, what to test, and when to stop.

Status. Draft manuscript for review and revision. This paper is not an empirical claim of new physics or field-ready technology. It is a structured proposal, theory note, protocol, or application architecture intended to be auditable, falsifiable, and publishable with source.

Contents

1 Problem

A speculative program needs more than ideas; it needs staged decisions. Without kill criteria, failed experiments become ambiguous. Without technology transfer paths, practical engineering value is lost when speculative physics is excluded. The problem is to make the research program self-correcting.

2 Model

The program is represented as a directed graph of work packages. Each node has input artifacts, claims, required evidence, exit conditions, kill criteria, and downstream transfers. Theory nodes feed operator dictionaries; operator nodes feed design atlases; design nodes feed experiments; experiments feed null ledgers and engineering transfers.

$$G = (V, E), \qquad v_i = (A_i, C_i, E_i, K_i, T_i),$$

where A_i are artifacts, C_i claims, E_i evidence gates, K_i kill criteria, and T_i technology-transfer outputs.

$$\text{Continue}(v_i) = \mathbf{1}[E_i \geq E_i^{\min}] \cdot \mathbf{1}[K_i = \emptyset].$$

3 Claims

1. **Claim 1.** Speculative physics tracks should publish kill criteria before expensive experiments begin.
2. **Claim 2.** Technology-transfer outputs should be defined for both positive and negative physics outcomes.
3. **Claim 3.** The projection-electromagnetism program can mature through nulls, bounds, software, metrology, and subsystem spinouts even if no anomaly survives.
4. **Claim 4.** A research graph makes paper sequencing auditable and prevents disconnected speculation.

4 Evidence Plan

Evidence is managerial and technical. The paper proposes a milestone table for theory, simulation, lab, materials, and subsystem tracks. It includes decision gates such as gauge-consistency pass, FEM discrimination pass, UHV null bound pass, cross-lab replication pass, and engineering transfer pass. A first release should include the graph and a public revision history.

5 JMP0X1B Implementation Surface

JMP0X1B can encode the research graph as typed work packages connected to artifact digests, review gates, issue trackers, and publication pages. The graph becomes an executable research roadmap.

Illustrative JMP0X1B-style contract

```
record WorkPackage { id: Text, claims: List<Claim>, evidence: List<Gate>, kill: List<KillCrite
fn decide(pkg: WorkPackage, state: EvidenceState) -> Decision effects{Audit, Governance}
```

6 Release And Review Plan

Release a public roadmap, revision-controlled work-package schema, publication dependencies, and a table of technology outputs generated by null results.

7 Open Questions

- Which work packages should be paused until cheaper controls are complete?
- How should independent reviewers amend kill criteria?
- What constitutes enough evidence to leave speculation and enter engineering?
- How can null-result technology transfers be credited properly?

8 Conclusion

The research program paper gives the projection track a disciplined operating model. It makes failure productive and success harder to overclaim.

References

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